Exceptional Argentina

Di Tella, Glaeser and Llach

I. Introduction

Argentina began the 20th century as one of the richest places on the planet. In 1913, it was richer than France or Germany, almost twice as wealthy as Spain, and its per capita GDP was almost as high as that of Canada. Until the 1930's, people in France used the phrase *"riche comme un Argentin"* to describe the foolishly rich. Over the last 100 years, Argentina's place in the hierarchy of nations dropped precipitously, falling behind not only Europe but many of the growing countries in Asia. Governments enacted questionable policies, like very high trade barriers and widespread nationalization, long after they were economically and politically attractive. How did a nation that was doing so well end up doing so poorly?

This introductory essay summarizes the ten papers in a volume dedicated to exploring the puzzle of Argentina in the twentieth century. Section II begins by summarizing the facts. We rely, like much of the research community, on the data of Angus Maddison, but we supplement this with other sources. While there is some controversy about whether Argentina was really wealthier than Western Europe, there is little doubt that Argentina was, in fact, quite prosperous by world standards. The country certainly had much inequality, but so did much of the world. Between 1870 and 1930, Argentina experienced robust growth and remained a prosperous nation.

Between 1930 and 1970, Argentina continued growing, but at a slower pace than the world as whole. By 1975, Argentina's income had slipped to being 60 percent of incomes in France. Then after 1970, Argentina stagnated and during some years even declined. As such, Argentina certainly serves as a cautionary tale about how a wealthy country can lose its way.

In Section III of this paper, we outline four basic hypotheses about why Argentina fared so poorly in the twentieth century. These hypotheses are not mutually contradictory; in some cases, they reinforce one another. They are advanced and explored by different papers within this volume.

The first hypothesis is Argentina's early success is somewhat illusory. According to this view, Argentina did have natural resources that briefly made it rich when those resources were in high demand, but it did not share the other attributes of advanced countries before World War I. In particular, its human capital, physical capital and access to cutting edge technologies were far below those in many, poorer countries. According to this view, the decades around 1910 should be seen as a brief outlier, and Argentina post-1945 has just returned to the level of wealth implied by its core assets.

The second hypothesis emphasizes bad policies and politics. During its heyday, Argentina had a pro-growth, liberal democracy. That regime collapsed in 1929 and was replaced by a stream of different governments, some of which were highly protectionist and economically intrusive, in quite harmful ways. Others took a less interventionist approach, but were also short lived. Political instability fostered economic short-termism and policy reversals became the norm. Failures of policies and politics thus led to Argentine economic stagnation.

A third explanation of Argentina's economic malaise emphasizes the role of terms of trade shocks that were external to the economy. In the 1920s and earlier, the world placed a high premium on Argentina's agricultural output. Over the rest of the 20th century, technological advances in agriculture reduced the value of Argentina's fertile agricultural land and this led to an understandable impoverishment of a country that primarily depended on the fruits of its soil.

The final hypothesis emphasizes the lack of innovation and economic development in Argentina. This hypothesis, like the third one, also de-emphasizes politics, but it lays the blame for Argentina's woes not on external factors, like the terms of trade, but on a domestic failure to produce new ideas and new technologies. Taylor, for example, has stressed the low savings rate in Argentina as a cause of its slow growth rates. This hypothesis is linked to the first hypothesis because, presumably, Argentina's lack of economic growth reflects a lack of the core inputs into that growth during the early years of the 20th century.

Section IV of this essay reviews the ten papers in the volume. We summarize their individual contributions, but also tie them to the four hypotheses. For example, the Llach paper and the Campante and Glaeser paper both relate to the first hypothesis, arguing that Argentina may have been rich but was not yet developed. The Di Tella and Dubra paper on Perónism analyzes the persistent political beliefs that were associated with Argentina's dominant political movement during the late 20th century. Such beliefs were directly connected to disappointing performance through fiscal deficits, macro instability and low investment due to political volatility. And indirectly, by converting the low legitimacy of business into a set of commercial institutions that fostered rent-seeking instead of innovation. The Brambilla, Galiani and Porto essay documents a particular expression of such institutional distrust of the rich, namely policies dealing with the agricultural sector and more broadly the relative closing of the argentine economy. The Taylor essay explains the role of changing terms of trade. Again, this is directly related to the fourth class of explanations.

Finally, we conclude in Section V with a synthesis of the different views that summarizes the views of these authors—although not necessarily the views of the other contributors to this volume. Argentina was different at the start of the 20th century and had less education, technology and probably also weaker political institutions. Those factors then made Argentina particularly vulnerable to economic shocks, and that vulnerability led to dire political consequences. The lack of human capital also made it particularly hard to find new ways of growing throughout most the past one hundred years. Argentina's bad 20th century is surprising, but it is not inexplicable. It is the outcome of adverse shocks, and policies that responded to those shocks, impacting a country that had only natural-resource driven prosperity.

II. The Basic Puzzle

Was Argentina's growth experience during the 20th century an exceptional one? In terms of its rate of growth it certainly was, at least after the first couple of decades. Figure 1 is a good starting point for the questions posed in this book. It shows Argentina's per capita GDP expressed as a percentage of twelve rich nations' income per capita. The rise-and-fall pattern is clear beyond shorter-run fluctuations. Starting at two thirds in 1870, the share rose to around

90% at the beginning of the 20th century. After a brief crisis during World War I and recovery afterwards, a long relative decline ensued, save for a short spell in the late forties (the early Perón years) and stability –relative to the sample– in the 1960s. Relative decline accelerated after 1975, and by 1990 Argentina had reached a level of around one third of these (relatively rich) countries' per capita GDP. The two final decades suggest that in spite intense instability the downwards trends seems to have subsided, though there isn't still recovery in the income ratio with the rich.

Figure 1. Argentina's GDP as a percentage of twelve rich countries

No other country of some economic significance in 1928 –probably the final year of Argentina's own *belle époque*– took so long in doubling its per capita GDP, a feat which Argentina completed only in 2000. During the same period, the richest members of the "convergence club" (Britain, US, Canada, Belgium, Netherlands, Australia) multiplied their income by around 4 and other currently developed countries by somewhat more: Germany, France and Sweden by around 5, Italy and Spain by 6, Finland by 7 and Norway by 8 – not to mention Japan, Taiwan or Korea which grew more than tenfold. Even among the not too successful Latin Americans Argentina lagged behind: between 1928 and 2000 Brazil multiplied its per capita income by close to 5, Mexico by 4, Chile, Colombia and Venezuela by around 3. Only Uruguay (2.02) and Peru (2.08) are close to the ratio between Argentina's 2000 and 1928 per capita GDP, which is actually 1.9995.

Argentina's divergence story by the end of the twentieth century is particularly sad for a country that looked so promising at the century's dawn. In the decade of 1900, Argentina had the highest immigration to population ratio in the world –an unequivocal sign of high hopes– which didn't prevent the country from enjoying the world's highest per capita growth rate in that decade, along with Canada. As documented in Llach's paper in this book, between the eve of World War I and the twenties Argentina was very close to being a rich country if it wasn't already there; it's per capita GDP lagged behind the average of the core Western European countries and

Maddison's "Western Offshoots" by less than 20% –and sometimes by as little as 7%– between 1905 and 1929. Massive population growth and economic success combined to multiply by 4 Argentina's share in world GDP between 1870 and 1930.[1]

Disheartening and disappointing as Argentina's post-1930 performance was, does it really involve an economic puzzle? Is there any reason to believe that a country that has reached the league of the rich should remain there, or even approach the richest among the rich? The question has an empirical and a theoretical side to it. Let's formulate the empirical question with some precision. For example: are there many other examples of countries which, after reaching at some point at least 80% of the per capita GDP of the twelve originally rich[2], subsequently fell to a level consistently below 50%, as Argentina did? The list is short, and has the peculiarity that all five cases hovered around 40% of that sample by the year 2000: Uruguay (around 100% in the 1870s), plus four oil exporters: Venezuela (more than 100% in 1945-1960), Saudi Arabia (90% during the first oil shock), Kuwait and Qatar (both of them, more than 400% in the early 1950s). Three of the five are tiny, with a population less than a tenth of Argentina's. In all five cases, the high per capita GDP at their summit is definitely due to an exceptionally high availability of natural resources per person, including not only the oil exporters but also the 213,000 Uruguayans who held, each, an average of 24 cattle and 12 sheep in 1860[3].

Was that also the case for Argentina? In the next section we discuss that possibility as part of one of the hypotheses for Argentina's decline, namely, that Argentina's per capita GDP during the initial decades of the 20th century was a misleading indicator of its real wealth – in particular, that GDP was more related to land and less to physical and human capital than was the case for countries of similar income per head. We leave the full discussion of that hypothesis for the following section and for some of the articles in this volume, but it is interesting to pursue at this point the theoretical aspects of economic growth as applied to countries in which the stream of income springs, to a larger extent than the norm, from natural resources. Is there, in the neoclassical theory of economic growth, anything special going on in countries with a high ratio of natural resources to population?

If we define modern economies as those where accumulation of capital –physical and human– and technology account for all of the growth in per capita GDP, a corollary of Solow-type models is the prediction of "conditional convergence": countries with lower per capita stocks of human and physical capital are poorer; other things equal, in countries with lower stocks of both types of capital marginal productivity is higher, due to decreasing returns; then, if "institutional incentives" and other traits –such as propensities to save– are similar, poorer countries should grow faster than richer ones[4]. What are the implications of neoclassical growth theory for

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[1] All data from Maddison, in http://www.ggdc.net/maddison/, retrieved March 2010.

[2] Ie., the richest in 1900, a group including England, France, Germany, their economic hinterland (Denmark, Belgium, Netherlands, Switzerland, Austria) plus the four "Western Offshoots" (USA, Canada, Australia and New Zealand). The thirteenth was Argentina (77,7% of the richest twelve), and, after a gap, Uruguay (62,5%), Sweden (62,3%) and Chile (61,7%) followed.

[3] Uruguayan population in 1860: extrapolation from Maddison's data for 1850 and 1870 using a constant rate of growth. Cattle and sheep from Gran Enciclopedia Rialp, 1991.

[4] In addition, there could be some "technological catch up" as improving the backward technology of poorer countries requires the cheap expedient (of copy-pasting foreign techniques, rather than the more expensive process of developing new technologies.

countries with high ratios of natural resources per capita? Should we expect convergence anyway? Does conditional convergence apply independently of the factorial combination behind a certain level of per capita GDP?

Imagine two countries with a similar per capita GDP in 1910, one of them with more natural resources and less physical capital than the other, in per capita terms. Call them Argentina and the Netherlands (actually, in 1910, their per capita incomes were the same and they both had a population between 6 and 7 million). By 1910, Argentina had already reached its agricultural frontier so it's perhaps appropriate to consider land a fixed factor −though not an exhaustible one− by that time. Imagine, moreover, a similar technology and savings rate[5] and let's leave aside for the moment the question of human capital. Think of a per capita production function of the form

$$y = A.f(k,t) \qquad (1)$$

where y is income per worker, A is the level of technology, k is capital per capita and t is land per capita. Using subscripts a and n for Argentina and the Netherlands, we are saying that $y_a = y_n$, $A_a = A_n$, $k_a < k_n$ and $t_a > t_n$. At this very basic level, and considering that t depends only on population growth (because total land is fixed) should we expect Argentina to grow less than the Netherlands, more or the same? If both countries have the same savings rate and the same per capita income, and assuming they invest what they save (i.e., the closed economy case) then they would both be adding the same amount of capital to their current stock. If both have the same rate of population growth, then capital per worker will be increasing at the same rate in both countries. However, because physical capital is initially lower in Argentina than the Netherlands, if there are decreasing returns to capital then Argentina's income per worker should be growing *more* than that of the Netherlands[6]. Put differently: if natural resources play a relevant role, a resource-rich country (say, Argentina in 1910) could have higher capital productivity and thus grow more than another country which is poorer but more capital-intensive (say, Austria in 1910) − i.e., there could be divergence *favoring* the resource-rich.

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[5] Taylor (1998), though, argues forcefully that Argentina had a very low savings rate.

[6] For example, with a Cobb-Douglass production function for equation *(1)*, $y=A.k^{\alpha}.t^{\beta}$ the rate of growth is

$$g_y = g_A + \alpha g_k + \beta . g_t \qquad (2)$$

where g_i is the growth rate of variable i. The growth of land per capita is $-n$, where n is population growth. If s is the savings rate, the growth rate of capital is

$$g_k = s.y/k - (n+\delta) \qquad (3)$$

where δ is depreciation, so that (2) becomes

$$g_y = g_A + \alpha s.y/k - \alpha\delta - (\alpha+\beta).n.$$

The higher the output-capital ratio, the faster economic growth is. In our example, Argentina has the same output than the Netherlands but a lower level of capital, so −ceteris paribus− it should be growing more.

A final point on this mechanistic approach to growth: with a fixed amount of natural resources in the production function, it could appear that population growth would dilute "land" more rapidly than capital, leading to a lower rate of economic growth. That is not necessarily the case. If suddenly both Argentina and the Netherlands double their population, per capita GDP would fall by half in both cases if there are constant returns to scale, no matter what the factorial combination behind that income. Both could compensate for that increase in population by increasing capital – actually, as pointed before, Argentina could have an advantage here as it would need less investment to attain the original per capita income, as capital would be more productive there if there are decreasing returns. Higher population growth reduces economic growth with or without natural resources in the production function[7].

The message here is that there aren't obvious reasons in mainstream growth theory telling us that Argentina should have diverged from the rich as soon as incorporation of new land –a key to its earlier success– came to an end. The motives behind Argentina's decline need to be more subtle in trying to explain the dynamics of factor and technology accumulation. That doesn't exclude, of course, models in which natural resources can be a curse, in any of the many ways surveyed, for example, by Sachs and Warner (1997). Two- and three-sector models have been central to the debate on Argentina's growth difficulties[8]. Most of them touch upon the question of whether Argentina could have grown by persisting in its bet on its natural resources or if, rather, capital accumulation and technological advances necessarily required a structural transformation towards a more diversified economy – and the related question of whether that transformation would result from a market process or could only take place with government's assistance.

Models in the endogenous growth tradition do probably make a difference between Argentina and Netherlands under the conditions described above. For example: Campante and Glaeser's paper in this volume show that Buenos Aires had lower levels of physical and human capital than Chicago. In models such as Lucas (1988), the level of human capital is a significant determinant of economic growth, as the rate of increase in human capital depends on its level, through externalities. A similar story could be made of technology or physical capital. Would Argentina fit in such a model or would it still be an outlier? Can a model along such lines explain the unstable timing of Argentina's decline, with periods of accelerated divergence (the 1980s) and some of moderate convergence (the 1960s)? The answer is far from obvious.

The general point here is that even if arguments relating Argentina's subsequent development to its conditions at some point in its prosperous may be true, in any case there's nothing evident about them. In other words: Argentina's twentieth century economic performance is in fact a puzzle. There are no straightforward reasons why, contemplating Argentina in 1910 or 1928, one could predict Argentina's unfortunate divergence. It should come as no surprise that contemporary observers tended to be optimistic about Argentina's future, in 1900, the twenties or even as late as the immediate postwar.[9] An almost-rich country turned almost-poor, Argentina is

[7] And it's probably a factor of some significance to understanding Argentina's comparative decline. In 1910, Argentina's population was 2.4% of the population of the "richest twelve" (footnote 2); in 2000, it was 6.4%.

[8] The list of explanations in this vein are too numerous to be listed here. Di Tella and Zymmelman (1967) and Díaz Alejandro (1970) are two examples.

[9] One of them was Paul Samuelson: "In 1945 I was a young talented economist. I was at the height of my abilities. If someone had asked me what part of the earth would develop the fastest in the next 39 years, I would have said: Latin

a likely outlier for many theories of economic growth. In what follows we present and briefly discuss some of the hypotheses that can be advanced to account for Argentina's exceptionalism.

III. Major Hypotheses

In this section, we present some of the historical context and summarize four over-arching explanations of Argentina's painful 20th century. These explanations are not mutually exclusive, and indeed, many are closely connected. They do, however, map out much of the intellectual terrain associated with explaining Argentine exceptionalism.

Just Say No to Exceptionalism: Not Rich then; Not Poor Now

The first hypothesis is that, once we properly measure things, Argentina is not truly exceptional in any interesting economic sense. The hypothesis comes in two versions. The first is that Argentina is not particularly poor now. And the second version is that it was not truly rich at the turn of the 20th century.

The first version of the hypothesis is that Argentina is in fact richer now than what GDP figures indicate. Corrections of GDP measures are not uncommon in developing countries and Argentina is no exception, with a large upward correction implemented in the national accounts implemented in 1993. A standard rationale behind such changes is a desire to incorporate the large informal sector that arises when regulations and market limitations proliferate under a relatively weak State. An adjustment of approximately 30% of GDP for Argentina is not unusual using the "monetary method" (this number comes from Ahumada, *et al*, 2003).[10] In this spirit, some have argued that the usual approach to measure GDP has to be adjusted when the economy undergoes big changes in the number and/or quality of available products or when the tendency of consumers to substitute away from expensive products bias the price index. In this volume, Gluzman and Sturzenegger explore a related approach exploiting the change in trade regime that allowed for increased product variety during the 1990's to derive large upward estimates of current levels of GDP.

The second version of the hypothesis denying "exceptional" status to Argentina is that its initial position was far less promising than it seemed. While Argentina was relatively rich, it may not have been as rich as some studies have found and it was sorely lacking in many of the fundamental attributes of more developed nations. Its wealth was more of a temporary nature, a shock which has more in common with the booms in oil-producing nations during the 1970s than with the more permanent prosperity associated with well developed stocks of human and physical capital. Perhaps the most controversial variant of this hypothesis is the literal questioning of standard income numbers, such as those from Maddison (1983). Some have argued that Maddison overstates Argentine prosperity at the beginning of the twentieth century, in part because he underestimates the role of the expanding informal economy since the 1960's. The implied corrections, however, are significant but not dramatic: while Maddison puts Total

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America – Argentina or Chile. There is a moderate climate there and a population with European roots... I was completely off the mark." Interview for *Der Spiegel*, 28:2005.

[10] The idea, broadly, is to use an estimate of the amount of money held by agents in excess of what they need to finance official transactions (making assumptions about the relative velocity in the shadow and official economy).Another revision in the late 1990's, updated the prices used and led to a downward correction.

GDP in 1900 at 12,100 (in constant pesos; basis: 300,000 in the year 2000), the revised estimate of Gerchunoff and Llach (1998) is 10,800.[11]

Far more common is the view that while Argentina was relatively rich (see for example, Míguez, 2005), those riches didn't extend widely throughout the population and they were not accompanied by other common correlates of development. For example, Adelman (1995) and Engerman and Sokoloff (2000) have discussed the high level of inequality in Argentina at the turn of the century, particularly in the agricultural sector. According to this view, the United States managed to share land and prosperity to a much greater degree than Argentina, where large estates where far more common. As such, Argentina should be seen as a much poorer nation that managed only to enrich a tiny slice of its population.

There is little doubt that Argentina had significantly less education than many other wealthy nations a century ago. For example, the primary school attendance rate in 1910 Argentina was 48% percent of that in France and 57% percent of that in Germany, despite the fact that Argentina was 29% and 14% percent richer, respectively, in terms of per capita GDP[12]. As the Llach essay in this volume illustrates, Argentina was catching up in terms of primary school enrollment, but it remained significantly below Western Europe and far below western offshoots, like the U.S., Australia and Canada, throughout the pre-World War II period.

Just as pre-World War II Argentina seems to have less human capital than other wealthy nations, it also seems to have had less physical capital, at least if one excludes the great value of its land and livestock. The Campante and Glaeser paper in this volume compare industrial output and capital stocks in Buenos Aires and Chicago at the beginning of the 20th century. They find that there is a wide gap between the two cities. Value added per worker is far lower in Buenos Aires, and capital per worker is too. In some cases, capital per worker is more than 75 percent lower in Buenos Aires at then-contemporary exchange rates.

The lower level of human and physical capital also seems linked to a technology gap between Argentina and many other western countries, at the turn of the last century. The Campante and Glaeser paper documents that Chicago was the home of many cutting edge industries, and the site of many significant inventions (e.g. the skyscraper). The same thing could be said of Detroit (mass produced cars), New York (alternating current), Paris (radioactivity), London (subways, vacuum cleaners) and Berlin (electric streetcars and elevators) at the same time. By contrast, Argentina was primarily an importer of technologies developed elsewhere.

This hypothesis suggests that Argentina in 1910 should not be compared to other rich countries, because it lacked the key ingredients that make development durable. According to this view, Argentina was essentially an undeveloped economy made temporarily rich by an abundance of high quality land and better transportation technologies (which were again developed elsewhere).

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[11] The discrepancy occurs because early figures are estimated working backwards from current estimates (using growth rates) and there where upward corrections to GDP numbers in the 1990's. Note that the revised estimates of Ferreres (2005) are very similar to those of Maddison. For the period before 1900 things are even sketchier; the best available estimates come from Della Paolera (1988) and Cortés Conde and Harriague (1994).

[12] Data from Peter Lindert's database:
www.econ.ucdavis.edu/faculty/fzlinder/Lindert%20data%20CUP%20book/App._T._A1__primary_enrol.xls

As such, it isn't surprising that Argentina had a bad 20th century—it just reverted to form. In a sense, the other hypotheses can be understood as explaining the channels through which Argentina's lack of early 20th century resources resulted in less economic development.

Bad Politics, Bad Policies

There is some dispute as to whether Argentina was behind other advanced countries in 1900 in the state of its political development. Its policies, which seem to have preserved a reasonable amount of rule of law and which allowed free trade in goods, capital and people, seem to have been quite benign. Politically, Argentina was a republic, albeit one with a limited franchise until 1912, and strongly empowered local landowners. But there is no question that Argentina had significant political instability over the 20th century, and enacted many policies that seem to have been harmful for growth. The second hypothesis is that these problems are responsible for Argentina's economic malaise.

It is perhaps useful to briefly describe the historical context for such political instability. An important event is the 1916 election of Hipolito Yrigoyen, which replaced the conservative regime by the Radical party, and also brought into the country's political life a large portion of the middle class. This was the beginning of a dramatic change in the way the country would be governed. The *Radicales* would wield power until 1930. While it is true that Yrigoyen enacted some policies, like minimum wage laws, that some economists would argue are detrimental to growth, there is little evidence that Argentina suffered during this period. The real watershed seems to have been in 1930, when a military coup brought down Yrigoyen's second government. Argentina's "returned to democracy" with the 1931 election, where the radicals were banned from participating. As the great depression impacted world trade, a more conservative regime was put in place by an elite-dominated coalition known as the "Concordancia". It soon began Argentina's turn inward by implementing more interventionist policies: public works were started, import duties were increased and a system of multiple exchange rates favored industrial activities (over agriculture). The resulting industrial growth led to some migration of rural workers to urban centers and to a changing composition of labor organizations. Real wages remained stagnant while the perception of concessions to foreign trading partners, principally Britain, irked nationalist sentiment.

A 1943 military coup named Juan Domingo Perón to the hitherto harmless post of secretary of labor and social welfare. From there, Perón enacted a comprehensive set of pro-labor laws that included a scheme to establish and periodically adjust minimum wages, often leading to increases in real terms; yearly paid vacations; retirement and health insurance benefits; and an annual mandatory bonus equal to an additional month's salary. He also instituted the Agricultural Worker Statute (*Estatuto del Peon*) in late 1944, which outlined the specific rights and obligations of both rural workers and employers and was perceived as a defiance of the landed elite. In 1945, he enacted the Law on Professional Associations, which gave his Labor Secretariat veto power on the formation of new unions. By the end of his tenure, Argentina had advanced to a world leader in labor legislation (see for example, the description in D'Abate, 1983). The nine years of Perón's presidency starting in 1946 witnessed intense political polarization. Perón enacted policies that eventually antagonized the rich. He continued a set of pro-union policies: between 1946 and 1954, union membership increased from 880,000 to 2.5 million, which represented 42.5% of all workers (see for example, Smith, 1991). He also

nationalized railways and banks, took public control over the grain trade, engaged in protectionism and chose not to join international institutions like the General Agreement on Tariffs and Trade. In 1955, he was ousted in yet another military coup.

The period from 1955 to 1983 was marked by frequent switches from military to civilian rule. The periods of military rulers were 1955-1958, 1966-1973 and 1976-1983. There were elected leaders during the other periods, although typically terms were short and occasionally still dominated by military influence, which tended to suppress labor (the labor share typically dips after a military coup). Often the policies continued to emphasize economic independence over export-led growth. Sometimes, as under President Frondizi, policies encouraged economic openness. But the combination of restrictions on the labor movement and burgeoning nationalism with a set of governments that were not fully democratic called into question the legitimacy of the system. An attempt to co-opt a pragmatic faction of the union leadership under the notion of "Perónism without Perón" ended with a radicalized opposition. In 1969, a riot in the city of Córdoba left 14 casualties and created a crisis in the military leadership. An urban guerrilla movement that reached 5,000 at its zenith in 1975 became increasingly violent (see, for example, the estimates presented in Moyano, 1995). Political assassinations, kidnappings of businessmen, intimidation, and chaos became common as the "dirty war" began. In 1975, one political death took place every 19 hours (Goti, 1996). After 1976 coup, the military repressed the insurgents through illegal means which included torture and the forced disappearance of approximately 9,000 people without trial.[13] The economic performance of the military administration was also poor. Market reforms were introduced and a stabilization plan led to a massive overvaluation of the exchange rate. An economic crisis ensued as Argentina joined the Latin American debt crisis in 1982.

Since 1983, Argentina has functioned as a stable democracy, with perhaps the exception of the 2001-2002 period where political change was set off by widespread riots. Three figures—Alfonsin, Menem and Kirchner—have dominated much of the last 30 years. Yet despite these significant political improvements, policies have continued to oscillate, with Menem presiding over a set of privatizations and market reforms that were somewhat reversed by the subsequent administrations. While growth has picked up during parts of this period, the overall performance remains lackluster. Given this background, a reasonable hypothesis is that political instability has directly affected performance (Diaz Alejandro (1988) makes a similar point on Argentina's performance during 1970s). And others (see the contributions in this volume by Taylor, Brambilla, Galiani and Porto and by Di Tella and Dubra) have argued that instability led to policy choices which diverged from those selected in more advanced countries (either because political beliefs differed or because choices were constrained by the particular Argentine political configuration, as in Galiani and Somaini).

Shocks, external and internal

[13] This is the estimate provided in the report by The National Commission on the Disappearance of Persons (*Comisión Nacional sobre la Desaparición de Personas*, CONADEP). Given the absence of legal, documented trials, these estimates are often questioned.

Another major hypothesis emphasizes events outside of Argentina's control that produce its divergence from the world's leading economies. One hypothesis emphasizes a class of shocks originating in the world economy adversely impacting the country's trade possibilities. The fourth hypothesis focuses on internal shocks, involving adverse effects on its industrial development, such as the absence of technological discoveries, or the presence of positive shocks in sectors that competed for resources with industry (but still failed to generate sustainable growth). These hypotheses are quick to involve mistaken policy reactions, or perverse political dynamics, but they emphasize more the initial exogenous shock.

Perhaps most famously, Raul Prebisch argued that there was a long run trend in the terms of trade, between the 1870s and the 1930s, that adversely impacted primary goods producers such as Argentina. (Indeed, such policies provided intellectual fodder for Perón's state-sponsored industrialization.) More recently, Hadass and Williamson (2003) confirm Prebisch's evidence on the terms of trade, but suggest that Argentina was not really adversely impacted by declining terms of trade until the 1920s. The Llach paper in this volume also documents a sharp decline in the terms of trade in the years after World War I.

In the late 1920s, foreign markets for Argentine products stabilized, but the situation again deteriorated during the global downturn during the 1930s. During those years, Argentina was simultaneously struck by a decline in their global customer's income and a renewed enthusiasm for tariff protection. World War II boosted demand for Argentine produce, but then again after the war the terms of trade again declined. During the 1950s, Argentina again faced a dramatic decline in its terms of trade (Cavallo and Mundlak, 1982) and significant obstacles to developed markets, as agricultural products lagged behind in the reconstruction of a multilateral trade regime. Only recently have terms of trade recovered somewhat from a long run downward trend. Understanding the nature (for example, temporary vs. more permanent) of changes in relative prices would have been then important for policymakers, even in the unlikely case of little distributional strife. As stressed by several authors, basic trade models emphasizing the possibility that some factors of production are made worse off by trade (like Stolper-Samuelson) find straightforward application to the case of Argentina. This is sufficient to some of the support received by protectionist policies (see Diaz Alejandro, 1988) and documented in the Brambilla, Galiani and Porto chapter. Even though the ideas behind the Stolper-Samuelson theorem explain the increasingly pronounced urban-rural political cleavage seen in the aftermath of the Second World War; they do not explain the process of integration into world markets, nor the long persistence of isolation undergone by Argentina. Galiani and Somaini show that these processes can be understood once one adds a non-tradable sector and frictions in the mobility of capital across sectors. Indeed, an underlying theme of this chapter is the importance of connecting the economic shocks that affect the country with the political dynamics they engender.

As Engels noted, increasing income typically accompany a reduction in the share of incomes spent on food, which means that purely agricultural economies should be expected to become a smaller share of the global economy as the world gets richer, which would typically mean seeing lower levels of income growth unless the country transitions into manufacturing or services. Moreover, some technological improvements, like the Green Revolution, seem to have increased the productivity of once less productive areas and that may have reduced the value of initially more productive areas, like Argentina. Protectionism and the growing anti-export bias of the

country interacted with initial conditions (for example the relatively small size of the country's internal market) to drive firms towards rent seeking and corruption. Slowly, the best business was not to be productive and sell goods abroad, but rather to lobby the government for State contracts. The Di Tella and Dubra chapter provides a glimpse of how some of these changes were interpreted by one of the main political forces (Perónism). Thus, there is surely some truth to the notion that global economic changes helped contribute to Argentina's relatively slow rate of growth during the 20th century. However, this hypothesis begs the question as to why Argentina did not move more quickly into other non-agricultural products. After all, every nation was at one point dominated by agriculture. The United States was, and like Argentina remains, an agricultural power. Yet other nations were able to transform themselves. The puzzle becomes ever tougher because from the 1950s onwards, Argentina's leaders where dedicated towards pushing the country towards industrialization and development. Yet Argentina failed to evolve in a powerhouse in either industry or the sophisticated services that have become increasingly important in the last two decades.

Argentina's experience has also been characterized by a failure to develop into a significant industrial powerhouse, with little technological innovation and what appears to be relatively slow managerial progress. While Argentina was as rich as much of Europe as late as 1950, European countries managed to grow much more rapidly, primarily through the development of industry. Even more remarkably, East Asian economies, such as Japan and Korea, which were far poorer than Argentina through the 1960s, managed to dramatically pass Argentina carried on a wave of export-led growth.

On one level, there can be no doubt that Argentina failed to follow the path of industrial exports on which Japan, Korea and Italy became rich. Certainly, Argentina failed to export significant industrial products and certainly, the nations that became industrial powerhouses also became rich. But why did Argentina fail to modernize along that dimension. One view is that the Argentina failure reflects bad politics and policies, as suggested by the second hypothesis. An alternative is that other, more economic, forces held Argentina back.

For example, Alan Taylor (1998) has argued that Argentina's low savings rate is responsible for its lackluster rate of growth. Over the past fifty years, the average savings rate as percent of GDP in Argentina was 21 percent. Germany and France averaged about 23 percent, in Austria 25 percent, and Switzerland close to 30; savings rate in Japan was about 32 percent. These differences could account for some of the growth gap between Argentina and the rest of the world. There was also a significant difference in human capital accumulation levels as well. According to the Barro-Lee data, average years of schooling in Argentina increased from slightly under five years in 1960 to 6.6 years in 1980 and 8.5 years in 2000. The "advanced country" average in their data set is more than seven years in 1960, 8.86 years in 1980 and 9.8 years in 2000. Japan had 6.8 years of schooling in 1960, when it was still considerably poorer than Argentina, 8.2 years in 1980 and 9.7 years in 2000. Given the strong connection between growth and human and physical capital accumulation (Mankiw, Romer and Weil, 1992, Barro, 1993), perhaps Argentina's lackluster growth performance isn't that surprising.

Moreover, there is evidence to suggest that technological innovation has also been fairly slow in Argentina during the last forty years. For example, the United National Industrial Development

Office classifies the share of manufacturing value added accounted for medium and high technology production.[14] In 2005, 25.7 percent of Argentina's manufacturing value added came from these more sophisticated operations as opposed to 41 percent in Canada and 61 percent in Germany. The share of medium and high technology production in manufacturing exports in 2005 was 31 percent in Argentina, 57 percent in Canada and 72 percent in Germany.

Of course, this theory then requires an explanation for why Argentina failed to save or develop new technologies. This could reflect initial conditions (as in hypothesis one) where low levels of initial schooling led to less schooling and less technology later on, or bad political outcomes, or other events that are specifically economic. In the first two cases, this hypothesis is really an extension of hypothesis one (initial wealth was illusory) or hypothesis two (bad politics and policy). Only if these economic events were independent does this become a true-stand alone hypothesis.

IV. The Plan of the Book

This volume has four sections, examining different aspects of Argentina and of the hypotheses discussed above. We begin with two essays about Argentina at the dawn of the twentieth century—these attempt to understand the pre-conditions that might have set Argentina on a different path than the other wealthy nations of the west. We then include three chapters on Argentina's place in global economy. These essays describe the changes in Argentine trade, explore why those changes occurred and then discuss how much this mattered for growth. The third section of the book explores Argentine politics, particularly Perónism, income inequality and the relative degradation of Argentine institutions over the twentieth century. We end with an essay about growth in incomes over the last 20 years.

The two chapters on Argentina in the early 20th century apply two different perspectives to the country's economy. Lucas Llach's essay, the next chapter in the volume, contains a widespread examination of Argentina's economy before 1930. The core point of the chapter is that Argentina was rich, but not really developed. Like Middle Eastern oil economies over the last 30 years, Argentina enjoyed the prosperity brought by enormous natural resources, but did not have other attributes, like education and machinery. Llach, however, also shows that investment was increasing during the 1920s, which suggests that without the global downturn of the 1930s, Argentina might have ended up far more like the United States or Canada.

The following Campante and Glaeser essay applies different methods but arrives at roughly similar conclusions. That essay contains two different parts. The first part focuses on two cities—Buenos Aires and Chicago. These two places looked extremely similar in 1900 and played similar functions in the economies of Argentina and the American Midwest. Yet there were significant differences in the two cities, even in 1900, for Chicago was far more educated, far more capital intensive and clearly on the world's technological frontier.

The paper's second section is a coarse statistical exercise that asks whether Argentina's economic growth between 1900 and 2000 can be "explained" by the country's attributes as of

[14] https://www.onudi.org.ar/fileadmin/user_media/Publications/IDR_2009_print.PDF

1900. As there is an extremely strong connection between education and growth over the 20th century, Argentina's relatively low level of education as of 1900 can explain most of Argentina's poor growth performance over the century. The statistical exercise also suggests that the strong connection between education and growth, both across the world and in Argentina, may reflect the fact that lower levels of education are related to dictatorship and political instability, which in turn seems to hamper economic prosperity. But while Argentina's 20th century economic experience is not all that surprising, given that its early prosperity was not accompanied by other forms of development, that fact still doesn't really answer the key question—what went wrong?

Argentina's prosperity in 1900 was intimately related to its role as a great global exporter, so any examination of the Argentina economy must pay significant attention to Argentine trade. The second section of this book focuses on trade and begins with Alan Taylor's chapter, which assesses the overall roll that trade played in Argentina's economic progress. Using a standard, open economy model, Taylor suggests that a 50 percent increase in trade costs should have reduced Argentina's income by about 20 percent in the long run. That reduction is primarily due to the high cost of important inputs into production. While this is not far from the whole story, it does emphasize that trade is an important component of Argentina's missing prosperity, a theme of several of the chapters in this book.

Taylor also performs some illustrative calculations that suggest that under-investment in capital has been an important component of Argentina's slow growth. According to some estimates, the marginal product of capital may be twice as high in Argentina as in the U.S., which suggests that Argentina's incomes might be 25 percent lower because of missing capital. Taylor then points us to political factors, such as instability, which may have led to this underinvestment in capital.

The second essay in the trade section, "Sixty Years of Solitude" by Brambilla, Galiani and Porto, examines the changes in openness in Argentina over the century. They document three clear epochs in 20th century Argentine history: an early era of openness until 1930, a subsequent sixty year period of relative economic isolation and a post-1990 opening of the economy. Between 1929 and 1940, the share of exports plus imports relative to Argentine G.D.P. dropped from almost 40 percent to below 15 percent.

The decline of trade during the 1930s reflected both external shocks—a global depression—and trade policies, like substantially higher policies. Gradually Argentina adopted a series of import substituting policies aimed to strengthen its domestic producers, and these seem to have cut the country further off from the global economy. These policies were only dropped in the 1990s, when their failure had become too obvious to ignore. This emphasizes another theme of Argentina's missing prosperity: the selection of policies often contributed to the country's economic predicament.

The third paper in the trade section, by Galiani and Somaini, attempts to make sense of this long period of solitude arguing that there is path dependence in trade policies. With favorable terms of trade, the economy is dominated by agriculture and services and there is a consensus for free trade. Adverse shocks to the country's trade possibilities ignite an industrialization process oriented towards the domestic market, but after the shocks subside the consensus for free trade is broken. Vested interests in the manufacturing sector benefit from and support protection for their

output. The size and power of these interests increase as anti-trade policies are enacted and the sector grows. According to this view, Argentina essentially got caught in an anti-trade trap: adverse trade shocks created sectors that supported protectionism which became more powerful as the country became more inward oriented.

If this anti-trade trap impoverished the nation, even as it benefitted particular industries, then we must understand why Argentina couldn't produce a beneficial political bargain. Indeed, one explanation for why Argentina got caught in this trap and other countries did not is that Argentine political institutions were too weak to produce a welfare-enhancing bargain. Galiani and Somaini contrast the Argentine liberalization process with the Australian, where the protected industries received other, less socially costly, benefits in exchange for accepting lower trade barriers. According to this view, there are several layers of interactions between shocks and policies. In particular, Argentina's trade policies are intimately connected to the external shocks and the relative strength of the different political coalitions that emerge, given the country's institutions. Accordingly, the third section of the book turns to Argentine politics.

Perónism has played a central role in Argentina since the early 1940s, and the Perónist *Justicialista* party has dominated both the legislature and the executive branch of government since 1989. But what is Perónism? And what does it imply for policy selection? Di Tella and Dubra begin by analyzing the speeches of Juan Perón in the 1940s. They find that a core aspect of his rhetoric is that neither luck nor individual effort is responsible for people's economic outcomes. Instead, Perón argues that people's poverty reflects the actions of outsiders, who are often nefarious in purpose. Perón's rhetoric, of course, served to justify his actions, including trade barriers (which supposedly protected Argentina against malignant foreign forces) and nationalization (which handled the malefactors within the country). But this worldview seems to have persisted in Argentina, even though it is no longer particularly associated with the Perónist party.

Di Tella and Dubra find that most of Argentina's electorate is on the left of the political spectrum: both Perónist and non-Perónist voters are more likely than American Democrats to say that poverty reflects not laziness but an unfair society, and of course, far more likely to hold those opinions than American Republicans. Interestingly, within Argentina, the Perónists are no longer the party with particularly leftist ideas. The non-Perónists, who are typically wealthier and better educated than the Perónists, are even more likely to have "leftist opinions" like the country is run by a few big interests.[15] The ideas that Perón espoused in the 1940s, that minimize the role of individual autonomy, have become ubiquitous in Argentina and even more common among the opponents of Perónism.

The second paper, by Alvaredo, Cruces and Gasparini in this political section looks at the reality tied to these beliefs: Argentine income inequality. They have put together comprehensive tax-based data on incomes earned by the population as a whole and the by the richest Argentines. Through the early 1940s, Argentina remained a stunningly unequal nation. The richest one percent of the population earned 25 percent of the country's income, which is far higher than the U.S. even during the Great Depression. There was some reality behind Perón's complaints.

[15] Perhaps the Argentine counterpart of what Tom Wolfe called "radical chic", reflecting on a fundraising party for the Black Panthers at Leonard Bernstein's Park Avenue duplex.

Between the 1940s and 1970s income inequality in Argentina plummeted, and by the 1970s Argentina was no more unequal than other developed countries. Over the last 30 years, Argentina income inequality seems to have risen substantially, even more than other countries like the U.S. One interpretation of these facts is that Argentina's mid century policies achieved a very real objective—reducing inequality. Unfortunately, they also seem to have done so at a significant cost.

The final paper in the political section by Boruchowicz and Wagner examines the changing nature of Argentina's political institutions, and particularly the police force. A weak judicial system is at least a plausible explanation for the low investment levels suggested by the Taylor essay. Burochowicz and Wagner start by presenting a wide range of data suggesting that Argentina has a policing problem. People say that bribing is common and effective. People say that they don't trust the police. Argentina's policing problem appears particularly severe when the country is compared to its near neighbor: Chile.

But Argentina doesn't always seem to have had worse policing than Chile. At the start of the 20th century, Chile seems have had a corrupt and ineffective police force, while observers noted the relative competence of Argentina's police. Boruchowicz and Wagner take us through the reforms that gradually improved Chile's police force, which started in 1927. Many of these were specifically intended to reduce corruption, like rotating police across areas. These reforms were not unknown in Argentina, but it seems as if Argentina's leadership lacked the political strength to put them through. Rather than create a competent and strong police force, Perón, for example, seems to have lacked the political power to change policing. Argentina's decentralized political power may also have slowed reform and keep Argentina on the path towards "institutional decay."

The last research paper in this volume considers the growth of Argentina since liberalization in the 1980s. Many critics have argued that despite the economy's opening, growth has been lackluster. The paper by Gluzmann and Sturzenegger challenges this view. They present data suggesting that price indices have been badly mismeasured over the past 25 years, and in particular, prices have not been corrected adequately for the improvement in product quality.

Using data on food consumption, they provide suggestive evidence showing that Argentina has actually gotten much wealthier since liberalization. This provides a somewhat upbeat ending to the book. If their conclusions are correct, then Argentina did really turn the corner in the 1980s and is now headed for a significantly brighter future.

V. Conclusion

The 20th century economic history of Argentina is a great drama filled with momentous actors, like Perón, and seemingly full of missed opportunity. The trade essays in this volume leave little doubt that barriers were quite costly to Argentina's economy. The Taylor essay strongly suggests that other policies, including the institutional decay discussed by Boruchowicz and Wagner, were similarly problematic.

Yet Argentina in 1900 was not America or Canada. It faced constraints and problems that were not so prevalent in these other wealthy countries. Argentina had less education, a less well developed industrial sector and far more inequality. Throughout the world, these country characteristics have often been associated with costly policies that seem to deter economic performance. Education seems to support democracy, and extreme inequality is practically an invitation for redistribution that reduces the incentives to invest. This doesn't mean that Argentina couldn't have done better but that a starting fact explaining Argentina's exceptional underperformance is that the true starting level of wealth, broadly measured, is considerably lower than what has previously been assumed. It certainly was lower than what Parisians of the 1900's meant when they moaned "*riche comme un Argentine*", which means that at least some of her "failures" are comprehensible.

But a lower starting point does not fully explain Argentina's predicament. To make further progress we need to give some role for the country's odd choice of policies over the years. Accordingly, several essays in this volume describe how a succession of Argentine governments picked policies that appeared not to be designed to maximize growth. At one level, voters came to believe that the rich elites were not particularly productive and caring and came to demand policies that harmed them. Populism and political instability ensued and private investment suffered. Thus, another part of the argentine underperformance is explained by voter's beliefs regarding the unproductive Argentine elite and how they become rich through corruption and favoritism instead of hard work and creativity. Note how this introduces the possibility of poverty traps: a shock may lead people to believe that the rich are just lucky and that the poor are simply the product of an unfair society. This leads voters to demand policies that correct this and to redistribute some of that "unfair" income. Perón's popularity is in part explained by these forces as well as by the initial economic success of his interventionist policies. Interestingly, such policies might introduce a vicious cycle particularly in a country such as Argentina where there is also government failure and administrative corruption, leading to further demands for intervention and redistribution. Of course reforming the corrupt government is one force that eventually comes into play. But it is possible that anger against the rich who benefited from those corrupt policies is a powerful, persistent force leading people to vote for interventionist policies that are designed to bring about "fairness" rather than maximize material income.

Several of the essays in this book focus on one specific policy: protectionism. One reason is its central importance in the country given its proven ability to export primary products from an early stage. Another reason is that successful firms in a closed economy soon find that they can cover the internal market. If exporting is not attractive they quickly turn to exploiting their connections selling to the government, fostering the perception that they have been unfairly helped. Thus, a closed economy is particularly receptive to anti-capitalist rhetoric. Accordingly, the essays in the book emphasize the role of external shocks and policy choices leading to the remarkable reversal of the laissez faire, low tariff regime by the middle of the 20th century.

While such a policy shift was not uncommon, particularly in Latin America, both its economics and its political economy were somewhat more perverse in the case of Argentina. First, as underscored by Galiani in this book and Gerchunoff and Llach (2009), in an argument going back to Díaz Alejandro (1970), Argentina's peculiar endowments (labor scarcity plus comparative advantages in food) made protectionism a political winner, as it raised real wages,

particularly in terms of food consumption. Argentina lacked, however, both the scale and the factor endowments for a successful inward-looking, autonomous industrialization. Argentina's incomplete postwar industrialization, dependent on foreign inputs and capital goods, soon stalled against the foreign exchange constraint imposed by stagnant exports. Starting in the 1970s, the benefits of a more open trade policy were superseded by the perils of real exchange rate appreciation, in a context where external indebtedness served to compensate in the short run for the distributional effects of trade openness. Those attempted shortcuts to economic prosperity were understandable in a country anxious to regain its former luster, but ended up contributing to two major debt crises, in 1981 and 2001.

The essays in this volume develop these ideas and point to powerful path dependence in policies and institutions and even in beliefs. The past often exerts a heavy hand. For much of the past 50 years, history was a curse, but two decades of progress has hopefully reduced that curse. Looking forward, we cannot help but hope that Argentina's 20th century problems will soon be overshadowed by a far more prosperous future.

CHAPTER ONE

Newly Rich, Not Modern Yet: Argentina Before the Depression

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Abstract. I address in this paper several exceptionalities of Argentina's pre-Depression experience. First: its level of development, as captured by dimensions other than GDP per capita, was not as high as its rank in per capita income, consistently #11 or better, held during 1905-1930. Second, its record growth in 1870-1914 was, to some extent, a one-shot affair: the appearance of a new transport technology (railways) allowed for the incorporation of agricultural lands previously unused or dedicated to low productivity ranching. In terms of factor accumulation, the increase in the land-labor ratio accounted for most of Argentina's convergence. The experience of the 1920s suggests that a change towards a more capital intensive economic structure was beginning to take place. Yet, Argentina's pre-Depression peculiarities posed some questions for its future development. Given the limits on natural resources and its dilution through massive migration, subsequent growth depended on physical and human capital accumulation, two dimensions in which Argentina departed somewhat from the rich countries of the day.

1. Introduction

Argentina is, arguably, the only country to have entered and abandoned the First World in the modern era. If, for example, admittance to the club of the rich is granted when GDP per capita trails by less than 20% the top countries' income, Argentina belonged to the club between 1903 and 1930. During that period, the ratio between Argentina's per capita GDP and the average income of the three big industrialized European (England, France and Germany) and the two early success stories outside Europe (Australia and the U.S.) was steadily over 80%, except during a couple of years in World War I. The ratio reached as much as 90% right before the Great War and was still hovering around 83% on the verge of the Depression[1]. By the end of the twentieth century, the ratio to that same group had fallen to 39%. In terms of ranking, taking into account the 53 countries in the Maddison database with pre-Depression GDP levels, Argentina fluctuated between positions #7 and #11 every year between 1903 and 1929 except for 1916 and 1917 (Appendix, Table A. 1 and Figure A. 1). Leaving periods of world wars aside, none of the countries that made it to the top ten at some point in the 20th century subsequently fell below the median rank (#27), as Argentina did in 1989-90 (#29).

[1] Data from Maddison (2006).

Even before the 2001 crisis, Argentina was #26 among those 53 countries. An Argentine exceptionalism does exist.

The literature on the reasons behind Argentina's decline is abundant. Quite naturally, most of the work on the "Argentine failure"[2] emphasizes internal or external economic conditions that turned for worse around or after whatever date is considered as the starting point of decay, whether it is 1913, 1930, 1946 or 1976. An exceptional combination of unfavorable international developments, policy mistakes or institutional failures starting around the infamous date is deemed responsible for Argentina's exceptional fall from economic prominence. In this piece I try to answer a different question: Was there also some Argentine exceptionalism going on before economic decline took hold of Argentina? Was Argentina rich in the same way as other countries in the top-ten were rich? Were those peculiarities related, in any sense, to Argentina's later decline?

To approach those questions I first try to identify the timing of maximum prosperity. I take into account not only per capita GDP but also other marks of economic performance, as well as the country's story of factor accumulation. In Section 2, I outline Argentina's economic trajectory as measured by its per capita income relative to a sample of countries, and find for two main breaks in its convergence-divergence story, in 1930 and in 1975. I complete the picture with some measures of regional performance, key to understanding the very nature of Argentina's economic structure. In addition, I present several dimensions of welfare other than per capita GDP (including stature, access to education, life expectation and income distribution) and argue that Argentina's standard of living in relation to other countries peaked around the late 1920s.

Argentina's standing on the verge of the Depression is quite impressive considering its much more humble position half a century before. In Section 3, I describe that process of growth in terms of factor accumulation responding to a technological shock, namely, the precipitous decline in transport costs. Argentina benefited disproportionately from railways because the high volume-to-value ratio of cereals (the star of Argentina's export boom) meant that a decline in freight rates had a particularly intense impact on profitability (compared, for example, to countries with mineral exports and even exporters of tropical products of higher specific value such as coffee or sugar). Under the old transport technology, it just wasn't profitable to use distant lands except for less productive ranching activities. The incorporation to agricultural production of the Pampas, reached by a rapidly extending railway system, led to a steep increase in land to labor ratios until the early twentieth century, in spite of massive immigration. This extensive growth goes a long way in explaining the supply side of Argentina's export boom.

The 1920s present a somewhat different picture. As noted by Di Tella and Zymelmann (1969), a further extension of the frontier just wasn't an option after World War I. In other words: the geographic effect of the new transport technology (ie., stretching the rail lines to yet unsettled agricultural lands) had almost entirely faded out. With continued immigration, the land/labor ratio declined and during the 1920s the volume of exports per capita only managed to recover the ground lost in World War I. However, data on machinery imports –both for agriculture and for industry– show an impending structural transformation in terms of factor accumulation under way during the 1920s. Argentine production was becoming

[2] Míguez, Eduardo (2005).

more capital intensive, through both product substitution between sectors of diverse capital intensity and factor substitution within each of those sectors. I end Section 3 by discussing whether and how the novelties of the 1920s (a static agricultural frontier, worsening terms of trade) can help understand such a factorial switch in Argentina's economic structure.

In Section 4 I address the question of the sustainability of Argentina's prosperity. I maintain that the factorial composition of national wealth (intensive in natural capital, less intensive in human and physical capital) presented some peculiar problems for Argentina's subsequent development. Natural capital, more important in Argentina than in other rich countries, was being diluted through the highest immigration rates in the world. And relatively lower levels of human and physical capital may have implied some disadvantages for factor accumulation compared to countries with a similar income level. It is hard to say whether Argentina was doomed to a subsequent decay in any state of the world. This was a fairly rich economy by the standards of the day in the midst of a structural transformation. Argentina was becoming a more modern –ie., capital intensive– agricultural exporter while it was developing its import-competing manufacturing industries. Unfortunately, that modernization was cut short, first by the depression of world trade and soon by an extreme trade policy reaction that would remain in place even in the less unfriendly international conditions of the postwar decades.

2. Was Argentina Ever Rich?

As mentioned in the introductory essay to this book, Argentina converged to the rich in the late 19th, early 20th century, and reached around 90% of the rich countries' per capita GDP. Was Argentina really a rich country, in a broader sense of the word, by 1929? What about other dimensions that are typically considered as being characteristic of developed countries? Was Argentina not only rich but also "modern" – ie., did Argentina show (i) welfare indicators in line with its level of income and –connectedly– (ii) an economic structure with fundamental factors that made its income position sustainable, rather than a consequence of temporary events such as transitory natural resource boom? In this section I weigh some measures of national prosperity beyond income. In the Section 3 I describe Argentina's growth before the Depression in terms of factor accumulation, to detect whether there was something special behind Argentina's high standing in terms of per capita GDP.

Let's consider first some deeper markers of prosperity[3]. Peter Lindert's data on human capital[4] allows for a broad picture of Argentina's comparative standing in education (Figure 2). The primary enrollment rate (613 per 1,000 aged 5-14) was in 1930 way below that of the Western Offshoots (935) and significantly lower than in Northern Europe's (744). It was closer to Scandinavia's (688), somewhat above Southern Europe's (557) and clearly higher than in other Latin American countries (382)[5]. The increase in educational attainment during the half-century before the Depression is quite impressive: in 1880 the figure for Argentina was just 143, implying a 470 point increase in 1880-1930. In the Western Offshoots,

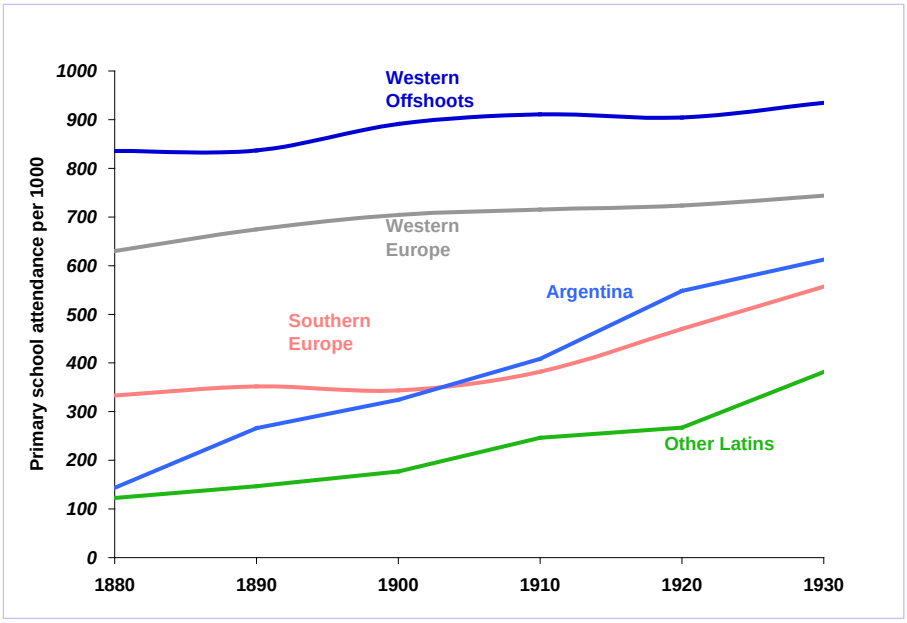
[3] Eduardo Míguez has recently argued, precisely, that these deeper markers of wealth (particularly, human capital) were scarcer in Argentina than what was warranted by her national income. Míguez (2005).
[4] www.econ.ucdavis.edu/faculty/fzlinder/Lindert%20data%20CUP%20book/App._T._A1__primary_enrol.xls
[5] Western offshoots: average of USA, Canada, Australia, New Zealand. Northern Europe: Belgium, France, Germany, Netherlands, UK. Scandinavia: Denmark, Finland, Norway, Sweden. Southern Europe: Greece, Italy, Portugal, Spain.

Scandinavia and Northern Europe the increase was between 100 and 130 points, and 220 in Southern Europe.

Two conclusions emerge from educational data. On the one hand, as shown in Figure 3, Argentina's #11 rank in GDP per capita wasn't matched by its international standing in access to education. Argentina is #19, below the top-10 in the per capita GDP list and eight countries with lower income: Ireland, Sweden, Spain, Norway, Austria, Germany, Czechoslovakia and Greece[6]. On the other hand, Argentina was quickly improving educational access throughout the 1920s. This human capital dimension suggests that we should keep the 1920s on the convergence side of Argentina's fortunes.

Data on life expectancy present a similar picture[7]. At 52 years, Argentina's life expectancy stood #18 in the world around 1930 The only difference with the schooling list is that Argentina is ahead of Spain, Greece and Czechoslovakia but trails Finland and Italy. Heights –another measure of biological welfare– are harder to compare because of differences in the exact age of samples and diverse methods of correcting end-tail problems. With a mean of 169.5 centimeters for the 1930 birth cohort, Argentine conscripts analyzed by Salvatore (2004) are indeed higher than Mexicans (165cm according to López Alonso and Porras Condey, 2003), Spaniards from Elche (165.1, Martínez Carrión and Pérez Castejón, 1998) and Italians (167.1, Floud 1994), but lower than most countries in Floud's survey, such as Belgium (170.3), Switzerland (171), Germany (171.6), the Netherlands (173.8), Denmark (173.9) and Norway (175.8)[8].

Figure 1. Educational attainment



[6] For this sentence, Lindert data was complemented with the more complete coverage of Beavot and Riddle (1988).
[7] Acemoglu and Johnson (2006).
[8] Linear projection for 1930 from estimates surveyed by Floud (1994).

Figure 2. Educational attainment and per capita GDP

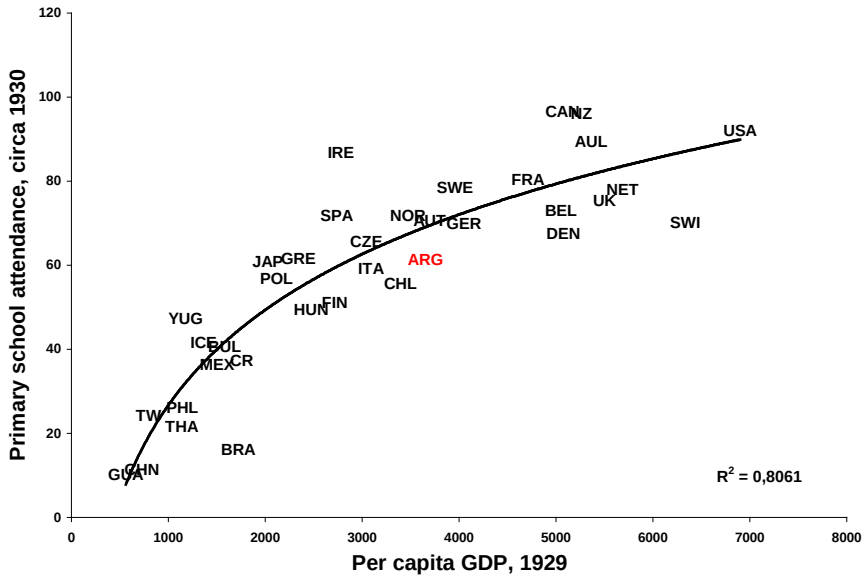
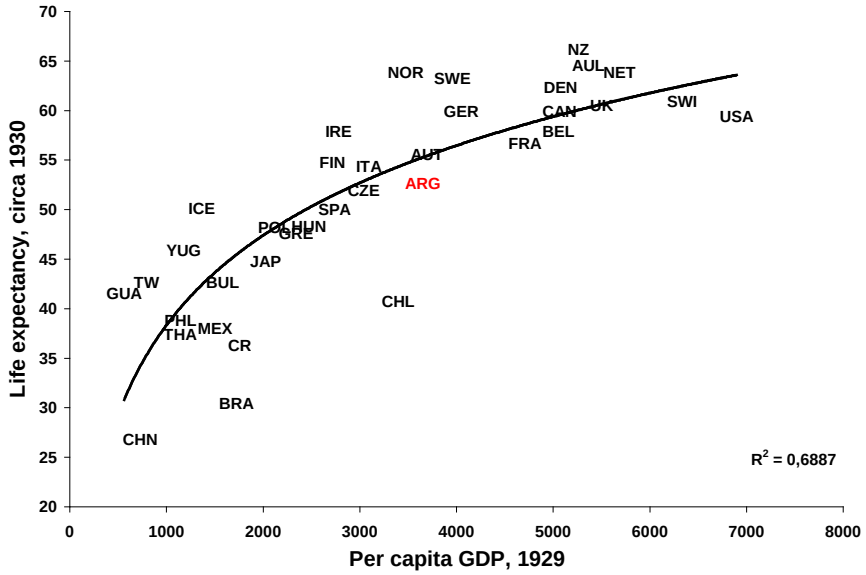
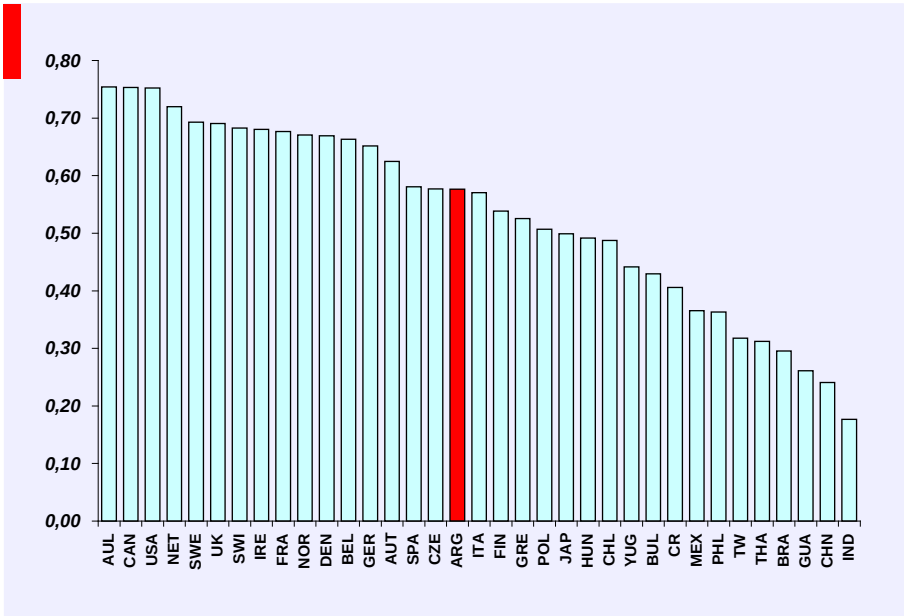


Figure 3. Life expectancy and per capita GDP



Education and health data for the late 1920s can be combined to build a primitive form of the Human Development Index (HDI). Recall the HDI weighs, with 1/3 each, educational, health and income variables. Each dimension varies between 0 and 1. In the case of income, the formula involves logarithms to reflect the declining marginal utility of income. The educational variable is itself a composite of literacy (2/3) and enrollment (1/3). In Figure 5 I present the HDI for 1930 using primary enrollment as the sole educational variable, as literacy rates are sketchier (although Crafts (1997) did use literacy rates for his compilation of historical HDI's). Argentina ranks #17 in this modified HDI ranking. Its higher income hardly compensates for its lower readings in health and education.

Figure 4. A modified Human Development Index for 1930



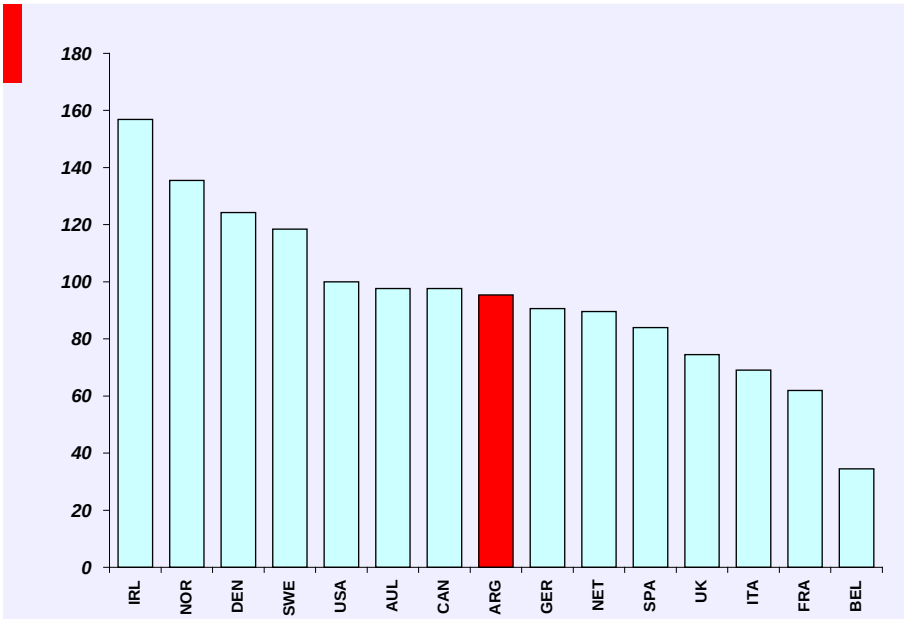
As for physical capital, an accurate comparison is probably impossible. To my knowledge we lack international, comparable estimates of physical capital for the years just before the Depression. Colin Clark (1940) does present figures for several countries for the years around 1914. With 4816 "international units" of capital in 1916, Argentina stood fourth after Britain (6710 in 1913), the U.S. (5060 in 1919) and Canada (5500, though in 1929), slightly ahead of Germany (4750), France (4290) and Australia (4005) and clearly surpassed Belgium (2360), all countries richer than or as rich as Argentina right before the Great War[9]. These estimates, however, should not be taken at face value as they were collected by Clark from secondary sources using diverse methods and not correcting for international price differentials. For 1934-1938, the capital items in the rankings drawn by Bennett (1951) placed Argentina sixth out of 31 countries in railway energy consumption per capita (after the Western Offshoots, Germany and the UK) and seventh (trailing the former plus France) in telephones per capita. Also, Argentina was in 1930 fifth in the world in automobiles per person, lagging only the Western Offshoots.[10]

Another significant dimension of Argentina's wealth is distribution. We lack, in general, pre-Depression estimates of personal income distribution, but indicators of distribution across factors of production can be built combining Maddison's GDP data with Williamson wage series. If the US wage-GDPpc ratio is 100 for 1925-1929, Argentina's stands at 95. This is lower than in Canada, Australia and the Scandinavian countries, but higher than all other European countries in Williamson's (1995) dataset except (somewhat surprisingly) Ireland (Figure 6). Workers in Argentina were enjoying the benefits of general prosperity, probably more so than in an average European country. The picture of Argentina's golden age as an

[9] Clark has no data for that year for the Netherlands, Denmark, Switzerland and New Zealand, ahead of Argentina in per capita GDP.
[10] *Anuario Geográfico Argentino* (1941), 466.

extractive boom appropriated by a small landowning elite just cannot be reconciled with these wage data.

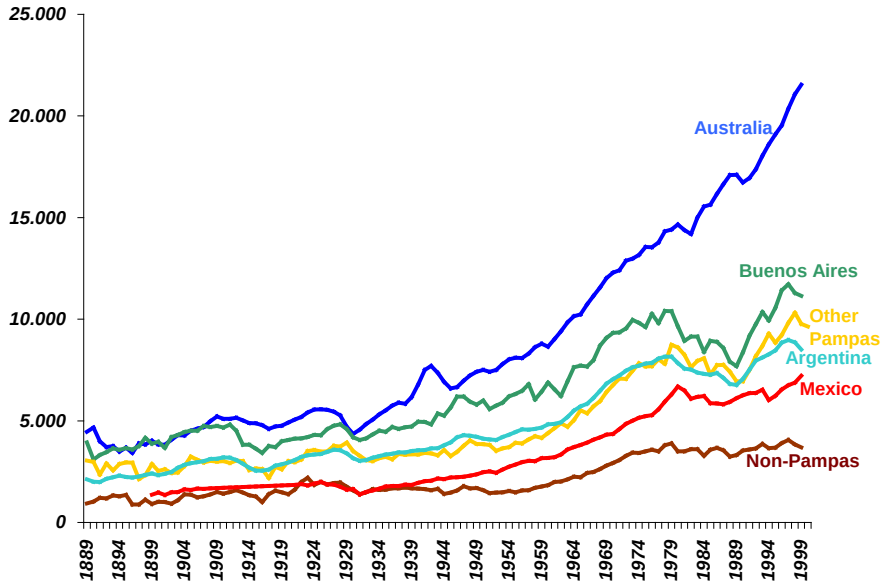
Figure 5. Ratios of wages to per capita GDP, 1925-1929



On the other hand, Argentina's fortunes did show steep differences across regions (Figure 7). Per capita GDP in Buenos Aires –province and region, holding 46% of the population– was probably close to that of Australia by 1929, around US$ 4500 in 1990, PPP money. In the other extreme, the 10 non-Pampean provinces, with 22% of the population, were very close to Mexico, around US$ 2000. In between, Pampean provinces outside Buenos Aires (Santa Fe, Entre Ríos and Córdoba) were more or less at the national average of US$ 3700[11]. Of course, every country has its own regional differences, but it is likely that Argentina's were on the high end. The coefficient of variation of provincial incomes was 0,50 in 1925-1929, compared to 0,38 for the US in 1929[12] and 0,24 for Australian states in 1930-34[13]. Unlike any of the other big countries of the New World, natural resources were heavily concentrated in just one region which happened to surround the obvious place for an Atlantic port. Importantly, from a political economy point of view, the backward areas (say, from Córdoba to the North and West) were not the latest but the earliest population settlements. The political agreements behind the 1853 Constitution, and the system of regional distribution of power it sanctioned, reflected this original demographic setting, which had little to do with what turned out to be the economic potential of different regions. For some time –and, to some extent, to this day– a problematic asymmetry between economic and political power existed in Argentina.

[11] Data on income shares per province from Llach (2004).
[12] Data from the St.Louis Fed, http://research.stlouisfed.org/fred2/release?rid=151&pageID=1.
[13] Neri (2007).

Figure 6. Per capita GDP across Argentine regions



Overall, it does seem that Argentina's #11 rank in the late 1920s is too simplistic a measure to describe the real wealth of the nation. True, Argentine workers did share in Argentina's prosperity, as real wages reflected the country's relatively high income per capita. On other dimensions, however, the picture is not as rosy. Though on the rise, Argentina's health and educational status were lower than what would be expected from its GDP numbers. Also, Argentina suffered some striking regional imbalances. One fourth of its population was living in regions that produced just over 10% of GDP, and whose per capita income was similar to that of Mexico, ie., less than half that of Buenos Aires.

3. From Extensive to Intensive Growth, 1870-1930

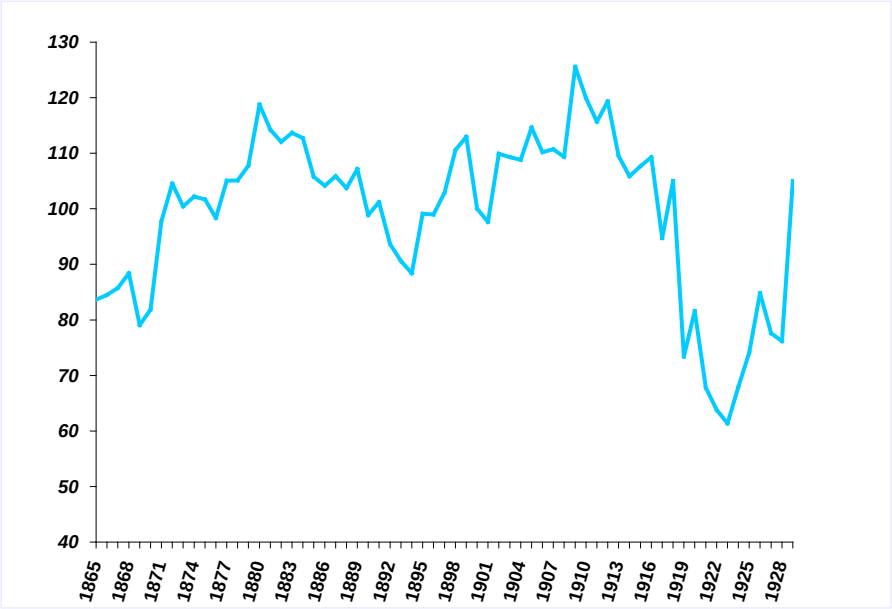
Out of the 57 countries for which Maddison has per capita GDP data for both 1870 and 1913, Argentina ranks #3 in economic growth between those dates (after Canada and Mexico). GDP per capita grew 2,12% annually. If we stretch the period to the 1920s, Argentina (2,07%) is second only to Venezuela. In terms of total GDP, Argentina is first both for 1870-1913 (5,6%) and 1870-1928 (5,35%). For 1870-1913 the second is New Zealand (4,31%) and for the larger period, Uruguay (3,78%). Given that most of the increase in population was due to the attraction of immigration from the Old World, the Argentine economy can well be described as the most dynamic in the world in the sixty years to 1930.

Before entering into the mechanics of growth in terms of factor accumulation and technological progress, it is worth asking what could have sparked such an impressive pace of economic progress. Clearly, growth can be described in some sense as "export-led". Argentina turned out to be a very open economy indeed: according to the Maddison data, for example, the country ranked third out of 30 in the ratio of export value (in current dollars) to GDP (PPP) in 1913, trailing only the better located Austria and Belgium; by 1929 Argentina was still virtually sharing that third place with Canada and Belgium (following the smaller

–and thus typically more open– economies of Denmark and New Zealand)[14]. But characterizing growth as "export led" still begs the question of what did the trick in the first place. Change could have started because of shifts in demand –specifically, Argentina's productive complementarities with Great Britain and other industrializing European countries– that increased the return to capital or labor in Argentina. Or it could have been mainly a supply shock: maybe labor and capital became more productive, and were thus attracted, because of some institutional innovation or technological shock.

Terms of trade should be a first indication of what was dominating the picture. There isn't really an upward trend in the whole period 1870-1930, but rather a succession of ten or fifteen year cycles, upward till 1880, downward in 1880-1895, upward from 1895 to 1910, downward again until the early 20s, and some recovery in the late 1920s. This little piece of evidence is hard to reconcile with the idea that progress in Argentina –clearly, a price taker in world markets– could have been driven by a positive demand shock.

Figure 7. Terms of trade, 1865-1929



Source: 1865-1913, Blattman et. al (2004), 1913-1930, Gerchunoff and Llach (2006).

Institutions could have played a more distinctive role. The beginnings of the Argentine boom broadly coincide with political stabilization, starting in 1861 with the first president of a unified Argentina and finally consolidated after the defeat of the rebellious Buenos Aires province in 1880. But the institutional argument cannot be taken too far. Argentina –or, at least, Buenos Aires– also enjoyed some business-friendly political stability with Rosas (1830s and 1840s), and progress doesn't seem to have been faster then than in the 1850s, when outright separation from the Confederación was no obstacle for the provincial boom in wool

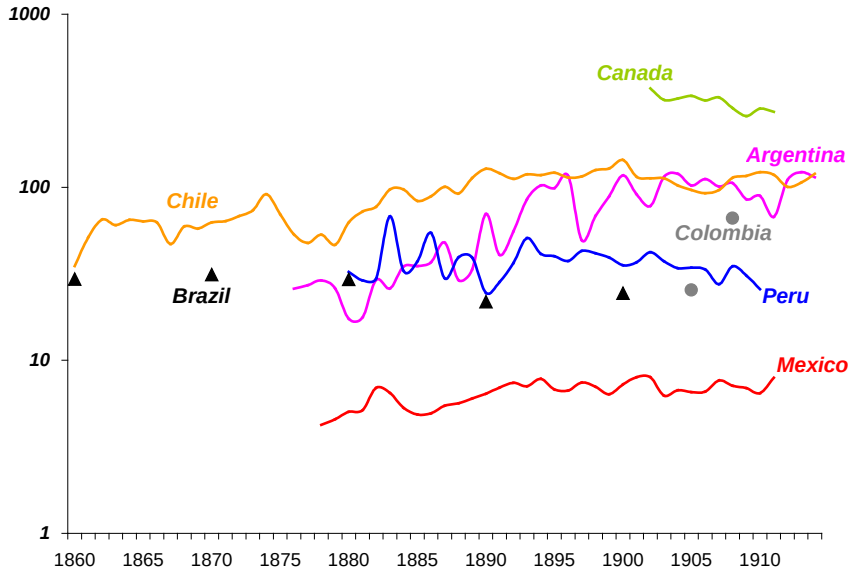
[14] Maddison (2006). The sample includes all the countries that have both trade and GDP data for 1913.

production[15]. Moreover, beyond strictly political considerations, "institutions" on a larger scale weren't really that stable after 1880. The 1880s were a decade of frenzied indebtedness, monetary instability and inflation, recently christened as a time of "disorder and progress"[16]. Political and economic institutions did show a more solid stability during the first three decades of the 20th century.

A third hypothesis of Argentina's success before the Depression stresses technological luck. The worldwide reduction in transport costs was probably the single most important technological news of the second half of the 19th century. The impact of railways –and steam navigation– wasn't a uniform blessing. The influence on profitability of a reduction in the cost of transporting a ton of goods is larger for commodities with a higher transport component in their cost. A decline in transport costs will affect only marginally the profitability of producing gold, but will make a great difference for the transport of wheat or other cereals, with a much lower value-weight ratio. The hypothesis is that countries with a "heavier" export basket –ie., exporting goods with a lower value-weight ratio– would benefit more from a decline in transport costs such as the one occurring in the second half of the 19th century. A complementary hypothesis is that the appearance of a new transport technology will, ceteris paribus, allow for the production of bulkier goods, thus increasing the average weight (ie., reducing the value-weight ratio) of exports. That actually took place in Argentina as pastoral products were replaced by export oriented agriculture, a trend possible on a large scale only after the arrival of railways (Figure 9). It has been estimated[17] that by 1913 the existence of railways represented savings of 7.3 cents of peso oro per ton, per kilometer – the difference between 8.3ct. with carts and 1ct. with railways. For, say, a 400km trip, transporting a ton cost 4 pesos by train and 33 through the old transport technology. By that time, Argentina exported wheat at approximately 36 gold pesos the ton. The producer price net of transport costs by train (32 gold pesos) was, thus, ten times higher than by cart (3 pesos). Compared to these numbers, changes in the terms of trade of 20% or 30% look innocuous.

[15] Sábato (1990).
[16] Gerchunoff, Rocchi and Rossi (2008).
[17] Summerhill (2000).

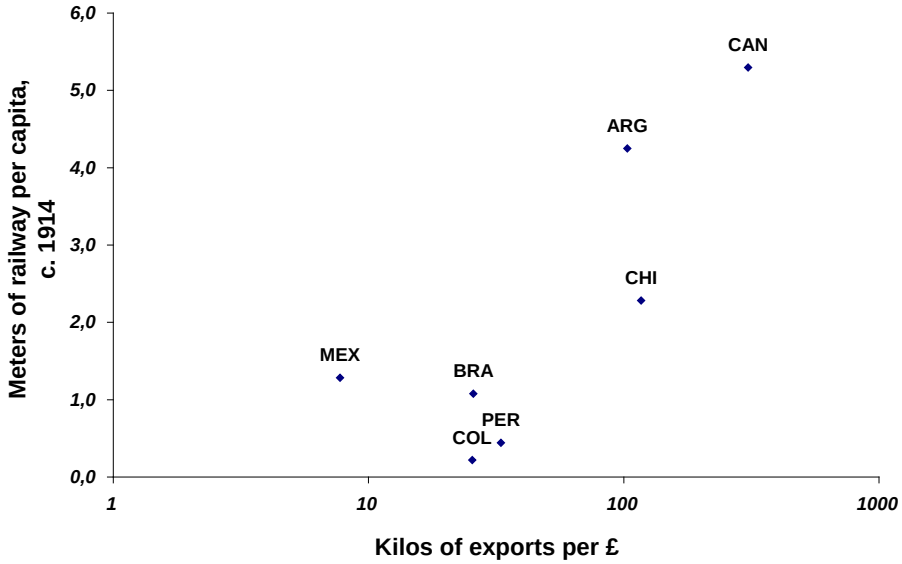
Figure 8. Average weight of one pound sterling of exports



Source: Gerchunoff and Llach (2008).

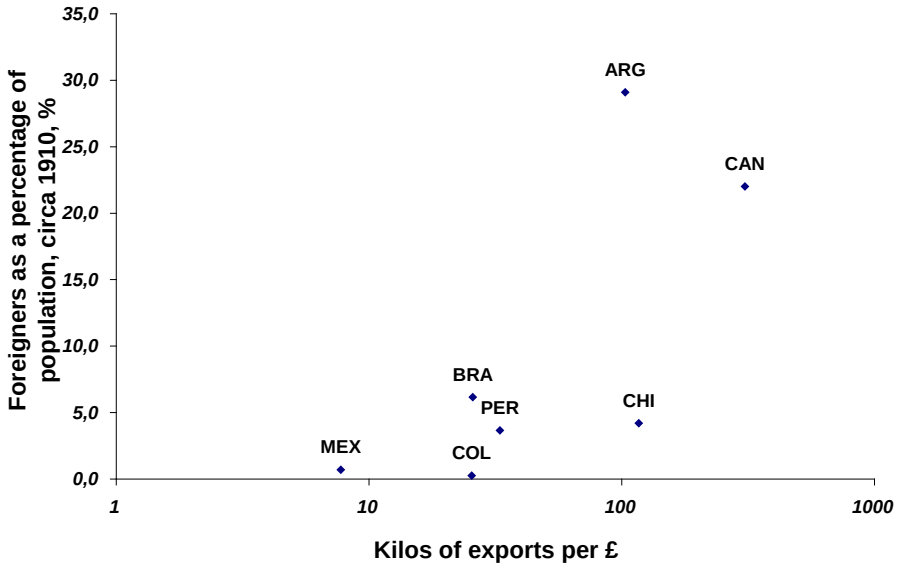
It is no wonder that cereal producing areas prospered during that period, and attracted railways and labor more than other countries (Figure 10 and Figure 11). Of course, the transport revolution was not the only technological novelty affecting primary exports. In the case of Argentina it was one of a series: advances in wool-spinning had helped breed the wool boom (1850s-1870s), and refrigeration would allow exports of meat other than the cheap, salted variety. But it was the expansion of railways that created Argentina's agricultural revolution, itself the foundation of export-led growth.

Figure 9. Average weight of exports and railway development



Source: Gerchunoff and Llach (2008).

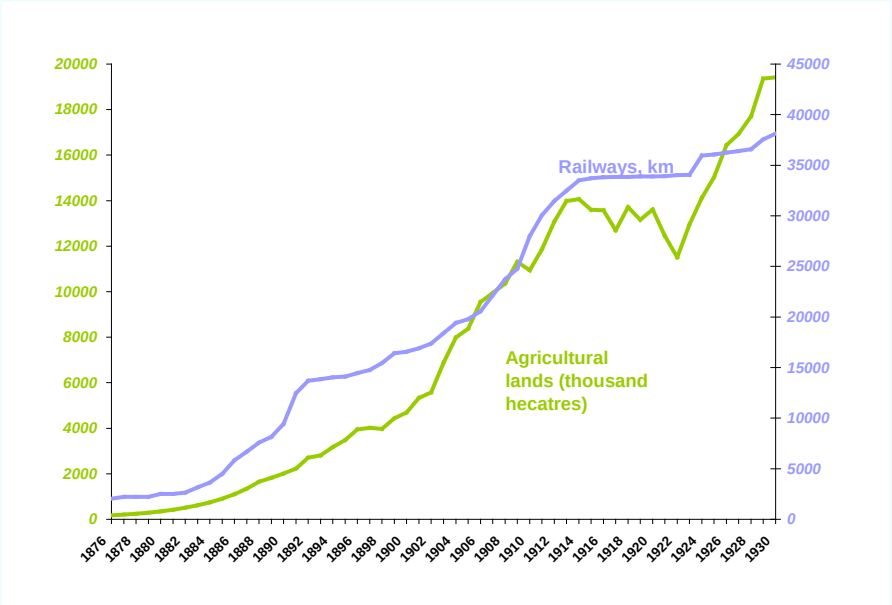
Figure 10. Average weight of exports and immigration



Source: Gerchunoff and Llach (2008).

The dynamics of factor accumulation are consistent with the technological hypothesis of the Argentine boom until World War I. Agricultural land per capita grew at 15% *annually* in the 1880s, close to 5% both in the 1890s and the 1900s, and fluctuated around the 1910 level thereafter. (Figure 12). The increase in agricultural land until around World War I and stagnation thereafter was matched by the evolution of railway mileage, though railway miles per capita actually declined during the 1920s.

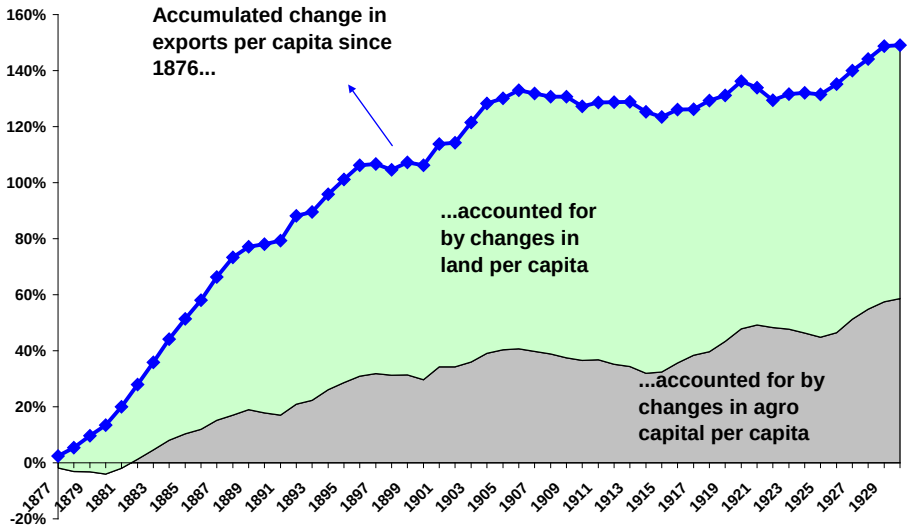
Figure 11. Agricultural land and railway mileage



Source: Ferreres (2005).

The land intensive character of Argentina's story of accumulation before the war shows up in a regression explaining exports per worker residing in the Pampean provinces by changes in the stock of land per worker and agricultural machinery per worker. Until 1910, maybe 80% of the accumulated increase in per capita exports since 1876 could be accounted for by changes in per capita stock of land, and only 20% by the increase in agricultural machinery per capita (Figure 13).

Figure 12. Contributions of land and machinery to the export boom



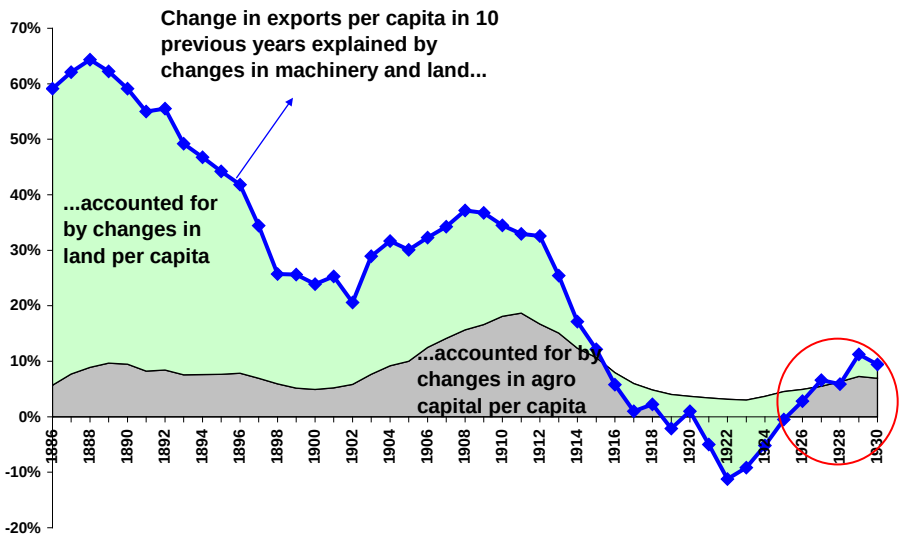
Sources: Volume of exports, population and land use from Ferreres (2005). Labor force in agriculture assumed to evolve like population in the provinces of Buenos Aires, Córdoba, Entre Ríos and Santa Fe. Machinery in agriculture: 1900-1930 from CEPAL (1959). For 1876-1900, machinery in agriculture assumed to grow like the imported component of the stock of machinery in agriculture, hence K. K in *(t-1)* is estimated as K in *t* less a 5% depreciation rate, plus imports of agricultural machinery. K for 1876 results from projecting K in 1861 by the same procedure, and assuming that K in 1861 is such that the ratio of capital imports to K in 1861-1876 displays a constant trend. Variations in the guesstimate of K for 1861 don't produce massive differences in the computation of the 1876-1930 growth of K. With our estimate of K for 1861, K multiplies by 26.6 in 1876-1930; with an estimate 50% smaller, it increases 28.7 times, and with an estimate 50% larger it increases 24.8 times. Dependent variable in the regression: volume of exports per worker. Independent variables: area sown per worker, agricultural machinery per worker and deviation of yields from previous 5-year average.

Was export-led growth still alive in the 1920s? Di Tella and Zymelman (1969) proposed that the twenties represented a Great Delay in Argentina's industrialization: while Pampean agriculture reached its geographical limits and faced declining terms of trade, economic policy failed to create new opportunities for investment. For Taylor (1994) there was a problem of supply rather than demand of capital: after World War I, Argentines would no longer be able to rely on British financing to strengthen their feeble national savings. Gerchunoff and Aguirre (2006) have recently referred to the twenties as a "missing link"

between the prewar export-led growth and the inward looking development that followed the Depression: as before 1914, market forces dominated over policies in defining Argentina's pattern of development; but an incipient, market driven industrialization occurred during the 1920s as those declining terms of trade implied better prospects for import-substituting manufactures. Steep increases in real wages (and a hike in the wage/productivity ratio) resulted from this "natural" industrialization and from the expansion of the public sector that accompanied the universal extension of (male) suffrage. In both ways, the 1920s somehow anticipated the years to come.

It is clear that growth after World War I was of a different nature than in the previous period. The volume of exports per capita increased by only 10% between 1909-1913 and 1925-1929, or around 0,5% annually. In terms of capital accumulation, it is interesting to note that during the 1920s that (slight) increase in exports per capita was almost entirely due to capital rather than land. The stock of machinery in Argentina's countryside tripled between 1913 and 1929[18], and almost doubled in per-worker terms (Figure 15).

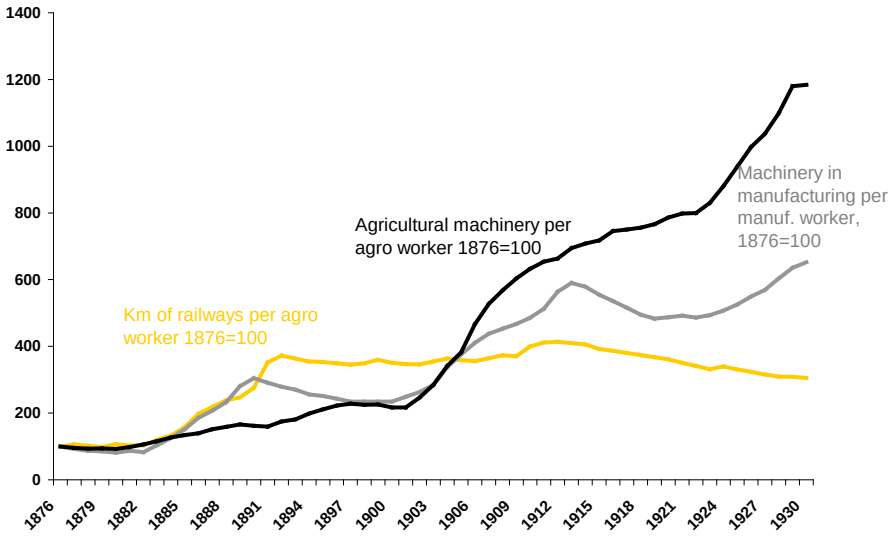
Figure 13. Contributions of land and machinery to the export boom



Sources: Same as Figure 13.

[18] CEPAL (1959).

Figure 14. Selected capital per capita



Sources: Same as Figure 13. Machinery in manufacturing from CEPAL (1959).

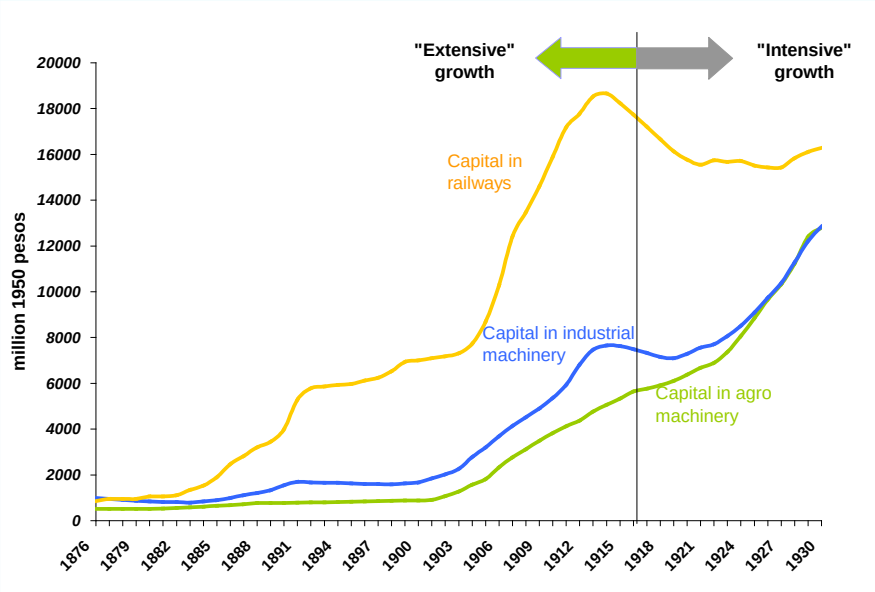
The Argentine export sector was rapidly becoming more capital intensive in the 1920s. Capital per worker was actually growing more in agriculture and ranching than in manufacturing, which suffered heavily from World War I shortage of capital goods imports. Even so, the manufacturing sector was getting larger in absolute terms (Figure 15). In other words: Argentina was becoming more capital intensive both through factor substitution within sectors and through structural change favoring the more capital intensive manufacturing sector. This style of growth was clearly different from the one predating WWI, as can be seen by comparing the capital invested in railways with machinery in both Argentina's farms and its factories. In 1913, the value of capital invested in railways was 50% higher than the combined value of machinery in Argentina's primary and secondary sectors. By the end of the 1920s, these were 60% higher than capital in railways[19]. Can the 1920s be described as a time of retardation in capital accumulation? The answer depends on the status conferred to one type of capital (railways) which is an inevitable complement of land accumulation, at least for products with a high weight-value ratio. In such a context there cannot be a "land intensive" type of growth that is not at the same time "railway intensive". But capital-intensification not related to land accumulation was actually faster in the 1920s, through capital intensification in agriculture and a widening of the manufacturing sector, which absorbed both capital and labor.

Why was the economy becoming more capital intensive during the 1920s? Three possible and non-exclusive hypotheses come to mind. First, it could just be the Solowian mechanics of accumulation at work. The fact that Argentine savings were actually being employed at home rather than abroad would imply that in spite of the exhaustion of opportunities for railway extension, Argentina was still perceived as a suitable place for investment. A combination of size and average income of its internal market certainly boosted manufacturing production,

[19] CEPAL (1959).

which was wholly bound to local demand: out of the 20 top countries by per capita GDP in 1928, the size of the Argentine economy was only smaller than those of the U.S., Germany, Britain, France, Italy (which was #19 in per capita GDP) and Canada (which was only 8% larger than Argentina's). Second, the marginal productivity of capital could have been increasing due to technological change. Third, in line with Gerchunoff and Aguirre (2006), the rise in the relative price of manufactures due to the negative terms of trade shock of the 1920s could have had an effect on optimal factor choice. As a sector more capital- and labor-intensive than agriculture, manufacturing growth should have the raised the demand of both capital and labor. In a world of perfect factor mobility, there would have been no effect on relative factor prices. But if labor is assumed less mobile than capital, real wages would have increased and the relative price of capital *vis a vis* labor declined. The result would have been in line with what actually happened in the 1920s: manufacturing growing more than agriculture and both sectors becoming more capital intensive. Also consistently with this terms of trade explanation, the wage-rent ratio, that had fallen massively in the fifteen years to World War I, stabilized during the 1920s[20].

Figure 15. Values of different types of capital



Sources: CEPAL (1959).

4. Was Argentina's prosperity sustainable?

We have described in the previous sections some peculiarities of Argentina in the pre-Depression era. First, by the 1920s, Argentina was quite a rich economy, and an increasingly big one, as a result of exceptional per capita and total growth since its Agricultural Revolution of the late 19th, early 20th century. Second, though income wasn't unequally distributed between labor and other factors of production, it was unevenly spread geographically, and

[20] The wage-rent ratio fell from an index of 580 in 1880-1884 to 53.6 in 1915-1919 and was still at 51 in 1925-1929. Williamson (2002), 73.

some deeper markers of development such as health and educational standards weren't as high as one would expect for a country of Argentina's income by that time. Third, natural capital made a crucial contribution both to Argentina's income level and, at least until World War I, to its growth. Fourth, while per capita growth slowed down after World War I, there were other, healthier symptoms: accumulation of physical capital, both in agriculture and in manufacturing, had replaced incorporation of land as the driver of factor accumulation; and immigration was still massively flowing in. We can only speculate here on whether these peculiarities had anything to do with Argentina's subsequent decline. As a first, crude approximation one could think of an augmented Solow model were income per capita depends on technology and the per capita levels of natural, human and physical capital. Assuming technology in exogenous –or that it depends on physical capital accumulation– we can concentrate on the evolution of productive factors per capita.

4.1. Natural capital

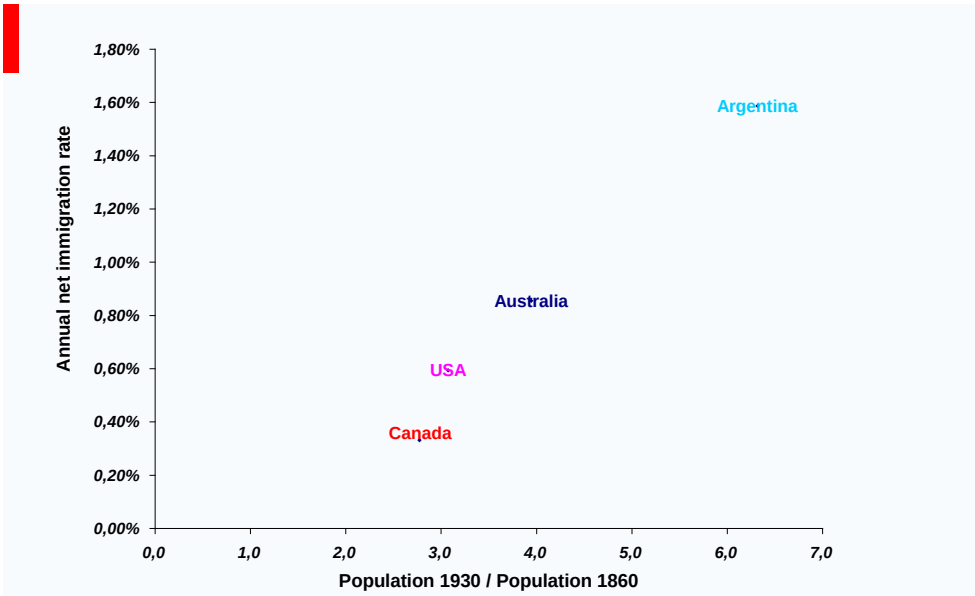
As explained in section 3, accumulation of natural capita. was not contributing at all to per capita growth, and it was possibly a drag as population expanded on a fixed amount of land. The question leads us to the demographic experience of Argentina, which bore both similarities and differences with other frontier economies. The figures below highlight just a couple of the many possible angles of the migration question. First, as noted by Díaz Alejandro (1988) Argentina's population growth was not only high in comparison to the rest of the world, but also when placed next to the other "settler economies" described by Nurske (1954). The difference was mostly a consequence of a higher net migration rate in Argentina (Figure 17). The comparison with Canada and Australia are the most relevant, and present a nice picture of symmetries (Figure 18): Australia and Argentina had a comparable population around 1870 (1.9 and 1.65 million respectively), roughly half that of Canada (3.8 M) Between 1870 and 1930, Australia and Canada received a comparable number of net migrants (1.4 and 1.2 M, respectively), between a third and half of what Argentina received (3.3 M). By 1930, Argentina's population almost doubled that of Australia (11.8 M compared to 6.5 M) and was now slightly larger than in Canada (10.5M). Differences in natural demographic growth were not significant. In all three cases, between 50% and 56% of the 1930 population cannot be accounted for by either the original 1870 population or net migration in 1870-1930.

Why was immigration so high? Wage differences cannot be part of the explanation, as they were systematically lower in Argentina than in Australia or Canada (Figure 19). That still leaves us with many hypotheses, such as diverse policies towards migration and cultural ties of Argentina with late-emigrant Europeans Italy and Spain. Also, Argentine protectionism could have played some role. The development of (labor intensive) industries such as wine and sugar in the Interior regions starting in 1880 might have contained internal migration towards the Pampas, and thus left more room there –ie., produced higher wages– for European immigration[21]. Then again, Australia was already experiencing its early "social

[21] Gerchunoff (2010). Beyond the geographic question posed by Gerchunoff, does general tariff protection effectively increase immigration in the country as a whole? It depends on the effect of protection on real wages in the non-migration case. If, with immigration forbidden, protection raises real wages, then with open borders it should encourage immigration, which should depend on an international comparison of real wages. According to the Stolper-Samuelson logic, protection should raise real wages in a labor scarce country –ie, those normally attracting immigration– and thus it should attract immigration if it's allowed.

protectionism", certainly stronger than Argentina's[22]. As time went by, hysteresis effects could have played a role. Whatever their cause, the original differences in migration rates tend to get locked in (immigrants attract immigrants, and also press for freer migration policies).

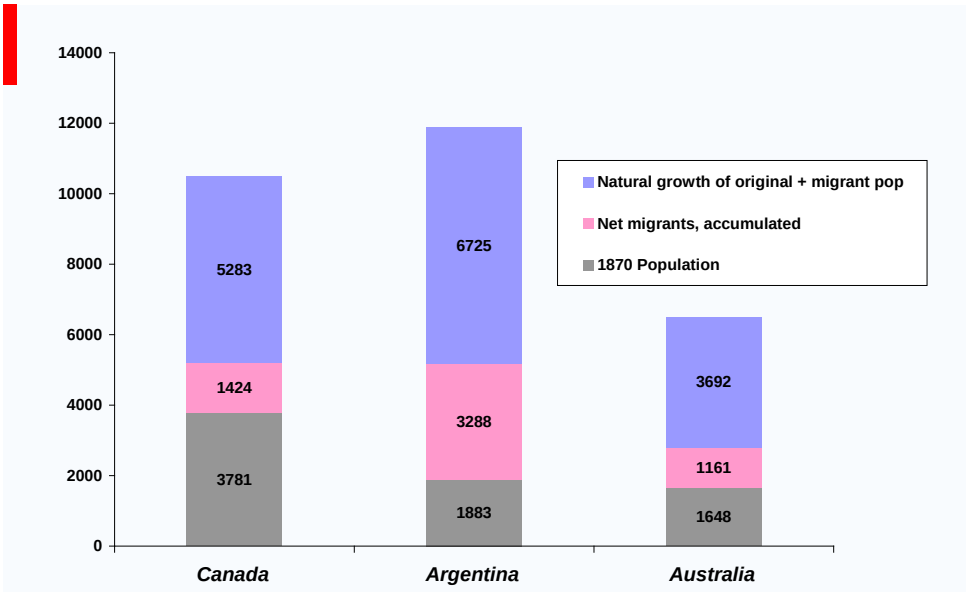
Figure 16. Net migration rates and population growth



Sources: Canada: Indicators of Wellbeing in Canada website, http://www4.hrsdc.gc.ca/.3ndic.1t.4r@-eng.jsp?iid=35; USA: Kuznets and Rubin (1954); Argentina: *Anuario Geográfico Argentino* (1941); Australia: AUSSTATS, http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3105.0.65.0012006?OpenDocument

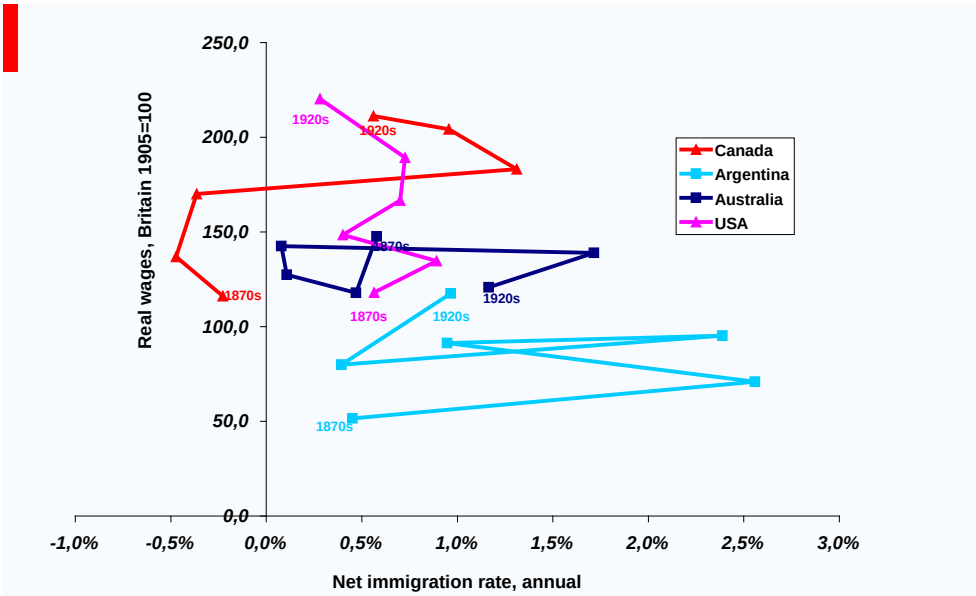
[22] Gerchunoff and Fajgelbaum (2007).

Figure 17. Migration and population growth: Canada, Australia and Argentina



Sources: as in Figure 17.

Figure 18. Migration and population growth: Canada, Australia and Argentina

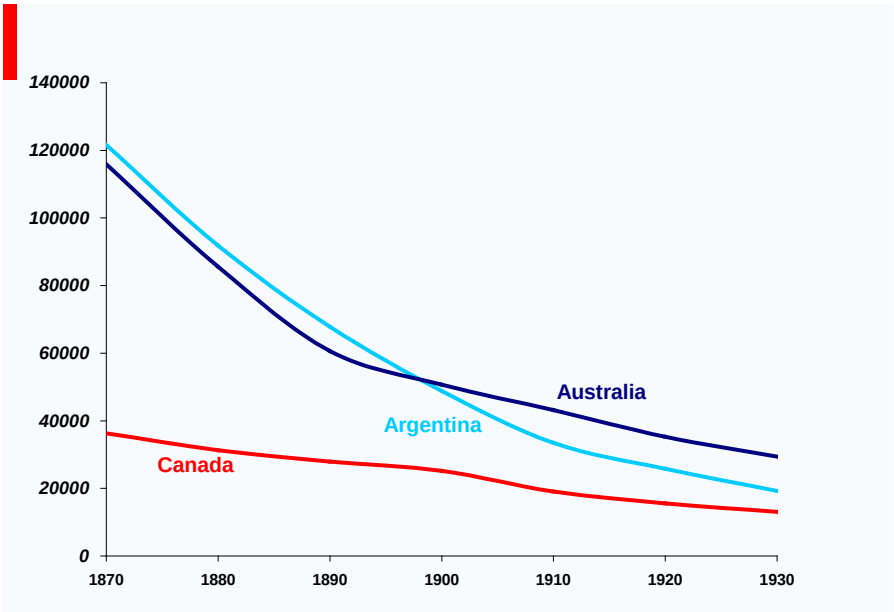


Sources: as in Figure 17 and Williamson (1999).

Faster population growth meant that Argentina's per capita natural wealth endowment was being diluted more rapidly than in Australia or Canada. The estimates by the World Bank in its survey of the composition of wealth across countries for the year 2000 combined with the actual population in the period under consideration give us some notion of the endowment-diluting effect of population growth. In 1870 Argentina's wealth per capita in the form of

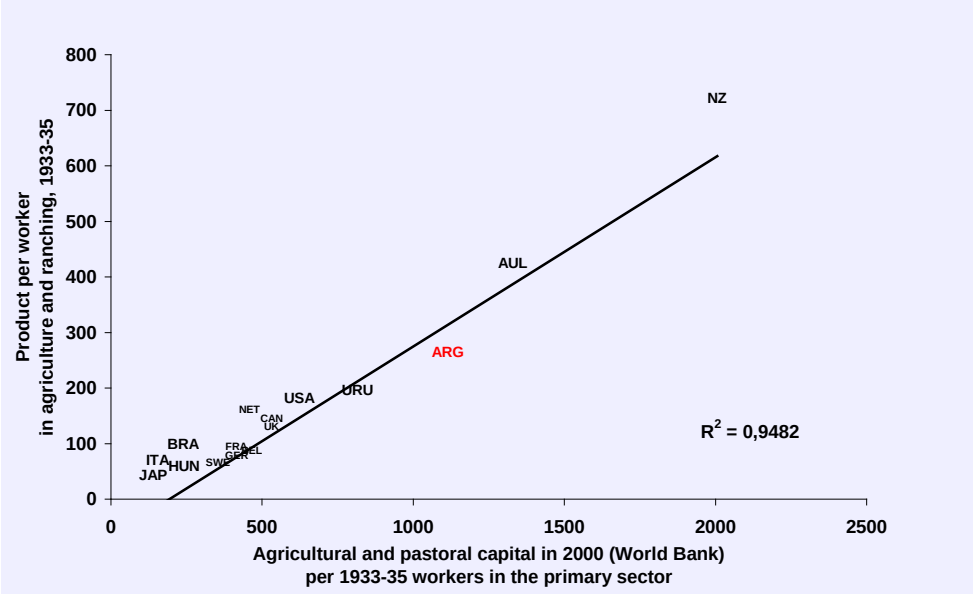
agricultural pastures and cropland was slightly higher than Australia and more than tripled Canada's. By 1930, it had fallen to two thirds of Australia and to only 47% above Canada's. Of course, both Commonwealth nations enjoyed much higher endowments of other types of natural capital, such as forestry and mineral resources. These differences could have an important effect on the ability of these countries to sustain or increase per capita exports, which in all three cases were dominated almost exclusively by natural capital intensive products. In fact, productivity in the agricultural and ranching industries did follow quite closely the level of per capita inputs of agricultural and pastoral endowments (Figure 21). Beyond its numerous benefits, economic and not, open immigration meant for Argentina that the advantages of a high level of natural capital, which unavoidably fade with population growth, did so at a quicker pace.

Figure 19. The evolution of per capita natural wealth in cropland and pasture land: Argentina, Australia and Canada



Source: World Bank (2006).

Figure 20. Agricultural productivity and land endowment per worker



Source: World Bank (2006) and Clark (1940).

4.2. Human capital

The Glaeser and Campante article in this volume deals at length with the question of whether an initial disadvantage in human capital can make a difference in terms of subsequent economic growth. Among many other possible effects, past level of human capital can raise growth because it may be correlated with current levels of human capital (as in the Lucas (1988) tradition); or acting through other channels, for example the politics connection that Gleaser and Campante stress. An additional channel is conceivable which may be of particular importance when comparing the natural-resource intensive Argentina of 1930 with a country of a similar income level but higher educational attainment. Natural resources (certainly mining riches, but even agricultural land) is comparatively less adaptable to demand shocks than human capital. For example, a terms of trade shock against agriculture as a whole cannot be compensated by moving land to other uses; while at least part of the human capital is not so completely industry- and not even sector- specific. This probably meant that the income effects of negative demand shocks (and their dynamic responses, if any) would be stronger in Argentina than in a country where the same per capita GDP stemmed from a factorial combination with less natural and more human capital. And negative demand shocks was precisely what Argentina faced starting in the Depression.

4.3. Physical capital

Insufficient physical capital accumulation has been pointed out by several authors as a major reason behind Argentina's slower growth after the Depression. Was there anything in pre-Depression Argentina leading to its mediocre investment rate afterwards? Faster population growth has already been mentioned as a difference with other settler economies, which might have also led to slower growth in capital per worker. But the argument cannot be taken too

far. Argentina's differential population growth before the Depression was due to its immigration rate, and there's no reason why Argentina would still receive immigrants on such a scale thereafter (actually, it did so at a much more modest pace). Also, while it is true that Argentina's population grew more than that of the U.S. and Western Europe in 1930-2000 (213% compared to 128% and 38% respectively), it increased only slightly faster than in Canada and Australia (196% and 194%) and more slowly than Brazil (425%) or Mexico (481%), all of which enjoyed higher rates of economic growth.

Other peculiarities of Argentina's pre-Depression era relate to its subsequent ability to accumulate capital. First, Argentina imported most of its capital goods, so its investment rate depended more than in other rich countries on balance of payments concerns, such as the evolution of the terms of trade or the ability of exportable production to continue its expansion. As stressed by Díaz Alejandro (1975) and Taylor (1998), the protectionist policy response to the negative demand shocks starting in the Depression only made matters worse as it increased the price of capital goods even more than what they were already rising –in terms of Argentina's export basket– in the international markets.

Second, as explained in section 3, the capital intensive sector (manufacturing) was import-competing. Did this place a limit on capital accumulation in manufacturing and, thus, on economic growth? Probably: Argentina's manufacturing sector of the 1920s had to compete for labor that was well paid in the very productive agricultural industries, but had to do so with a limited level of productivity, a combination implying that under free-trade Argentina'a manufactures were less profitable than in a low-wage, low productivity country (say, Brazil) or in a high-wage, high-productivity country (say, the U.S.). As stressed in the previous section, foreign and local investment in manufacturing was quite vibrant for some time during the 1920s, in part an adjustment to better terms of trade for manufactures. But a longer term question lingered: as long as manufacturing remained at a comparative *dis*advantage and thus hardly competitive in international markets, would investment flow there at a rate compatible with rapid economic growth? Public policies could have helped more through protection[23], but that would have made investment in exports less profitable and damaged the capacity to import capital goods, while lasting only until the limits of the internal market were reached – more or less what happened during the decades of import substituting industrialization. Argentina's capital accumulation in manufactures was then in something of a conundrum: with prosperous external demand, foreign exchange would be available for capital goods imports but the price incentives would be lacking for their investment; with feeble demand, the price incentives would be there –though limited to the national market– but the foreign exchange wouldn't.

5. Conclusions

Argentina's economic experience was quite exceptional even before the country's decay to middle-class starting in the 1930s. In particular, the technological windfall of railways was nothing short of revolutionary for the Pampas, one of the most ample stretches of land in the world capable of producing cereals – ie., bulky products which could only take off in

[23] That's exactly the point by Di Tella and Zymelman (1967) in their indictment of the Radical administrations of the 1920s.

international trade after the transport revolution of the 19th century. The dynamic adjustment to such a technological shock lasted until World War I, a period during which population multiplied by four (1870-1913) and exports by nine (1870-73 to 1910-13). Wheat, corn and flax, the staples of the Pampean Agricultural Revolution, amounted to 70% of exports on the verge of the war, up from 15% in 1870[24]. Even by the standards of other settler economies of the period, Argentina's experience stands out for both its sheer speed (Argentina grew more than Canada or Australia, two comparable cases of development) and its migration-intensive character.

Between World War I and the Depression, the Argentine economy was less exceptional. Growth was more moderate, more balanced between sectors, not as reliant on land accumulation through railway extension and without the macroeconomic "disorder and progress" characteristic of the 1880s and 1890s. The traits of a conventional high-middle class country of the day seemed to be budding in Argentina during the twenties: the democratic politics, the capital- rather than land-led economic growth and the widening manufacturing sector were all there at last. Standing as it was among the top-ten economies of the world by per capita GDP, was Argentina, then, already modern by the late 1920s? Not yet. Some deeper markers of development such as education and health indicators were below the standard for its level of income, probably a reminder that no matter how high the growth and how appropriate the policies, there are some things that just cannot be changed in less than one human lifetime. Among them was also the striking contrast in all measures of development across the diverse Argentine regions. Even more importantly for Argentina's future, the reliance on natural-resource based exports –increasingly diluted through rapid population growth– and the correspondingly lower contribution of physical and human capital to its economy posed some complex questions for its subsequent economic development. Was Argentina in a position to rapidly accumulate physical capital when its capital-intensive sector was not competitive in international markets and depended on tariff protection for the national market? How well prepared was Argentina –less of a rich country in terms of human and physical capital– to face a permanent, negative shock to the profitability of its export sector?

Unfortunately, history would prove that Argentina hadn't crossed the point of no return in economic development when, starting in the Depression, a series of adverse world conditions and policy responses made her lose the course to prosperity.

[24] Database from Gerchunoff and Aguirre (2006), available from the author.

Appendix

Figure A. 1. Argentina's rank in per capita GDP, 1900-2000

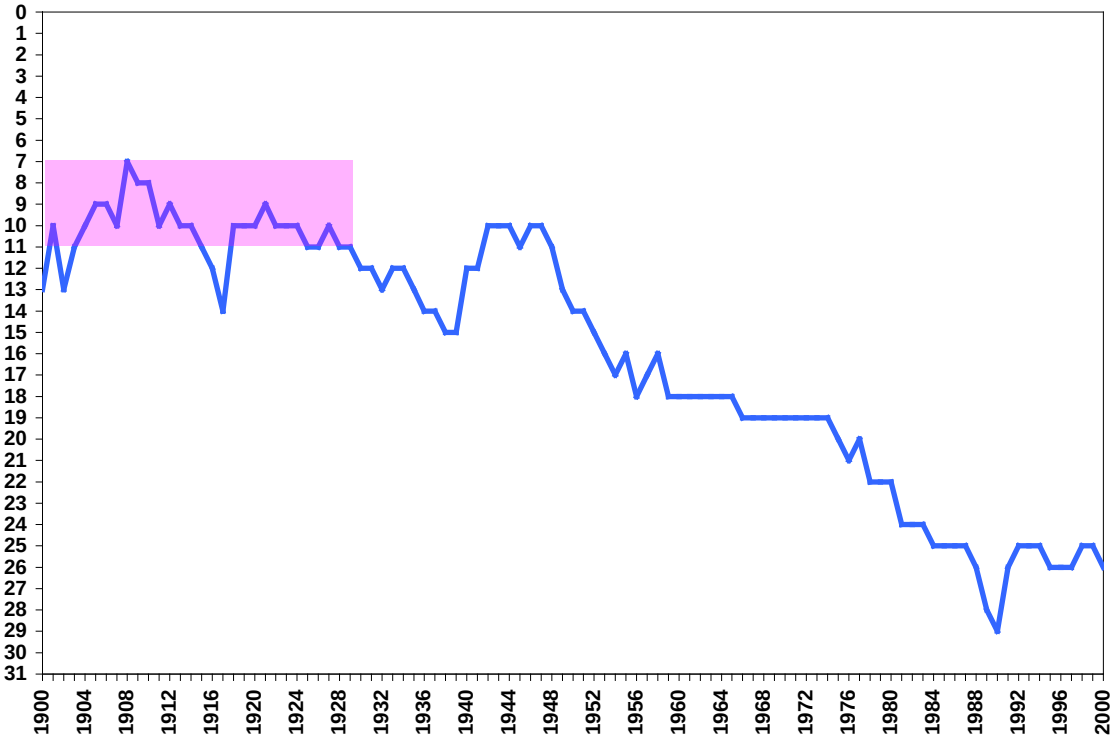


Table A. 1

	1870	1890	1900	1913	1918	1923	1928	1933	1938	1943	1948	1953	1958	1963	1968	1973	1978	1983	1988	1993	1998	2002
Austria	11	9	11	13	17	15	15	17	17	11	22	19	15	15	16	14	12	13	15	11	11	14
Belgium	5	4	6	7	9	7	6	7	9	12	13	12	14	14	14	10	10	8	10	9	10	10
Denmark	9	8	8	9	8	8	9	3	6	9	9	8	7	4	3	3	4	4	4	5	3	4
Finland	21	21	22	20	22	22	22	20	18	16	16	17	16	17	17	16	17	14	13	16	15	13
France	10	12	12	12	14	11	10	9	12	22	14	13	11	11	9	7	5	6	7	7	9	9
Germany	12	10	9	11	13	13	12	13	8	7	21	15	12	12	12	11	11	12	12	13	17	17
Italy	16	17	19	18	10	17	19	16	19	20	20	18	18	16	15	17	15	15	16	14	16	16
Netherlands	4	6	7	8	7	6	3	5	7	15	10	10	10	10	8	6	6	9	11	8	7	8
Norway	17	16	17	19	18	16	16	11	13	13	12	11	13	13	13	13	8	5	5	3	2	2
Sweden	15	15	14	15	15	14	14	10	10	8	8	9	8	5	4	5	7	7	6	12	13	12
Switzerland	8	7	5	6	6	4	2	1	3	6	1	2	1	1	1	1	2	2	2	2	4	6
United Kingdom	2	2	1	4	2	5	5	2	4	2	7	7	9	9	10	12	13	16	14	15	12	15
Ireland	13			16		18	21	18	21	19	18	21	22	22	21	23	21	21	19	18	14	3
Greece	27	24	26	27		23	25	24	23	37	33	33	29	27	23	21	20	19	21	23	23	23
Portugal	23	26	27	31	26	28	32	27	34	28	30	30	31	28	28	24	24	22	20	21	21	22
Spain	19	18	18	23	19	20	23	23	30	24	25	26	26	26	22	20	19	18	18	19	20	20
Australia	1	1	4	2	4	2	4	6	5	3	6	6	6	7	6	8	9	10	9	10	8	7
New Zealand	3	3	2	3	3	3	7	8	2	5	3	3	4	3	7	9	16	17	17	17	18	19
Canada	14	11	10	5	5	9	8	14	11	4	5	5	5	6	5	4	3	3	3	6	5	5
United States	6	5	3	1	1	1	1	4	1	1	2	1	2	2	2	2	1	1	1	1	1	1
Albania	44	34	37	44			50					48	47	46	45	45	47	45	45	51	48	47
Bulgaria	29	25	30	28		43	42	37	36	33		37	33	30	29	28	27	28	31	37	38	36
Czechoslovakia	20	19	20	22		21	20	22	22		19	22	20	19	20	22	23	23	23	28	27	25
Hungary	22	20	21	21		24	24	25	24	23	27	24	24	25	26	26	26	27	28	33	33	31
Poland	24	22	23	25			26	28	28			25	27	29	30	27	28	32	34	36	31	30
Romania	26	23	24	24			43	42	45		45	43	42	40	38	38	38	40	40	44	46	46
Yugoslavia	39	30	33	36		36	40	43	41		38	40	38	34	34	32	31	30	30	40	39	40
USSR	25		29	29			39	30	27		23	23	23	24	25	25	25	26	26	39	40	39
Argentina	**18**	**13**	**13**	**10**	**11**	**10**	**11**	**12**	**15**	**10**	**11**	**16**	**17**	**18**	**19**	**19**	**22**	**24**	**27**	**25**	**25**	**27**
Brazil	33	31	38	43	33	38	46	46	43	38	35	39	39	36	40	36	35	35	35	38	36	37
Chile			16	17	16	19	18	21	20	18	17	20	21	23	24	29	33	33	32	26	24	24
Colombia			32	32	23	32	36	29	31	27	29	31	34	35	36	39	40	38	37	35	37	38
Mexico	35	29	25	26	20	25	28	33	33	26	24	28	28	31	31	31	30	29	33	29	30	32

Peru			35	38	25	34	34	34	32	29	26	27	30	32	32	34	37	41	42	42	41	41	
Uruguay	7	14	15	14	12	12	13	15	16	17	15	14	19	21	27	30	29	31	29	27	28	29	
Venezuela	40		34	35	30	29	17	19	14	14	4	4	3	8	11	18	18	20	24	24	26	26	
Costa Rica						27	30	31	29	31	28	32	32	33	33	33	34	36	38	34	35	34	
Cuba							29	47	38	32	32	35	35	41	43	46	45	43	43	49	50	49	
El Salvador						41	49	49	49	40	37	41	41	42	42	44	44	48	49	46	47	48	
Guatemala						30	31	36	26	25	31	34	36	37	39	40	41	42	44	41	43	44	
Honduras						33	35	40	48	42	40	44	46	47	48	49	49	51	50	50	51	51	
Nicaragua						31	33	38	47	34	39	38	40	39	37	41	43	47	52	53	53	53	
China							53	51	52			53	53	53	53	53	52	52	51	47	45	42	
India	42	35	39	46	34	45	52	50	51	43	48	52	52	52	52	52	53	53	53	52	52	52	
Indonesia	37	33	36	39	32	42	44	48	46		46	49	50	51	51	51	50	50	47	43	44	45	
Japan	32	28	31	30	21	26	27	26	25	21	34	29	25	20	18	15	14	11	8	4	6	11	
Philippines	31			37	24		37	32	37		43	46	43	45	46	47	48	46	48	48	49	50	
South Korea	38			42	29	39	48	45	40	36	47	50	49	50	47	42	39	34	25	22	22	21	
Thailand	34	32		41			51		50			51	51	49	49	48	46	44	41	32	34	33	
Taiwan	41			45	31	40	45	44	42	41	44	47	45	43	41	35	32	25	22	20	19	18	
Malaysia	36			40	28	35	38	35	39	30	41	42	44	44	44	43	42	39	39	30	29	28	
Sri Lanka	28	27	28	33	27	37	41	41	44	39	42	45	48	48	50	50	51	49	46	45	42	43	
Turkey	30			34		44	47	39	35	35	36	36	37	38	35	37	36	37	36	31	32	35	

Transition Remarks

Lucas Llach has given us a statistical picture of Argentina at the dawn of the 20th century. In his telling, it was a country with abundant natural resources that delivered high income levels. But while the country may have been "rich," at least by the standards of the time, it was not yet "modern."

It's not as if Argentina relied solely on some intrinsic source of natural wealth, like oil. Llach documents that the country was rapidly investing in physical capital, such as agricultural machinery and railroads. Just as in the United States, a rich agricultural hinterland needed such investments to produce and transport its products. But that physical capital investment was not the same thing as investment in human capital or cutting edge technology.

Llach also highlights the outsized levels of immigration to Argentina during the early 20th century, especially from Southern Europe. While there was also heavy migration to the United States, Argentina's dependence on natural resources (rather than industry) meant that the immigration did more to dilute the country's comparative advantage—abundant land.

Yet despite this immigration, Argentina continued to grow through the 1920s and it remained a new world success story in 1930. The essays that follow will focus on the post-1930 period to map out the ways in which Argentina diverged from countries like Canada and Australia.

The next essay offers an alternative approach to understanding Argentina at the dawn of the last century. Rather than providing a national perspective, it focuses on Argentina's capital city and compares it with an American metropolis: Chicago. By focusing in one two cities, it becomes easier to offer a more granular view of the differences between the United States and Argentina a century ago.

At first glance, there is much that is similar between the two cities. Both were part of the critical transportation task facing the agriculturalists of the new world—getting their product to markets hundreds and thousands of miles away. The products of the farms came to the cities on the hoof and by rail. The cities themselves both contained giant stockyards and they shipped grain and beef by water eastward. In both cases, the coming of refrigeration (*frigorificos* to Argentina and Armour's refrigerated rail cars) significantly expanded their beef business.

But moving beyond the obvious similarities, there were also significant differences between the two cities. Most notably, Chicago had a much larger indigenous group of entrepreneurial innovators who put that city on the cutting edge of global technology. 19th century Chicago both attracted the 19th century equivalent of high tech companies, like McCormick's mechanical reaper firm, and enabled sizable breakthroughs in human knowledge, like the invention of the skyscraper. At the dawn of the 20th century, Chicago was well populated with the industries—including automobile production—that would dominate the early 20th century. Buenos Aires had no equivalent concentration of new technologies.

Like the Llach paper, the Campante and Glaeser essay emphasizes the primacy of human capital and focuses on the differences in education across the two countries. Formal schooling provides one reason why Chicago had more “high technology.” Certainly, the architects who collectively invented the skyscraper were well educated. That schooling difference seems to have reflected, at least in part, the earlier growth of public schools in rural America, which then produced many of the migrants who came to Chicago. The American edge in education is perhaps symbolized by the “importing” of American teachers during the Sarmiento presidency. The more northern composition of immigrant populations to Chicago surely mattered as well, along with Chicago’s place at the center of the North American network of industrial cities.

CHAPTER TWO

Yet Another Tale of Two Cities:

Buenos Aires and Chicago

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Abstract

Buenos Aires and Chicago grew during the nineteenth century for remarkably similar reasons. Both cities were conduits for moving meat and grain from fertile hinterlands to eastern markets. However, despite their initial similarities, Chicago was vastly more prosperous for most of the 20th century. Can the differences between the cities after 1930 be explained by differences in the cities before that date? We highlight four major differences between Buenos Aires and Chicago in 1914. Chicago was slightly richer, and significantly better educated. Chicago was more industrially developed, with about 2.25 times more capital per worker. Finally, Chicago's political situation was far more stable and it wasn't a political capital. Human capital seems to explain the lion's share of the divergent path of the two cities and their countries, both because of its direct effect and because of the connection between education and political instability.

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I. Introduction

Both Buenos Aires and Chicago grew enormously over the late 19th century as nodes of a transportation network that brought the produce of the New World's rich, but relatively unpopulated, hinterlands to the tables of the world. (Figure 1 shows the parallel population growth of both places.) In the early 1900s, the two cities dominated meat-packing in the Americas and were great centers of grain shipments. About one-half of the populations of both cities were immigrants, who had come to take advantage of high wages in these urban areas. Both cities were governed by functioning but imperfect democracies, and both were famous for their corruption.

Over the course of the 20th century, the paths of the two cities have, of course, significantly diverged, just as the paths of Argentina and the U.S. have diverged. Buenos Aires has had faster population growth, but Chicago has become much richer and has also been generally free of the regime-changing political uprisings that have challenged the Argentine capital.[2] In this paper, we ask whether differences between the cities at the start of the 20th century can help us to make sense of their divergent paths since then.

On a functional level, the cities in 1900 appear quite similar. In both cases, rail lines brought wheat and beef into the port. From there, the beef was processed and the produce shipped east. The stockyards that carve up cattle and pigs are big employers in both places. Refrigeration significantly aids the exports of both cities. By 1910, the income gap between the two cities had closed to the point where real wages were about 70 percent higher in Chicago, which is substantially less than the gap was in 1890 or today.

Yet there were significant differences in Chicago and Buenos Aires even in 1910, beyond that income gap. First, the education levels of Chicago residents seem to have been much higher. This difference does not reflect educational enrollments, which seem broadly similar after 1884 Argentine education reform. Instead, the adults coming into Buenos Aires seem to have been much less educated than those coming into Chicago. The main reason for this difference is that rural-urban migrants in the U.S. were much better educated, reflecting the strength of the American common school movement in the early 19th century. Chicago also had more German immigrants, who were relatively well educated, while Buenos Aires disproportionately attracted immigrants from the less well educated countries of Spain and Italy.

Second, Chicago moved much more quickly towards being an industrial producer as well as a transformer of raw commodities. Capital per worker appears to have been about 2.44 times higher in Chicago than in Buenos Aires in 1914. Value added per worker appears to have been 2.25 times higher in Chicago, which can readily explain the 70 percent wage gap. Chicago's production of goods was, to a large extent, oriented towards providing goods for the prosperous Midwestern hinterland. The market for Buenos Aires-made manufactured goods was much

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[2] The events at the 1968 Democratic Convention were as close as Chicago ever came to toppling a government. While many observers link the Chicago riots with Richard Nixon's success in the election, it remains true that Nixon came to power through an electoral process that is quite different from the paths to power of several 20th century Argentine leaders.

smaller, because the Argentine farmers were much poorer. Moreover, Chicago had a long track record of innovation, and in many areas, such as mechanical reapers, it was on the forefront of new technologies. By contrast, Argentina was an importer of technological ideas through much of the 20th century. Chicago's higher human capital levels may help explain why Chicago was more technologically developed, but in any event, by 1930, Chicago is essentially an industrial town, while Buenos Aires is still focused on raw food production and commerce.

Last but not least, political forces in Buenos Aires and Chicago were different. While Chicago had universal manhood suffrage since the Civil War, Buenos Aires had a much more limited electoral base until 1914. More importantly, Buenos Aires is Argentina's capital while Chicago is not the capital of the U.S. The combination of commerce and politics in Buenos Aires means that uprisings in the city have the ability to topple national governments. Comparable uprisings in Chicago, such as the Haymarket riot, were only of local concern. The concentration of population in Buenos Aires seems to have made the country less politically stable.

In the fourth section of this paper, we attempt to assess the relative importance of these difference factors by using cross-national evidence. Inevitably, this pulls us away from a city-level focus to a more national perspective. We examine the ability of pre-World War I variables, including income, industrialization, education, urbanization and political instability to explain cross-section income variation today. All of these variables are strongly correlated with current per capita GDP levels, but measures of schooling in 1900 have the strongest connection to modern income. Using coefficients from cross-national regressions, we estimate that the differences in education between Argentina and the U.S. in 1900 can, in a mechanical decomposition, explain almost all of the differences in current income levels.

But why is the connection between historical education levels and current income so tight? The direct effect of education on earnings can explain only a small portion of the link. Education, however, is also correlated with political outcomes. Stable democracies are much rarer in less well educated countries (Glaeser, Ponzetto and Shleifer, 2007). Lower levels of education in Argentina can help us to understand that nation's 20th century political problems. However, education also seems to have a strong direct impact on national income levels, which can, perhaps be understood as stemming from the connection between area-level human capital and the state of technological development.

II. Chicago del Plata; Buenos Aires on Lake Michigan

We begin by stressing the profound similarities between the economic models of Chicago and Buenos Aires in the 19th century. As late as 1880, 72 percent of the U.S. population was rural. The great wealth of the country came from its vast expanses of fertile land. No area was more fertile than the hinterland of Chicago: Illinois and Iowa. The rich black soil of America's Corn Belt yielded an average of 39 bushels per acre in 1880, about 50 percent more than the older corn producing areas of Kentucky. That higher productivity explains why Chicago passed Cincinnati as America's pig-producing polis.

America's vast hinterland was enormously rich, but at the start of the 19th century that land was virtually inaccessible. It cost as much to ship goods 32 miles over land as it did to ship them

across the ocean. Over the course of the 19th century, Americans built a transportation network that managed to move agricultural produce far more cheaply over space. Cities, like Chicago and Cincinnati, were nodes on that transportation network. Typically, large cities formed in places where goods needed to move from one form of transport to another.

The growth of Chicago depended on two canals. The first canal, the Erie, connected the great lakes to the Hudson River, and through it the city of Chicago was able to ship by water all the way to New York and the outside world. The second canal was the Illinois and Michigan canal, which connected the Chicago River to the Mississippi River system. Chicago's first boom decades, the 1830s, coincided with speculation related to the completion of the canal. Those two canals situated Chicago as the lynchpin of a watery arc that ran from New Orleans to New York.

As it turned out, railroads became even more important in connecting Chicago to the west. Starting in 1848, the Chicago and Galena railroad connected the city westward. While initially intended to move lead, the rail connected to Iowa and became a conduit for agricultural produce, particularly pigs. Corn is an enormously calorie-intensive crop, but it is relatively expensive to ship. Hence corn was typically fed to pigs and those pigs were moved across space. To reap economies of scale, Chicago became a stockyard city specializing in turning live pigs into easy-to-move salted meat.

Typically, mankind has tended to be more interested in salted pig products (bacon, sausage, ham) than in salted beef products. For that reason, in the middle 19th century, pigs were slaughtered in Chicago before their movement east, while cows were shipped live. One great transport innovation in 19th century Chicago was the four-season refrigerated rail car, used by Gustavus Swift. (His engineer's brilliant insight was to put the ice on top of the meat so it dripped down.) After Swift began using refrigerated cars, Chicago increasingly shipped prepared beef, instead of cattle on the hoof, as well as prepared pigs.

The final element in Chicago's agricultural shipping empire was its increasing role as a center for grain shipments. Wheat has less value per ton than pork or beef, and as a result high shipping costs in the middle 19th century meant that wheat typically traveled short distances. Rochester, New York, for example was America's flour city in its early years, specializing in milling grain on its way to New York City. As transportation costs fell, and as hard spring wheat made the cold areas north of Chicago more productive, wheat increasingly came east from the old northwest. Chicago, as the Midwest's premier transport center, became a conduit for shipping grain as well as shipping beef and pork.

Buenos Aires' evolution in the 19th century is broadly similar to that of Chicago. The similarities start with the fact that what turned Buenos Aires into a major commercial hub was its exceptionally fertile hinterland, rather than an exceptionally located port (at least when compared to possible competitors such as Montevideo). The developments in terms of the accessibility of this hinterland to the main networks of international trade were once again the key in determining the patterns followed by the city's evolution. In 1850, transportation across the Atlantic was slow and expensive, dependent on sailing ships. Argentina therefore specialized in exporting products that were extremely durable, such as hides and tallow. In the 1840s, Buenos Aires was exporting more than two million hides per year and ten thousand tons of tallow (Brown 1976). Wool was also a major export. Notably, these were the same products being produced in the region around Los Angeles around the same time and for the same reason.

Distant places with abundant land were best used to produce goods that could last for months during a long sea voyage.

Over the course of the 19th century, Argentina moved to higher value agricultural products, first meat and then grain. In the middle years of the 19th century, Argentina was further away from European markets and had a much higher ratio of land to population than the U.S. For example, in 1880, Argentina was composed of 2.7 million square kilometers and had around 2.5 million people. The U.S. had 8 million square kilometers of land and 50 million people. The vast amounts of space in Argentina made herding relatively more attractive than intensive agriculture. While Argentina actually imported breadstuffs from Chile, in the mid-1870s, it had more than 45 million sheep and more than 5 million cattle. Since cattle and sheep complement open ranges more than pigs, beef became the primary export item for Argentina. They were, of course, and still are overwhelmingly grass fed, whereas U.S. beef primarily eats corn.

Initially, the cattle exports were hides and some salted beef (a bit more than 20 thousand tons per year during the 1850s). The market for salted beef, such as beef jerky, was never particularly robust and this limited the growth of Argentine export trade. Two big transport innovations, however, enabled Argentina to grow dramatically as a meat exporter. First, starting in the 1840s, steam replaced sail on the cross-Atlantic journeys, reducing travel times by as much as two thirds (from over 70 days to less than 25). Second, in 1875, refrigerated ships, or *frigoríficos*, made it possible to ship chilled beef and mutton. The impact of refrigeration was even greater on Buenos Aires than it was in Chicago, because the distances between Buenos Aires and London precluded the shipment of live cattle in large numbers before the 1880s.

With the coming of the *frigoríficos*, Buenos Aires became a large exporter of frozen and chilled beef and mutton. During the early years of chilled transport, mutton was actually a more important export than beef, because "mutton, unlike beef, is not injured materially in quality, flavor and appearance by the freezing and thawing process," (Hanson, 1938, p. 84). By 1892, Argentina was exporting more than a million sheep carcasses annually. Faster transportation was also making it easier to export vast amounts of live cattle and sheep to the United Kingdom and other European markets, and by the turn of the century, 500,000 live sheep and 100,000 live cattle were being exported annually from Argentina to the England.

The vast increase in the amount of chilled beef exported from Argentina, much of it through Buenos Aires, actually occurred during the early years of the 20th century. Between 1900 and 1916, Argentina's exports of frozen beef increased from 26,000 tons to 411,000 tons. About a third of those frozen carcasses were coming through the port of Buenos Aires, which was growing as a center for slaughtering and refrigeration, as well as shipping.

The final step in the agricultural development of Argentina also mirrors the changes in Chicago. Just as the decline in shipping costs made it more attractive to ship wheat from the west to New York via Chicago, easier shipping costs made wheat a more attractive export for Argentina. As late as the 1870s, Argentina was exporting essentially no wheat. By 1904, the Argentines were exporting more than two million tons of it per year.

The growth of the wheat trade was accompanied by a vast transformation on the Pampas. Land that had been used as open range became used for intensive wheat cultivation. By 1910, 10 million acres in the province of Buenos Aires were being used to grow wheat. The population of

Buenos Aires' hinterland rose dramatically as immigrants came to farm. In thirty years, Argentina moved from having essentially no cereal production to becoming one of the world's three largest grain exporters.

The roots of this transformation also lay in better transportation technologies. Across the Atlantic, faster and faster steam ships made it cheaper to ship grain. Starting in the 1850s, a rail network was created within Argentina, generally supported by the government and mostly connecting Buenos Aires to places in the hinterland. (In yet another interesting parallel, just as a New England-born shipping magnate, John Murray Forbes, built some of the first rails that connected Chicago, a New England-born shipping magnate, William Wheelwright, built some of the first rail tracks in Argentina.) Rail allowed population to disperse through the hinterland, and it also brought goods into Buenos Aires to be processed and shipped out; quite crucially, it made it less expensive to ship grain to the capital. While cattle and sheep could walk on their own to the port, grain always needed to be shipped. As a result, grain particularly benefited from the improvements in rail.

In sum, like Chicago, Buenos Aires initial attraction was its harbor and waterways – the River Plata was an avenue into the interior – located next to an exceptionally fertile hinterland. The rail network, which centered at the capital, only increased Buenos Aires' place at the hub of Argentina's internal transport network, just as rail only increased Chicago's importance in the Midwest. The comparison did not escape contemporary observers, such as U.S. Trade Commissioner Herman G. Brock, who noted that "like Chicago, [Buenos Aires] has all the resources of the broad pampas at its doors and is the terminus of a dozen railways whose network of transportation covers the Republic from north to south and east to west, all feeding directly or indirectly into the capital." (Brock, 1919, p. 13)

By 1910 both Chicago and Buenos Aires were "nature's metropolises." Both cities had grown great as conduits that moved the wealth of American hinterlands to more densely populated markets. In both cases, beef and wheat played a disproportionate role in the commerce of the cities. In both cases, improved shipping technologies, especially refrigeration, enabled the cities to grow.

Yet the 20th century time paths of these places were quite different. By population, Buenos Aires grew faster, but by most other measures of progress Chicago dramatically passed its southern rival, just as the income gap between the U.S. and Argentina widened. Is it possible to see, in the differences between the two cities a century ago, the roots of their 20th century divergence?

III. Four Differences between Buenos Aires and Chicago in 1910

In this section, we discuss four major areas in which Buenos Aires and Chicago differed a century ago. In the next section, we connect these differences to the history of the cities and their countries since then.

Incomes

Income levels are the natural starting point for understanding what was similar and different between the U.S. and Argentina, so we first look at wage data for the two countries (plus Great Britain and Italy) from 1870 to 1970 (data from Williamson, 1995b) in Figure 2a-2c. (The wages are normalized so that the British wage in 1905 equals 100.) At the start of the time period, wages in the United States are more than 50 percent higher than wages either in Great Britain or Argentina. Wages in those places are about the same and about double the wages in Italy.

Between 1870 and the early 1890s, Argentina experienced a remarkable 66 percent increase in real wages. Argentina's spectacular real wage increase was accompanied by, and probably created by, the aforementioned improvements in shipping technology that enabled Argentine mutton and beef to efficiently be shipped to European markets. Argentine land was made much more productive by the ability to ship meat quickly and that seems to have greatly increased the marginal productivity of labor.

Argentina was not alone in experiencing real wage increases during the late 19th century. American wages increased by amount the same proportion, so that in 1892 (a high water mark for Argentine wages), American wages remained 60 percent above those in Argentina. Wages in Argentina and Britain remained quite similar and about double the wages in Italy, which sent many immigrants to the U.S. and Argentina during this period. Spain, another exporter of people to Argentina, also had wages that were about one-half of those in Argentina.

Of course, these aggregate wage series don't particularly tell us about similar workers in the two cities. To make the scales somewhat more comparable, Figure 3 shows monthly wages in Chicago from the U.S. Census in 1939 dollars. In Chicago, these wages rose substantially over the 1880s and then remained remarkably static in real terms from 1890 to 1920. Over this time period, of course, the size of Chicago's large force was increasing dramatically. The city expanded from 500,000 to 2.7 million. That vast influx of labor surely played a major role in keeping wage growth modest. The slower population growth over the 1920s, when America substantially reduced the flow of foreign immigrants, may explain rising real wages during that decade.

We do not have data on wages in Buenos Aires itself. Instead, we are forced to use national industrial data. However, much of Argentina's industry was in the capital, so this should give us some sense about wage levels for manufacturing workers in Buenos Aires. While there are many ups and downs, over the whole period, Argentine industrial workers become steadily better paid, as shown in the Williamson data. Throughout the entire period, however, the workers in Chicago were earning more in real terms than the workers in Buenos Aires. During most of the time, the wage gap was approximately 70 percent. At the start of the century, before the great divergence, there was already a very substantial income gap between the two cities.

Why were the workers in Chicago, many of whom were doing comparable things, earning much more? Classical economics pushes us to consider wages as the intersection of labor supply and labor demand. Labor demand, in turn, reflects the marginal productivity of labor. The higher wages in Chicago, therefore, imply that labor was more productive in that city. Why?

There are three primary hypotheses. First, the workers in Chicago had more skills than the workers in Buenos Aires. We will treat this hypothesis in the next section, where we document

significantly greater education levels in Chicago. This gap surely explains some of the difference. However, evidence on wages and schooling from within the U.S. makes it clear that education differences alone cannot explain the gap.

A second hypothesis is that Buenos Aires and Chicago had different amounts of capital, and greater capital levels in Chicago increased the productivity of workers in that city. We will turn to that hypothesis later, when we address the industrial mixes of the two cities. Chicago appears to have had about 2.44 times more capital worker, which in a standard Cobb-Douglas production function might suggest that wages would be 30 percent higher in Chicago. This can explain almost one-half of the gap.

Finally, a third hypothesis is that Chicago firms were more productive, either because of more advanced technologies or because of the greater distances between Buenos Aires and European markets meant that Argentine products were worth less, at their point of production. The American workers were often much closer to their customers and this decreased one cost of reduction, and thereby increased the marginal productivity of labor.

The labor supply curve also gives us information about the reasons for and the nature of wage disparity between the Chicago and Buenos Aires. Both cities attracted very significant amounts of immigration between 1890 and 1910. The 1910 census shows that 36 percent of Chicago's white residents were foreign born, out of which 16 percent were from Russia, 23 percent were from Germany, 17 percent were from Austria and 6 percent were Italian. In Buenos Aires, the estimates from the Buenos Aires Statistical Annual (*Anuario Estadistico de la Ciudad de Buenos Aires* 1925) indicate that the city's population increased by 140% over those two decades, and more than half of that increase was due to immigration. As a result of this massive inflow, 50 percent of Buenos Aires' residents were foreign born in 1914. Buenos Aires' immigrant population was by then overwhelmingly Spanish and Italian, as can be gleaned from the national data: in 1914, roughly 10 percent of the Argentine population was born in Spain, and 12 percent in Italy; natives of the two countries made up roughly three-fourths of the total foreign-born population of the country.

The fact that Italian immigrants were going in large numbers to both Buenos Aires and Chicago is puzzling if the real wage differences are actually of the order of 70 percent. Why would an Italian immigrant choose Buenos Aires over America knowing that real wages are likely to be so much less? There are three possible explanations for this phenomenon. First, it is possible that Buenos Aires offered amenities, like a better climate and a different culture, that were missing in Chicago. Second, the immigrants going to Chicago and Buenos Aires might have actually been quite different. Third, the real wage differences might have been smaller than they appear.

The first hypothesis surely has some truth to it. The fact that Spaniards were drawn to Buenos Aires, despite lower real wages, would not seem like that much of a puzzle. After all, Argentina is a Spanish-speaking country with a Latin culture. The attraction of Buenos Aires is understandable. Italians were also attracted to Buenos Aires because of the similarity in languages (and culture) between Italy and Spain.

There were also substantial differences in the populations going to the U.S. and Argentina. For example, between 1884 and 1886, two-thirds of the Italian immigrants coming to Argentina were from Northern Italy. During the same years, 85 percent of Italian immigrants coming to the U.S.

were from the south. During later periods, the differences narrowed: in the 1907-1909 period, the number of southern Italian immigrants to Buenos Aires had soared, and 31 percent of the Italian immigrants came from the north. Still, that number was much higher than in the U.S. were only 9 percent of Italian immigrants came from Northern Italy.

The somewhat different regional origins suggests that, at least during the earlier periods, the U.S. had greater attraction for the southerners while Argentina had greater attraction for the northerners. The Northerners were generally much more skilled: only about 12 percent of the northerners were illiterate, while 54 percent of the southerners were illiterate. One interpretation is that the Southerners went to America, where industrial wages were higher. The northerners, however, saw greater returns to going to Buenos Aires, which was notably lacking in more skilled workers. (As we will see in the next section, Buenos Aires was, throughout most of the period, a significantly less well educated city than Chicago.) This suggests that the overall pattern of higher wages in Chicago might mask heterogeneity in the wage differentials for different skill profiles.

Finally, the pull that Buenos Aires had to many immigrants does suggest that real wages might not have been quite as low as they seem relative to the U.S. The economic question is how much of a real wage discount would immigrants have been willing to accept to live in Buenos Aires rather than in the U.S. This remains an open question.

In any event, the weight of evidence suggests that, one century ago, Chicago already had higher income levels than Buenos Aires. The next two subsections will dig deeper into the possible reasons behind that disparity.

Education

While wages were certainly lower in Buenos Aires than in Chicago, wages – correcting for education – differ less. The Argentines appear to have been significantly less educated for much of this time period. Unfortunately, literacy remains the primary means of measuring education levels, and that, of course, is a quite coarse measure. Nonetheless, Figure 4 shows literacy rates for Buenos Aires and Chicago during our period.

In Chicago, overall literacy rates for the population aged ten or older start above 95 percent in 1870 and stay at that level for the next 60 years. There is a gap between native and foreign born, but even among foreign born Chicago residents' literacy is never less than 87 percent. Native literacy is always over 98 percent, suggesting that pretty much everyone in the city knew how to both read and write.

By contrast, the Buenos Aires data suggests that less than one-half of the population could both read and write in 1869. By 1895, the next available data point, the literacy rate had shot up to 72 percent, which still meant that a substantial portion of the population was unable to either read or write. It isn't until 1939 that more than 90 percent of the population in Buenos Aires is literate. The data are not entirely comparable since they refer to different age groups, still the differences are quite striking.

Why is there such a difference in literacy rates between the two cities? Table 1 shows school enrollment rates over time for Chicago and Buenos Aires. While enrollment rates are somewhat higher in the U.S., the rates seem much closer than the literacy rates would suggest. The political leaders who came to power after Rosas, such as Mitre and especially Sarmiento in the 1860s and 1870s, were quite committed to public schooling. In 1884, Argentine law made free, secular public schools a right – the Ley 1420 enacted by President Roca, and pushed by Sarmiento in his post-presidency role as head of the National Education Council. There are good reasons to believe that these schooling efforts were particularly successful in the capital, as is apparent from the enrollment data. As such, we can't explain the literacy gap with different enrollment rates alone.

One explanation for the difference is that immigrants who came to Argentina were significantly less literate than their American counterparts. Just as in the U.S., there is a gap between native and foreign born Argentines. In 1904, for example, 89 percent of native Argentines were literate, but only 72 percent of the foreign born in the city could read and write. In 1900 Chicago, by contrast, 93 percent of the foreign born were literate. Chicago's more Germanic population appears to have been much more skilled than the southern Europeans who came to Argentina. Even though Argentina received a higher share of northern Italians, this did not overcome the basic pattern of attracting much less literate people.

The skill differences between Buenos Aires and Chicago don't just reflect differences in foreign immigration. They also reflect the different levels of schooling in the American hinterland. Chicago was a city of immigrants, but it was also a city full of farm boys and girls who had come to town. Likewise, a large share of Buenos Aires residents was born outside the city in Argentina. While school enrollment rates look broadly similar between Buenos Aires and Chicago, outside of the cities the differences in schooling look rather more substantial.

During the first part of the 19th century, American rural areas had embraced the common school movement. Farmers throughout the country had been convinced that educating their children was a worthwhile endeavor that would make them more productive. By contrast, the large ranches that predominated in the Argentine hinterland made no such investments in education. One explanation for the difference is that the returns to skill were much lower in Argentine ranches than in intensive agriculture. Land appears to have been much more widely owned in the U.S., and skills were presumably higher for yeomen farmers than for gauchos.

As a result, the rural areas that fed people to Chicago were reasonably well schooled. The hinterland of Argentina was not, at least prior to 1880. For example, the 1869 census shows that, even after the public education initiatives of the Mitre presidency (although still at the outset of the heavily education-minded Sarmiento presidency), only one in five Argentinean school-age children were enrolled in school. Since that includes data on Buenos Aires, we are led to conclude that the situation in the hinterland was considerably worse than that.

How much of an earnings wedge can be explained by literacy alone? Using data on wages by occupation in 1940 (the first time such data is available), we can estimate a 1940 wage for each occupation in the 1900 U.S. Census. We then estimate the average 1940 wage earned by literate and illiterate Chicagoans.

We find that the average wage earned by an illiterate was 56 log points lower than the average wage earned by someone who could read and write. That premium survives controlling for individual age, and controlling for country of origin reduces the measured premium to 34 log points.

While that premium is extremely significant, it is not enough to explain most, or even much, of the wage gap between Chicago and Buenos Aires at the turn of the last century. 16 percent more of Argentina's population was illiterate than the Chicago's population. Multiplying 16 percent by even a 56 percent wage loss leads to an estimate that Buenos Aires should have had eight percent higher wages if illiteracy was the only thing holding them back. This modest number is dwarfed by the actual 70 percent wage gap.

Of course, illiteracy is presumably just proxying for a large educational gap between the two groups. Still the wage gap seems far too large to be explained by education alone in a simple model where human capital produces productivity. If the returns to schooling were about 7 percent per annum, then Chicagoans would need to have the equivalent of ten extra years of schooling to explain the observed wage difference, which is wildly implausible.

It is, of course, possible that wages impact earnings directly and through human capital externalities. An example of such externalities might be that more education leads to more innovation and better technology for everyone. In that case, the impact of greater skills in Chicago would be larger. Still, we suspect that this effect would show up mainly in the occupational and industrial distribution of the two countries, and we turn to that next.

Industrialization

Both Chicago and Buenos Aires owed their growth to their roles as centers for the shipment of natural produce. Both cities also developed other industries which produced goods for people living in the hinterland and the residents of the city itself. Cyrus McCormick is the quintessential example of an industrialist who moved his mechanical reaper operation to Chicago in order to be close to his customers, the farmers of the Midwest. Buenos Aires also had its industrialists, like Ernesto Tornquist, who invested in large factories.

While both cities certainly had industry, Chicago's industry developed earlier and was far more capital-intensive on the eve of World War I. By 1900, 15 percent of Chicago's population, 262,261 workers, labored in industrial pursuit. Four years later, only seven percent of Buenos Aires' population, 68,512 people, were in manufacturing. After that point, however the share of Chicago's workers in manufacturing stagnated while the share of Buenos Aires workers in manufacturing continued to rise. As a result, their employment in industry converged. By 1914, Chicago had 313,000 industrial workers, or13 percent of the city's population. Buenos Aires province had 149,000 industrial workers, which was 9.4 percent of the city's population.

These similar employment shares were not matched by similar levels of output. In 1914, the U.S. Census writes that the value of Chicago's industrial output is 1.48 billion dollars (or 30 billion in current dollars); the value added by manufacturing was 581 billion dollars (or about 12

billion dollars today). Each Chicago worker was associated with 4728 dollars of output (about 100,000 dollars today) or 1856 dollars of value added (about 38,000 dollars today).

In Buenos Aires, total output was 280 million dollars and value added was 122 million dollars. On a per capita basis, each Buenos Aires worker was producing 1,880 dollars worth of output (or 38,000 dollars today) and 819 dollars of value added (about 17,000 dollars today). Per worker output was 2.5 times higher in Chicago than in Buenos Aires. Per worker value added appears to have been 2.25 times higher in Chicago than it was in Buenos Aires. This difference in productivity is much larger than the 70 percent difference in manufacturing incomes that we found during this time period.

Why was manufacturing more productive in Chicago than in Buenos Aires? One hypothesis is that the level of capital per worker was higher in Chicago. In 1914, the total capital in the manufacturing sector was 1.19 billion dollars or 3,800 dollars per worker (78,000 today). In 1914, Buenos Aires had 231 million dollars worth of capital or 1,550 dollars per worker (32,000 today). The Chicago workers had 2.44 times more capital per worker which may help to explain the higher levels of productivity.

Using a standard Cobb-Douglas production function, we can estimate whether these capital differences can help explain the labor productivity differences across space. This assumes that output equals $AK^{\alpha}L^{1-\alpha}$, where A reflects productivity, K reflects capital, L reflects labor and α reflects capital's share in output (typically taken to be one-third). This equation then implies that per worker productivity equals $A(K/L)^{\alpha}$, which would equal A times the capital to labor ratio to the power 1/3. If the capital/labor ratio was 2.44 times higher in Chicago than in Buenos Aires, this would predict that productivity would be 34 percent higher in Chicago. Thus, higher capital levels alone can only explain about 27 percent of the higher productivity levels in Chicago. The remaining 73 percent of the gap in productivity must be associated with the catchall variable "*A*", which describes total factor productivity. To explain a 125 percent greater productivity per worker in Chicago, total factor productivity must be 67 percent higher in that city.

The productivity gap can come from three sources: human capital, transportation costs and technological development. We have already noted that human capital appears more developed in Chicago. The Cobb-Douglas model, as written above, assumes that labor is measured in equivalent units. Assuming that L equals the number of workers times human capital per worker, implies that per capita productivity will increase by human capital to the power 2/3. If Chicago's workers had 20 percent more human capital per worker (which seems high), then this would predict a 13 percent increase in productivity in Chicago, which can explain another ten percent of the observed productivity difference.

This would leave about 60 percent of the productivity difference to be explained by differences in "*A*", the productivity parameter, reflecting either more developed technologies or easier access to consumer markets. It is difficult to determine how much of the difference in productivity can be explained by either force. Chicago's industrialists certainly found it easier to sell to a much richer and larger market in the United States. The total GDP of the U.S. was about 18 times larger than the GDP of Argentina in 1913. Argentina's hinterland was filled with large numbers of relatively poor people; the farmers of the Midwest were much wealthier.

In principle, Argentina could have exported manufactured goods to Europe, but they don't appear to have done that. Almost all of Argentina's exports in 1914 were agricultural, which surely reflects the country's comparative advantage and the large shipping costs for manufactured goods. By contrast, America was an industrial exporter in 1900, and goods from Chicago, like McCormick's reapers, were traveling the globe. Still, it seems likely that these sales tell us more about technology than about transportation costs. In principle, reapers built in Buenos Aires could have been shipped to Russia, just like those in Chicago. It isn't obvious that the costs would have been that much higher, if at all. The difference was that Chicago was at the cutting edge of reaper technology, while Buenos Aires was not.

A quick look at Chicago's industrial sectors gives us a sense of the city's level of technology. Table 2 lists the top five industries, by employment, for Chicago in 1910 and Buenos Aires in 1914. A few large industries dominated Chicago manufacturing in the years before World War I. The largest sector was men's clothing production, which employed 38,000 people in 1909. Another 37,000 were in foundry and machine shop products. 27,000 worked in meat-packing. There were also 33,000 in printing and publishing. 12,000 people worked in lumber. 12,000 more workers made cars. 11,000 Chicagoans made furniture and refrigerator units. The meat-packers were directly transforming the products of Chicago's hinterland, but the others were working in more advanced products.

Clothing was also Buenos Aires largest industrial sector in 1914, with 36,000 workers. Moreover, the capital/labor ratios were pretty similar in both cities: both men's clothing in Chicago and "dressing" (*vestido y tocador*) in Buenos Aires had about 750 dollars per worker in capital, which suggests that both industries were labor-intensive, and using relatively similar technologies. In the clothing sector, the level of horsepower per capita was actually higher in Buenos Aires than in Chicago.

The fact that the clothing manufacturers in Chicago were more productive presumably reflects more about the available market, than anything about the state of clothing production technology in the Windy City. Chicago's clothing manufacturers had particularly benefited by the distribution networks in the Midwest put together by Chicago-based retail pioneers, such as Marshall Field, John Shedd (who worked for Field), Montgomery Ward, Richard Sears and Julius Rosenwald (who led Sears, Roebuck after Sears).

However, in other areas, there is much more evidence of Chicago's technology superiority. For example, Chicago had about twelve times more employment in car production in 1910 than Buenos Aires did in 1914. Automobiles in that era were a cutting-edge technology. Argentines would purchase plenty of cars in the teens and twenties, but the bulk of them were imported, often from the United States.

Chicago had 37,000 people in foundry and machine shop products relative to 16,000 people in Buenos Aires in metallurgy. However, in this case, the Americans appear to have been far more industrially advanced using 55,000 units of horsepower (or 1.1 per worker) as opposed to 8,000 (or .5 per worker) in Buenos Aires. The Chicago workers had 2400 dollars of capital per worker; the blacksmiths in Buenos Aires had less than half that. These different levels of capital suggest that the Argentines were following a much more primitive model of metal machine production than their Chicago counterparts.

Chicago also appears to have been at the forefront of a number of technological breakthroughs, beyond McCormick and his reaper. In the 19th and early 20th centuries, Chicago innovators created the skyscraper, the electric washing machine, the zipper, and a host of other significant inventions. It is difficult to find any comparable breakthroughs for Buenos Aires.

Evidence for significant differences in the state of technology also appears in many industrial histories. For example, Torcuato DiTella was a leading Argentina industrialist over the first half of the 20th century. While DiTella's first success came with a bread-kneading machine that he invented himself, many of his later successes came from importing American technology. For example, in the 1920s, he catered to Argentina's growing population of drivers (many of whom were in American cars), by providing a new gas pump through a licensing arrangement with the American Wayne Gas Pump company. In the 1930s, he began making refrigerators, first licensing from Kelvinator and then Westinghouse.

Why was Chicago more technologically sophisticated than Buenos Aires a century ago? There were surely many reasons, but human capital seems like a particularly important explanatory variable. Education helped spread ideas in the U.S. and gave engineers the background needed for more innovation. The differences in schooling between the two countries help us to understand why America had more developed industries a century ago.

Politics

The final major difference between Buenos Aires and Chicago lies in the area of politics. The Argentine Constitution of 1853 has a large number of similarities to the U.S. Constitution, which is not entirely coincidental, as the Argentines looked, in part, to the U.S. model. As in the U.S., there are three branches of government, and a bi-cameral legislature. The legislature included both a directly elected house, the Chamber of Deputies, and an indirectly elected legislature, the Senate. Moreover, between 1862 and 1930, Argentina maintained a reasonable amount of political stability, maintaining at least the appearance of a stable democracy.

Beneath this appearance, however, there were at least four major areas in which Argentina and the United States differed for at least some of that post-Rosas time period. First, until 1912, Argentinean suffrage was far more restricted than that of the United States. For example, after 1850, no U.S. state had property rights requirements for voting. By 1860, any of the old tax requirements had also disappeared. Of course, some American states did impose "literacy" qualifications, often in an attempt to exclude African-Americans from voting, but aside from African-Americans in southern states, essentially all American men could vote by the Civil War.

By contrast, universal male suffrage didn't appear in Argentina until 1912. For example, as late as 1896, Banerjee, Benabou and Mookherjee (2006) estimate that only 1.6 percent of Argentina's population voted, in part because of literacy and wealth requirements. Alonso (1993) documents that 1.8 percent of the city's population, or less than four percent of the male population, voted in the 1896 election. By contrast, more than 40 percent of Illinois' male population voted in the 1896 U.S. Presidential election, which suggests a far more open democracy in Chicago than Argentina.

In addition to the limits on suffrage, the Argentinean electoral system did not have a secret ballot. Instead, the *voto cantado* ("sung ballot") – in which each voter would come to the electoral precinct and loudly declare his preferred candidate, upon which the electoral authority would write it down – guaranteed that a local *caudillo* could pressure voters into supporting the candidate of his choosing. Ironically, the allegedly liberal arguments often advanced by urban interests against the extension of the franchise – the idea that rural oligarchs would just manipulate their workers' votes – found their match in the allegedly enlightened arguments of the landed oligarchy against the secret ballot, as they argued that it would deprive ignorant workers from the "healthy influence" of their landlords (Sampay, 1974).

Argentina's voting rules evolved over the period 1890-1910 (Alonso, 1993), and the country moved to universal manhood suffrage and the secret ballot in 1912, with the passage of the Sáenz Peña law. Engerman, Haber and Sokoloff (2000) document that voter participation increased to nine percent (or 18 percent of the male population) in the 1916 election and 12.8 percent (or 25 percent of the male population) in the 1928. By 1920, both Chicago and Buenos Aires had mass democracy, but that democracy was much younger in Argentina. As (at least some) political institutions take time to mature, the novelty of that democracy in Argentina may have added to its weakness.

Not only were electoral rules different between the two cities until 1912, electoral practices were as well. It is unclear if Buenos Aires or Chicago had more electoral corruption, as allegations of voter abuse flew in both places. Textbooks on Argentinean history regularly describe the corruption of 19th century politics. The *voto cantado* system, in particular, gave tremendous power to the electoral judges who were in charge of writing down the vote announced by each voter, and invited widespread corruption on their part. For example, Rock (1987) writes that "only a small fraction of the nominally enfranchised population voted in elections, which local bosses regulated by manipulating the electoral roles or by simple bribery and intimidation."

However, American politics during the Gilded Age was hardly a model of probity. The tale of Charles Yerkes and his acquisition of traction franchises with payments to Chicago politicians, told in fiction by Theodore Dreiser, is among the most famous of all Gilded Age political stories. As late as 1960, rumors alleged that Mayor Daley had manufactured vast numbers of votes for John F. Kennedy in Chicago. Since electoral fraud is hard to measure, and allegations of fraud abound in both places, it would be hard to claim any clear ranking between the two cities in that area.

In any event, it is certainly true that mass violence was far more regular in Argentina than in the U.S., at least after the bloodbath of the Civil War. It is clear that elections in Chicago were not leading to major armed outbreaks. America, of course, did have one election which ended up in open warfare, but after 1865 disagreements over outcomes did not lead to large scale battles. Not so in Argentina.

Buenos Aires was no stranger to political conflict during the late 19th century and early 20th century. In 1880, 1890, 1893 and 1905, Argentina experienced major uprisings; three of those started in Buenos Aires, and the fourth also reached it. The 1880 uprising was associated with the election of Julio Roca as President of Argentina. Roca was seen as favoring nationalization over decentralization and he defeated Carlos Tejedor, a favorite in Buenos Aires. After the electoral defeat, 10,000 Buenos Aires residents rose up and a bloody battle ensued with 3,000

casualties. Roca secured the presidency, and the centralization of Argentina, only by suppressing the revolt.

After that point, the *República Conservadora* ("Conservative Republic") that lasted between 1880 and 1916, under the oligarchic rule of the so-called *Generación del '80* ("Year '80 Generation"), faced constant pressure from the "Radical" opposition. This often spilled into armed conflict, such as in 1890, 1893, and 1905. The 1890 revolution was associated with the somewhat leftist Civic Union group, which was actually led by Mitre himself, and it aimed to topple the President Miguel Celman. In that, the uprising succeeded, and led to the presidency of Carlos Pellegrini, who was a general opposing the revolt. In 1893, an uprising led by the Radical Civic Union, an offshoot of the Civic Union, started in the Santa Fe region of Argentina, but also spilled over into the capital city. In 1905, the Radical Civic Union led another revolt in Buenos Aires, which was unsuccessful. In addition, the anarchist- and socialist-influenced labor movement brought about by European immigrants contributed to the political turmoil with massive strikes such as the "tenants' strike" of 1907 and the "Red Week" of 1909.

The coup of 1930, which would oust President Yrigoyen, is often seen as a turning point in Argentine politics, where democracy was replaced with military rule. However, we have seen that this coup was hardly without precedent. Four times between 1880 and 1905, revolts started or reaching Buenos Aires shook the country and often achieved a fair amount of success. This suggests a degree of instability in Buenos Aires that was much more extreme than in Chicago.

Chicago did have uprisings, most notably the Haymarket Riot of 1886 and the Chicago Race Riot of 1919. The labor union movement also made its presence felt, of course, as illustrated by the Haymarket episode, the "Teamsters' strike" of 1905 and the "Garment strike" of 1910, all of which ended with many killed and injured in confrontations with police. Broadly speaking, Chicago was hardly a model of social order. Although, in 1890, homicide rates were about two times higher in Buenos Aires than in Chicago, by the 1920s, after Prohibition, the picture is essentially reversed.

While both Chicago and Buenos Aires had uprisings, their consequences were vastly disparate. If the immediate consequences of the Haymarket riot were the controversial execution of seven anarchists and a boost to May Day commemorations around the world, the Buenos Aires events had far more direct consequences for the Argentinean political system. The Revolution of the Park, in 1890, while defeated by government forces, still led to the fall of President Celman. The 1893 Revolution also took over the Casa Rosada before being defeated. In fact, the consensus interpretation of the Sáenz Peña law among historians describes it as largely motivated by the rising tension and the pressure exerted by the Radical opposition, galvanized by the battle cry of the secret ballot and universal suffrage, and by the labor movement. As a result of the electoral reform, the Conservative Republic also met its demise in 1916, when the Radical Yrigoyen won the presidency in the first election under the new rules.

What can explain these different consequences? The relative immaturity of the Argentine democracy certainly played a part, but it is also the case that the location of Buenos Aires at the very heart of the country's politics, as the all-important capital city in which by 1914 more than one in six Argentineans lived, made Porteño turmoil more consequential. In fact, Argentina still is one of the countries with the highest concentration of population around the capital city in the

whole world – it has the highest concentration among countries with large territories – using the measure developed in Campante and Do (2009).

The centrality of Buenos Aires, of course, is not simply related to its designation as the capital city. From the very early years of the independent Republic, the city's enormous weight in terms of population and economic activity, which was engendered by its position as the gateway to the hinterland and by the low labor intensity of the dominant cattle-raising activity, posed a constant challenge to the Argentinean federal system. This is illustrated by the perennial tension between the Province of Buenos Aires – which was still fighting the idea of joining the Union, in the battlefield, as late as 1862 – and the other provinces, which culminated in the federalization of the city of Buenos Aires in 1880. Chicago, in contrast, was a relative latecomer to the Union, which the state of Illinois joined more than forty years after independence – and Chicago, of course, is not even the capital of that state.

In any event, the fact is that the 1890 Revolution, for instance, started in the Artillery Park, located a half-mile from the Casa Rosada. The Haymarket riot, in contrast, took place some 700 miles away from the White House. For this reason, it is very likely that the political and social instability that brewed in the similar environments of Chicago and Buenos Aires, both of which were undergoing rapid transformation, had much more detrimental consequences for Argentina in terms of the consolidation of its democracy.

There is a strong connection between urban concentration in and around a primate capital and political instability (Ades and Glaeser, 1995), which reflects causality running in both directions. For at least 2500 years, urban mobs have had the ability to force political change. In 509 b.c., Lucius Junius Brutus led the coup that ousted the last Roman King. In 411, Athenian democracy was ended by another urban coup. The history of Europe's great medieval cities, like Bruges, is replete with organized opposition to aristocratic rules. France's political instability in the 19th century owes much to the power of Parisian mobs to topple governments.

The fundamental ingredient in a successful revolt is scale (Campante and Do 2007). Isolated activists can do little to challenge a government. Urban density makes it easier to form connections, which can create a sufficiently large uprising. Riots are, after all, a primarily urban phenomenon (DiPasquale and Glaeser, 1997). The political importance, however, of urban riots depends on their proximity to power. That explains why uprisings in Buenos Aires were so much more important than those in Chicago.

The political power of urban mobs can lead to two political responses. The first is to placate the mob with public handouts and services (Campante and Do 2007). Classical Rome's vast bread doles, for example, can be understood as an attempt to cool the mobs organized by the Gracchus and others. The general tendency of developing countries to target public services to the capital is a more modern example of this phenomenon. Of course, placating urban unrest has the effect of then further expanding the size of the capital city. For this reason, the connection between political instability and capital size is two-sided. A large capital appears to create instability, and instability means that services flow to the capital which attracts migrants and further increases its size.

In some cases, political leaders respond to the threat created by urban unrest by moving their capital far away from the city (Campante and Do 2007, 2009). When Peter the Great moved his

capital to St. Petersburg he was protecting his regime from the influence of Muscovites. Likewise, America's founders chose to create a new capital on the Potomac, in part to reduce the influence of people in New York and Philadelphia (America's first capitals). America's largest riot, the 1863 New York City draft riot, could have had a much larger influence on history if New York, rather than Washington, had been the capital of the U.S.

In light of these facts, we are led to conclude that the large, primate capital of Argentina might have played a major role in the nation's 20th century political problems.

IV. Did those Differences Matter?

We have argued that, despite the enormous similarities between Chicago and Buenos Aires, there were substantial differences in income, education, industrial development and political institutions. The main question that remains is the extent to which each one of those differences might be able to account for the different paths of Buenos Aires and Chicago, and more broadly those of Argentina and the U.S., in the 20th century. In principle, any one of those differences could have played a role. A "big push" theory of growth (e.g. Rosenstein-Rodan, 1943, Murphy, Shleifer and Vishny, 1989) might suggest that higher levels of income could have put the U.S. on a path towards industrialization. Human capital might have influenced growth directly, or indirectly through industrial development or political change. The fact that Buenos Aires was far less industrial than Chicago, and far more dependent on natural resources, set the stage for the declines of the 1930s, when the price of natural resources plummeted. The political differences of Buenos Aires might have played a role in explaining the political traumas that Argentina experienced over the 20th century.

A system with two countries and four potential explanatory variables is, of course, overdetermined. The only way to evaluate the relative importance of these four factors is to bring in other countries. We will do this directly, by running a set of cross-national regressions, while drawing on the long literature on the determinants of differences in country-level prosperity, such as Hall and Jones (1999). Although the limitations of cross-country regressions are well known, they can nevertheless provide us with a benchmark quantitative assessment of our candidate explanations.

We start from the premise that there is a link between relevant outcomes such as income today and variables in the early 20th century, and that we can look at 100-year regressions at the cross-country level to estimate the impact that the latter have on the former. We then multiply these estimated coefficients by the differences in initial conditions between the U.S. and Argentina, to get a sense of the amount of today's differences that can be explained by the different initial conditions in this specific comparison. Essentially, we are assuming a model of the form:

$$(1)\quad Y_{Today,j} = \sum_i \beta_i X_{i,1900,j} + \varepsilon_j \ ,$$

where $Y_{Today,j}$ is country j's outcome today, β_i is the coefficient on explanatory variable *i*, $X_{i,1900,j}$ is the value of explanatory variable *i* in country *j* in 1900 and ε_j is a country specific

error term. This estimating equation then suggests that the differences in outcomes between Argentina and the U.S. today can be understood as:

$$(2)\quad Y_{Today,US} - Y_{Today,Argentina} = \sum_i \beta_i \left(X_{i,1900,US} - X_{i,1900,Argentina} \right) + \varepsilon_{US} - \varepsilon_{Argentina}$$

The ratio $\frac{\beta_i \left(X_{i,1900,US} - X_{i,1900,Argentina} \right)}{Y_{Today,US} - Y_{Today,Argentina}}$ is the share of the current differences between Argentina and the U.S. that can be explained by variable *i*. The cross-country regressions will furnish our estimates of the coefficients β_i.

Our primary outcome variable is the logarithm of per capita GDP in 2000, calculated using purchasing power parity and taken from the Maddison (2008) data set. Since GDP is typically measured at the country, not city level, we will be using national GDP measures and national characteristics a century ago. Using this variable, the difference in log of GDP per capita between the U.S. and Argentina is 1.2, which means that American incomes were 230 percent higher than those in Argentina in 2000. This is, of course, much larger than the 48 percent difference shown in 1900 GDP data (also from the Maddison (2008) data set).

We will also look at a political outcome variable, as well as GDP, because so much of the work on Argentina has emphasized the interaction of political and economic distress (e.g. della Paolera and Gallo, 2003). We focus on the democracy score of the country, as measured by the "Polity 2" variable from the Polity IV data set, averaged between 1970 and 2000. This measure subtracts a 0-to-10 "Autocracy" score from a 0-to-10 "Democracy" score (both of which constitute indices of institutional features), resulting in values ranging from -10 to 10. We use a long-run political average, because democracy measures vary substantially from year to year. Moreover, Argentina's current political environment is far more stable than even its recent past, and looking only at the most recent data would understate the extent of the country's political turbulence. (For the period average, Argentina scores 2.06, while the U.S. scores 10.) We will look at GDP first, then politics, and then ask whether controlling for current politics helps us to understand the differences in GDP.

Our key explanatory variables are per capita GDP in 1900 (from Maddison (2008)), which is available for 37 countries, and measures of school enrollment for the same year (from Banks). Our school variable adds together the enrollment rates for primary, secondary and university education. (The most important variable is primary education, and results are similar if we use that variable alone.) We have 36 countries with this variable. Our third variable is the share of manufacturing in total output in the early 20th century, which we obtain from multiple sources (Milward and Saul, 1977; Bulmer-Thomas, 1994; Engerman and Sokoloff, 2000; Urquhart, 1993). (The actual year varies by country, between 1899 and 1920; most come from around 1913.) This variable captures the degree of industrialization a century ago, but it is only available for 16 countries. Finally, we use the average of the Polity 2 variable between 1870 and 1900 to measure institutional development.

As these variables are often quite collinear, and as they are available for different subsamples of countries, we begin by examining the univariate relationship between these explanatory variables

and the logarithm of per capita GDP in 2000. Regression (1) in Table 3 shows the relationship between GDP in 1900 and GDP today. The lagged variable explains 65 percent of the variation in current GDP across the 37 countries. Essentially, the elasticity is one, meaning that if a country was 10 percent richer than another in 1900, then it is ten percent richer today.

Figure 5 shows the relationship between income in 1900 and income today. The relationship certainly is tight, but Argentina is an outlier, falling substantially below the regression line. If we were to accept the coefficient of 1.01 on log GDP per capita in 1900, then initial income levels would only predict a .4 log point difference today. This translates into a difference of about 49 percent, which is just about one-fifth of the total difference in incomes between Argentina and the U.S.

In the second regression, we look at the connection between our schooling variable and GDP today. The R-squared rises to 70 percent, and as the share of the population attending school increases by 5 percent, then GDP today increases by .7 log points. This is about doubling. This captures the enormously strong connection that schooling in the past appears to have with current income levels (as in Glaeser, La Porta Lopez de Silanes and Shleifer, 2004). Figure 6 shows the connection between schooling enrollments in 1900 and income today. In this case, Argentina lies on the regression line and the U.S. is somewhat beneath it.

Can the difference in schooling explain current income levels? We will return to this question later, when we have controlled for other variables, but a simple thought experiment using the univariate coefficient suggests that power of education. The gap in enrollment rates between Argentina and the U.S. in 1900 is .12. While Buenos Aires may have had comparable enrollment rates to Chicago, outside the city education levels were far lower than in the U.S. Multiplying .12 by the estimated coefficient of 14.4 suggests a current income difference of 1.80 log points, which is actually substantially larger than the realized income difference. While this fact tells us nothing about whether schooling is actually determining the gap or whether it is just proxying for something else, the raw coefficient suggests that the cross-country relationship in income suggested by 1900 schooling levels can account for the current differences between Argentina and the U.S.

Our third regression looks at the share of manufacturing in output around 1913. We only have 16 observations, but again, the relationship with current income is positive and significant. As in the case of income, however, even the univariate regression doesn't suggest that this variable is powerful enough to explain more than a quarter of the current difference between the U.S. and Argentina.

Finally, we look at the correlation between political instability in the late 19th century and GDP today. The explanatory power of this variable is much weaker than the other variables. As Figure 7 shows, there are plenty of once unstable countries that are now quite prosperous. Argentina may have been less stable than the U.S., but it was more stable and democratic than many European countries which are now far more prosperous. Still, the correlation between 19th century instability and wealth today might explain something of the current differences between Argentine and U.S. wealth. Using the univariate coefficient, we find that the differences in the

historical politics measures would predict a .7 log point difference in incomes today, which is more than half of the total income differences.

In sum, the univariate relationships suggest that human capital and politics both have a chance at explaining significant amounts of the differences in income between the U.S. and Argentina. The other variables appear less important. To sort out the relative importance of these different variables, we now turn to multivariate regressions. In regression (5), we include both GDP and schooling as control variables. The coefficient on GDP drops by almost 75 percent and becomes statistically indistinguishable from zero; the coefficient on schooling retains statistical significance but drops by one-half. The bulk of this drop does not come from controlling for income, but rather from restricting the sample size. We don't have GDP figures in 1900 for many poorer countries, especially in Latin America; as a result, the sample becomes wealthier and the coefficient (which is smaller across richer countries) becomes smaller.

In regression (6), we control for manufacturing and schooling. When we control for schooling, the coefficient on manufacturing is very small, and just borderline significant at the 10% level. The coefficient on the schooling variable is 7.4. When we include GDP in the regression (not shown), controlling for manufacturing drives the coefficient on GDP in 1900 essentially to zero; the coefficients on the other two variables remain largely unaffected, but the significance of manufacturing is removed. In regression (7), we control for politics as well as the schooling variable. In this case, politics becomes insignificant, and the coefficient on schooling is essentially the same as in the univariate case.

These results strengthen the case for the central role played by differences in schooling, but we still need to investigate what happens when the full set of variables is simultaneously included. This is what we do in regression (8) (with the exception of manufacturing, which causes our sample to shrink too much). With all three variables, schooling remains significant with a coefficient of 7.6. The other two variables are not. We take away from these regressions the view that no variable, other than schooling in 1900, has a reliable correlation with GDP in 2000. The coefficient on schooling ranges from 7.5 to 14.5.

We have already shown that if the schooling coefficient is 14.5 it can more than explain the current differences between Argentina and the U.S. How much of those differences can schooling in 1900 predict if the coefficient is smaller? For example, if the coefficient is 10, then the differences in schooling levels in 1900 would predict a 1.2 log point difference in current incomes, which is exactly the difference in 2000. If the coefficient is 7.5, then the schooling difference can explain 75 percent of the current income differences. As such, human capital in 1900 seems to predict the lion's share of the difference in current incomes.

But why would historical human capital levels predict such large income differences? One obvious explanation is that human capital in 1900 predicts human capital today, and that current human capital differences explain the gap between the U.S. and Argentina. It is certainly true that schooling in 1900 is strongly correlated with schooling today: the correlation coefficient between our enrollment data and total years of schooling in 2000 taken from Barro-Lee (2000) is 85 percent.

Moreover, years of schooling today certainly strongly predict income levels. A univariate regression of log of GDP on total years of schooling in 2000 finds a coefficient of 0.369 (R-squared: 0.745). The gap in total years of schooling between Argentina and the U.S. today is 3.22 years (12.05-8.83). Taking the estimated univariate coefficient literally suggests that current schooling differences can explain 98 percent of the current GDP gap between the U.S. and Argentina.

But what does this univariate coefficient mean? Our cross-country coefficient certainly implies a much higher effect than estimates from individual-level studies, where an extra year of schooling rarely increases wages by more than ten or at most fifteen percent (e.g. Ashenfelter and Krueger, 1994; Card, 1999). If that lower range of coefficients represented the link between education and productivity, then higher education levels in the U.S. can explain less than one third of the difference in incomes between Argentina and the U.S.

How can we reconcile the gap between individual-level estimates of human capital effects and country-level estimates of human capital effects? One view is that the larger coefficients at the national level represent human capital spillovers. Living in a country with more skilled individuals may make everyone more productive, perhaps because skilled workers are responsibility for determining the level of technology in a given country. However, cross-metropolitan area studies of human capital spillovers generate an estimate that is positive, but far too small to account for the size of the cross-country coefficient (Rauch, 1993; Acemoglu and Angrist, 2000).

One explanation for the difference between the cross-city estimates and the cross-country estimates is that – as suggested by Glaeser, Ponzetto and Shleifer (2007), building on the famous Lipset (1959) hypothesis – schooling is responsible for political outcomes. In particular, stable democratic institutions tend to be predicated on the level of schooling of the citizenry. According to this view, Argentina's problematic political history during the 20th century has its roots in the relatively lower human capital levels of the country in 1900.[3] To test this hypothesis, in Table 4, we reproduce the exercise from Table 3, but now with political stability between 1970 and 2000 as our dependent variable.

The first four regressions repeat the univariate relationships shown in Table 3. As before, all of these variables predict the outcome variable. Schooling has the strongest correlation with democracy during the late 20th century, but the other variables also predict democratic stability. In the fifth regression, we include all of the variables – again with the exception of manufacturing, which depletes too much of the sample. In this case, schooling continues to

[3] The relatively low levels of human and physical capital might have influenced political instability in Argentina through yet another channel. Campante and Chor (2008) show evidence that, in countries that are relatively land-abundant, individual schooling tends to be more strongly associated with political activity, particularly for "conflictual" modes of activity such as demonstrations. This suggests that, for the case of Argentina, its dearth of physical and human capital relative to the U.S. meant that the country's investments in expanding education were partly translated into relatively more political conflict.

predict democracy, and the coefficient is essentially unchanged. None of the other variables remain statistically significant.

Can the schooling differences between Argentina and the U.S. explain the instability of late 20th century Argentina, in a quantitative sense? The difference in the two outcome variables is 7.94. The estimated coefficient on schooling is approximately 52. Multiplying 52 by the schooling difference in 1900, yields an estimate of 6.24, which is 79 percent of the observed instability difference. While the schooling differences can't explain all of the differences in democracy, they can certainly go most of the way.

Our final exercise is to see whether the connection between education and democracy can explain why schooling in 1900 is so correlated with incomes today. Going back to the specification from Table 3, we now include the 20th century politics variable in a regression that also includes schooling in 1900. Including this variable causes the coefficient on schooling to decrease by more than a third, relative to the univariate regression, but the coefficient remains 8.87, which is still quite high. If we include both democracy today and GDP in 1900 as controls, then the coefficient on schooling in 1900 falls to 2.7, and is no longer significantly different from zero, as shown in regression (9). We interpret these regressions as suggesting that much of the impact of relatively low levels of schooling in Argentina went through political channels.

Whatever remains of the schooling effect may work either through unmeasured political channels, or direct human capital effects, or through better technology. Hopefully, further work will better help us to understand the strong connection between historical schooling and current GDP in a broader context. In our specific case, however, it does seem to be true that Argentina's collapse, relative to the U.S., had much to do with lower education levels.

V. Conclusion

There were many similarities between the historical trajectories of Chicago and Buenos Aires. Both cities were conduits for natural wealth coming from the American hinterland to the markets of the east. Both cities dealt in the same products, first animals and then grain. Both cities grew spectacularly and were among the wealthiest places on earth a century ago.

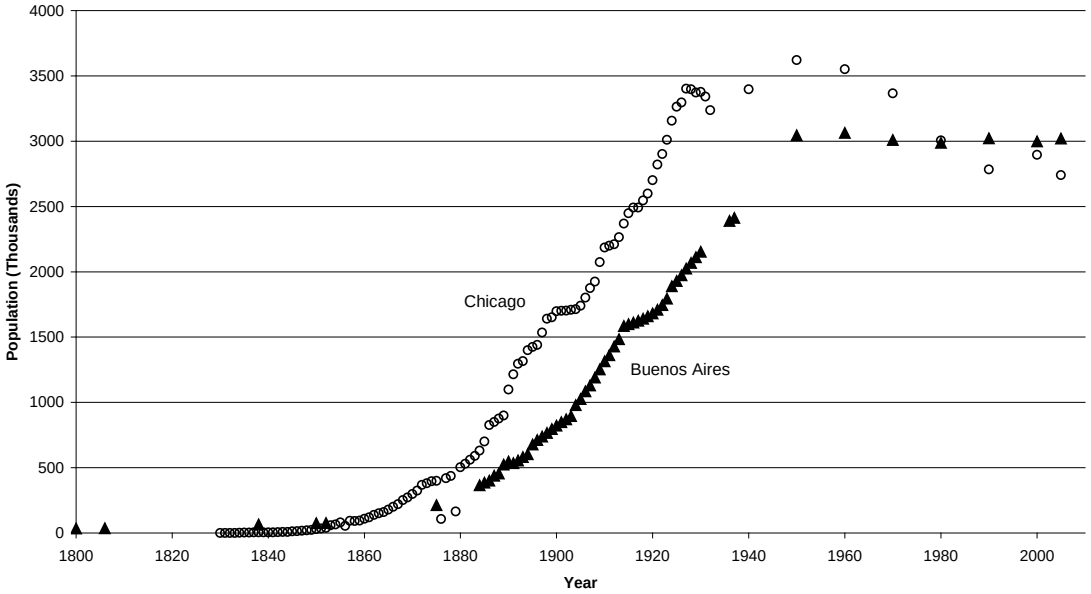
However, even a hundred years ago there were substantial differences between the two cities. Chicago was wealthier and better educated. Its industries were more advanced and more capital intensive. Its political system was more stable, and its instability was less consequential. All told, Buenos Aires looks more like a place that became rich because of a boom in natural resources. Chicago used those natural resources and then transitioned into becoming a more modern industrial place, with substantially greater levels of physical and human capital.

The gap in industrial development and human capital then set the stage for the 20th century. Across countries, schooling in 1900 strongly predicts success today, partially because less schooled places have had far worse political outcomes. America's greater level of human capital in 1900 surely deserves much credit for its track record of 20th century political stability. In this regard, the effects of the lower levels of human capital in Buenos Aires were in turn magnified

by its overwhelming political importance within Argentina. All in all, the divergence between Chicago and Buenos Aires reflects the fact that Buenos Aires in 1900 had wealth levels that were far higher than its actual level of human and physical capital accumulation.

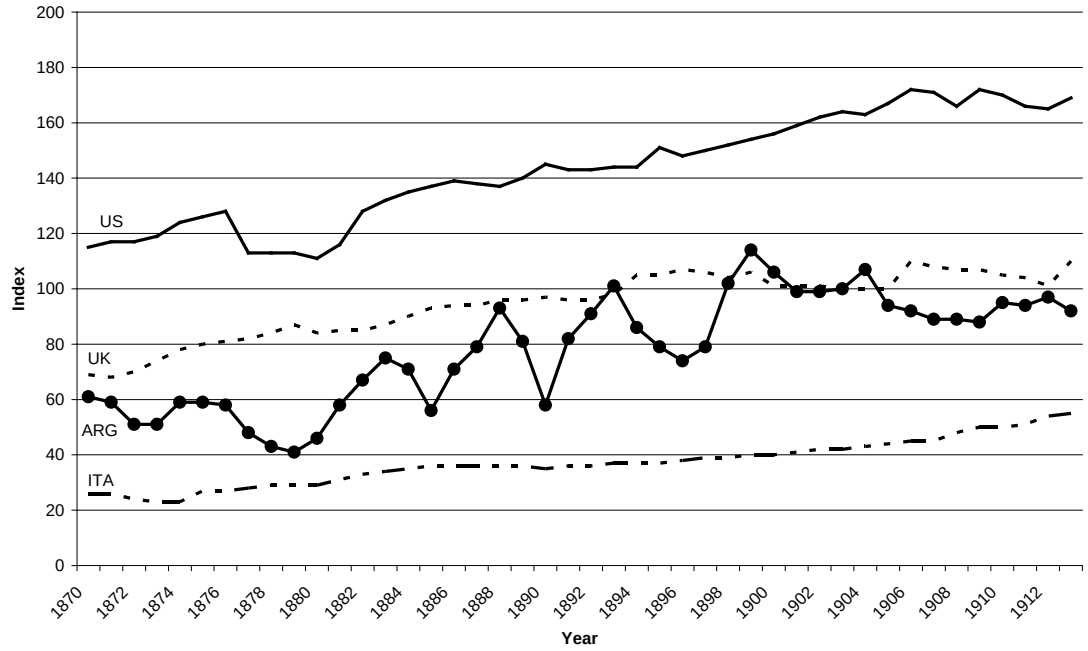
From a slightly broader perspective, particularly within the context of Latin America, this conclusion sounds somewhat dispiriting. After all, by the standards of the region, Argentina did invest early and heavily in human capital accumulation, and achieved a stage of near-universal literacy and enrollment way before most of its neighbors – many of which are still considerably off that mark. Still, it seems that the human capital lag it displayed in comparison with the US or Western Europe, even in its heyday, ended up trapping the country with relatively immature political institutions. This fragility was in turn made more acute by the geographical concentration of population and economic activity around Buenos Aires, and eventually plunged the country into a cycle of instability from which its economic performance could not escape unscathed. President Sarmiento seemed to have his finger on the right issue when he stated that "all problems are problems of education", but for Argentina we might add that this recognition was not enough.

Figure 1:
Population Growth of Chicago and Buenos Aires, 1800-2005



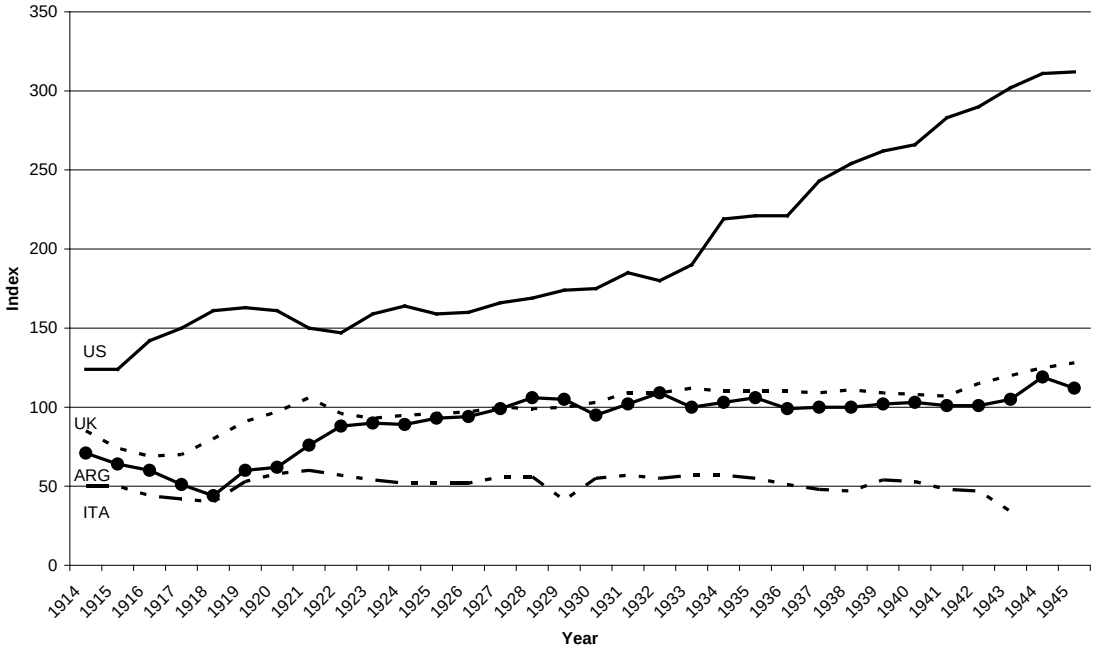
Sources: Historical data for Chicago from *One Hundred Years of Land Values in Chicago,* by Homer Hoyt, and data for 1940-2005 from the U.S. Census. Historical data for Buenos Aires is from *Anuario Estadístico de la Ciudad de Buenos Aires* and *Anuario Municipal,* and data for 1950-2005 from *Poblacion de Buenos Aires.*

Figure 2a: Annual Wage Data 1870 - 1913
(100=UK Real Wage in 1905)



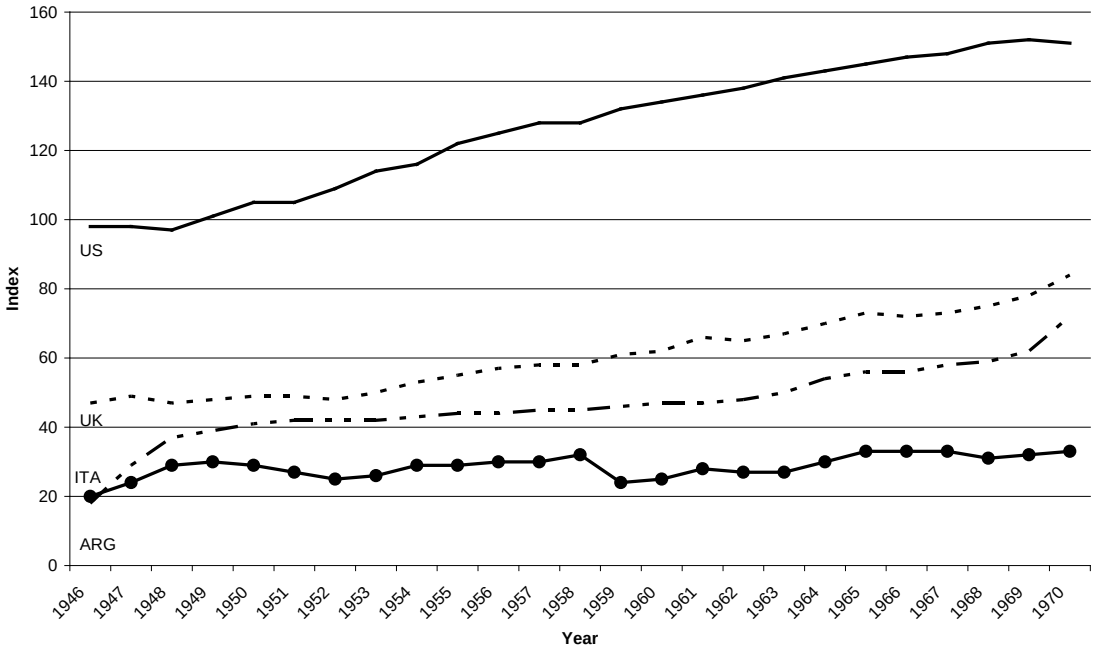
Source: Jeffrey G. Williamson, "The Evolution of Global Labor Markets since 1830: Background Evidence and Hypotheses",

Figure 2b: Annual Wage Data 1914 - 1945
(100=UK Real Wage in 1927)



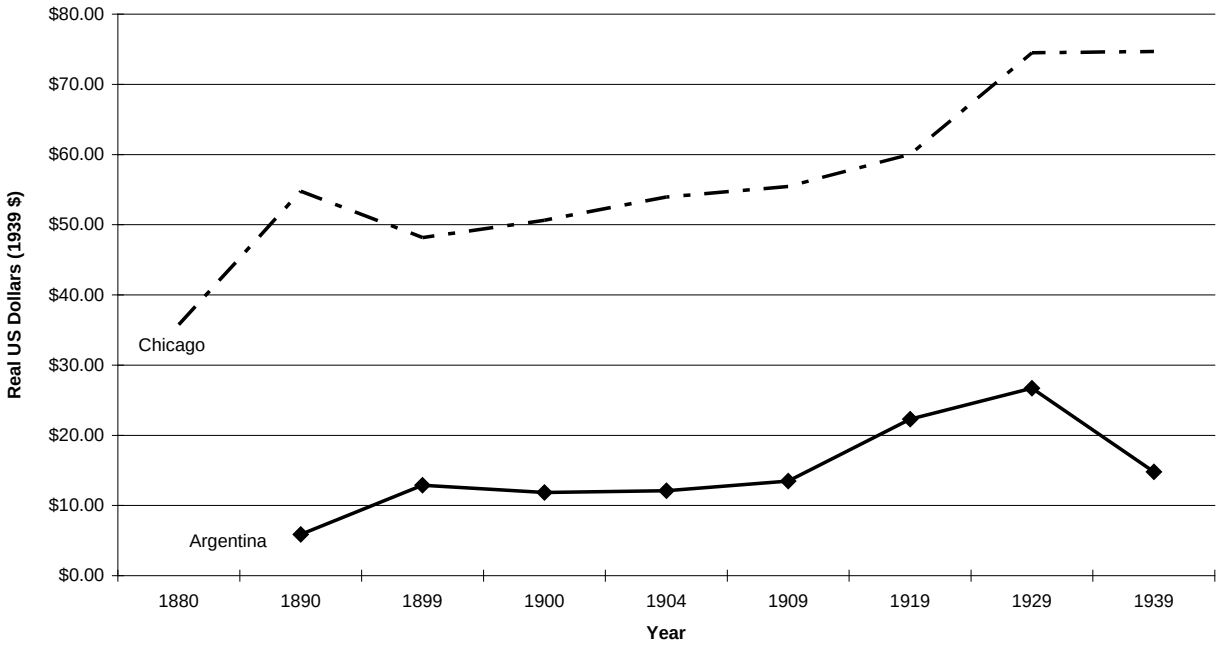
Source: Jeffrey G. Williamson, "The Evolution of Global Labor Markets since 1830: Background Evidence and Hypotheses",

Figure 2c: Annual Wage Data 1946 -1970
(100=UK Real Wage in 1975)



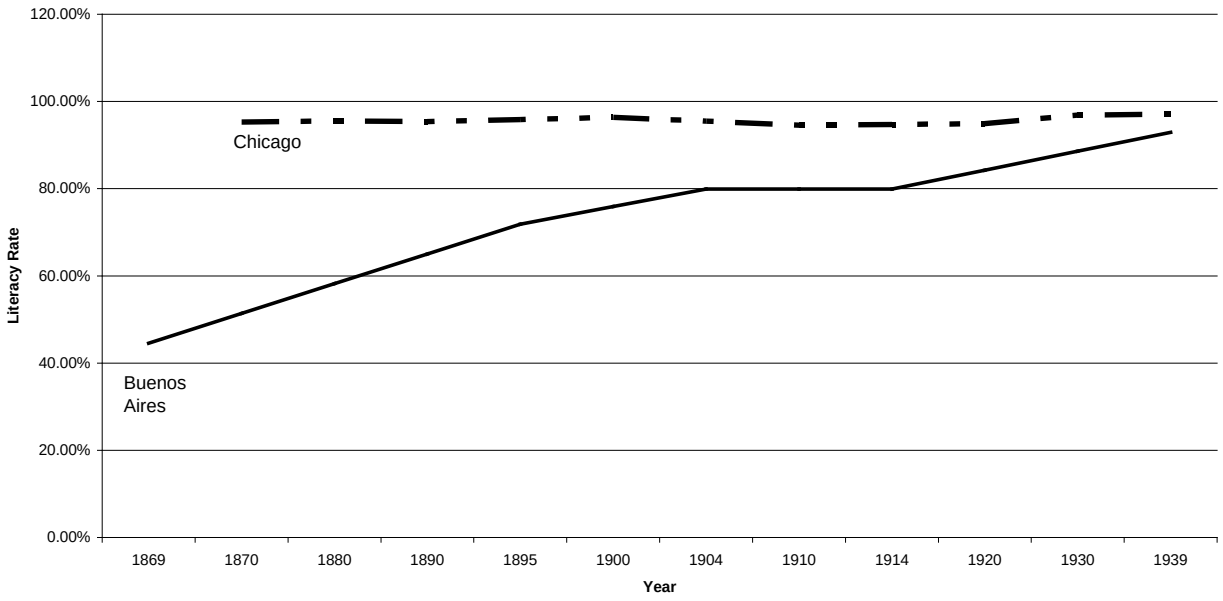
Source: Jeffrey G. Williamson, "The Evolution of Global Labor Markets since 1830: Background Evidence and Hypotheses",

Figure 3:
Real Monthly Wages in Chicago and Argentina, 1880-1940



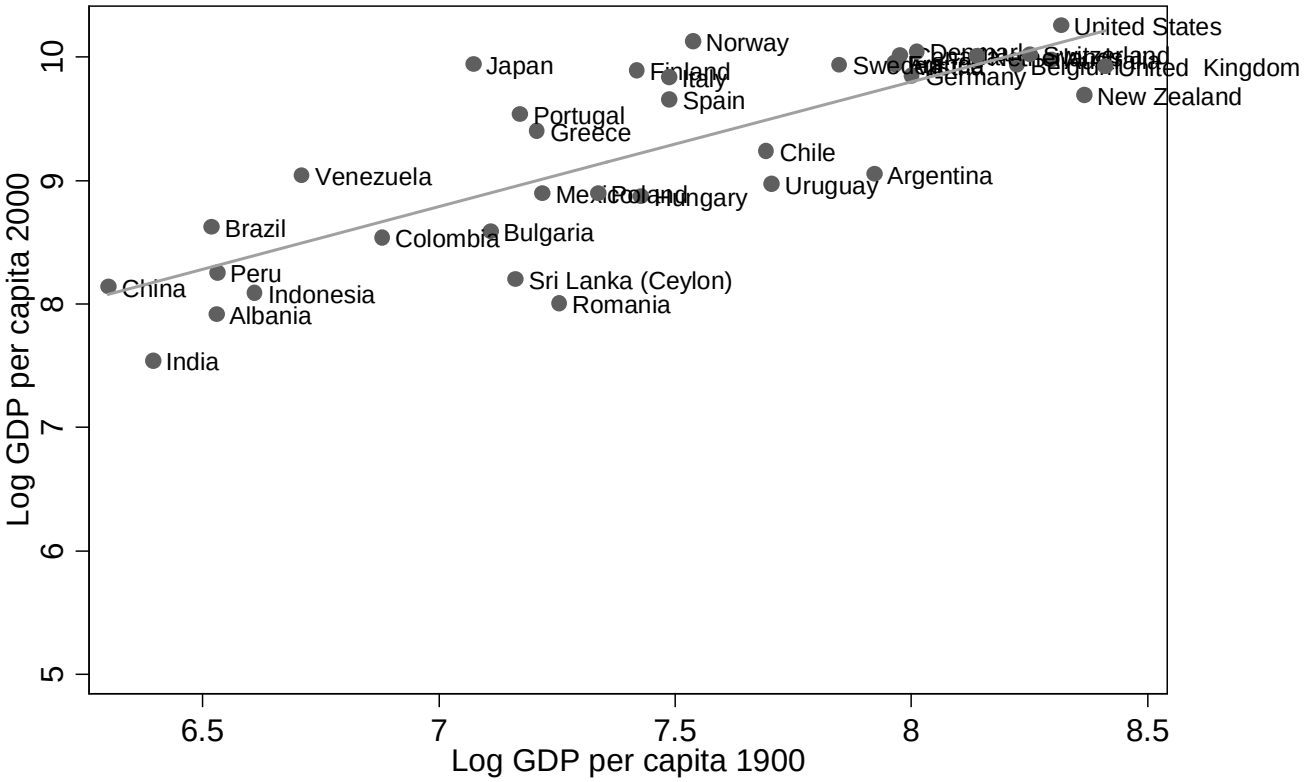
Sources: Chicago data from the U.S. Census. Argentina data from Williamson (1995a) and DiTella and Zymelman (1967)

Figure 4:
Literacy Rates in Buenos Aires and Chicago, 1869-1939



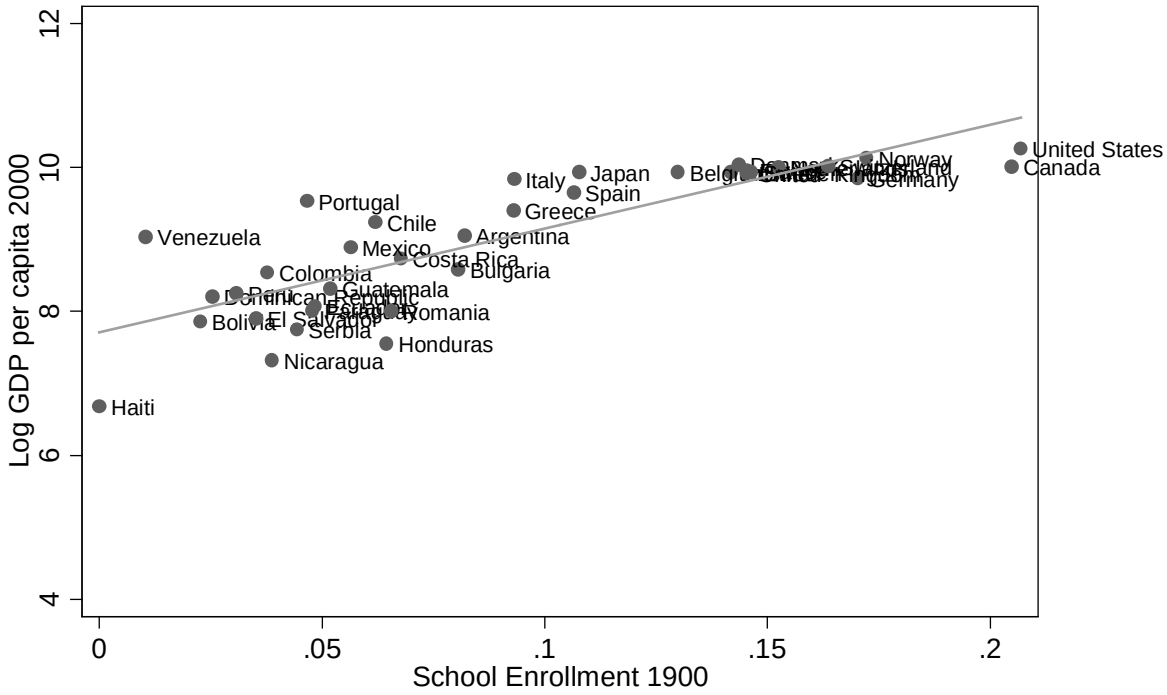
Sources: Data for Chicago from the U.S. Census IPUMS (Integrated Public Use Microdata Series) at www.ipums.org. Data for Buenos Aires from Primer Censo Nacional (1869), Segundo Censo Nacional (1895), Censo General de la Ciudad de Buenos Aires (1904), Tercer Censo Nacional (1914) Tomo III, and Cuarto Censo General de la Ciudad de Buenos Aires (1939)

Figure 5



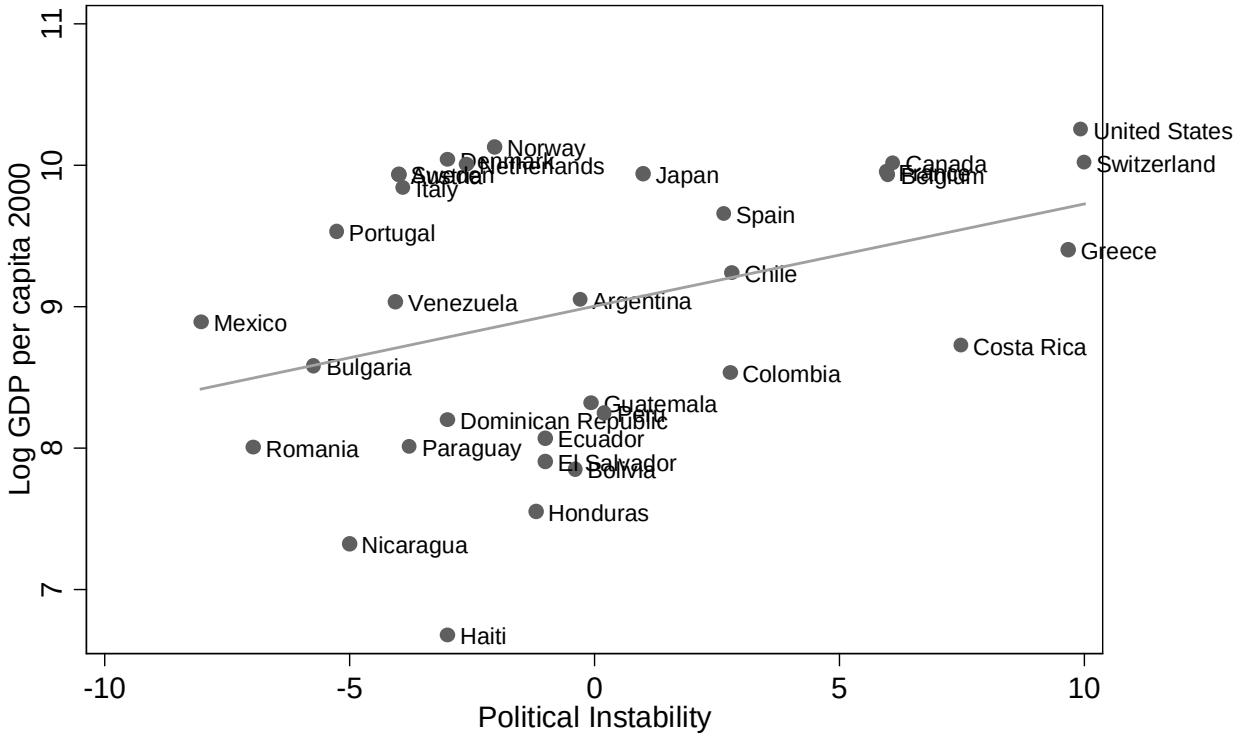
Source: GDP per capita from Maddison.

Figure 6



Source: GDP per capita from Maddison. School enrollment from Banks.

Figure 7



Source: GDP per capita from Maddison. Political instability from Marshall and Jaggers.

Table 1:
School Enrollment in Chicago and Buenos Airies

Chicago Children Aged 5-14			Buenos Aires Various Age Groups			
Year	% in School	Total Population (Of Age Group)		% in School	Total Population (Of Age Group)	
1870	66.14%	61,874	1883	64.63%	52,231	Age 5-14
1880	54.96%	106,543	1895	57.72%	117,388	Age 6-14
1890	66.39%	214,470	1904	67.45%	188,271	Age 6-15
1900	64.82%	342,000	1943	90.10%	290,922	Age 6-13
1910	85.52%	353,520				
1920	89.80%	486,969				
1930	86.34%	553,884				

Sources:
(1) All of the Chicago data are from are from IPUMS, except 1890 which is from the print edition of the 1890 census.

(2) Censo Escolar Nacional -correspondiente a fines de 1883 y principios de 1884, Segundo Censo Nacional (1895), Censo General de la Ciudad de Buenos Aires (1904), Tercer Censo Nacional (1914), and Cuarto Censo Escolar de la Nación (1948)

Table 2:
Top 5 Industries in Chicago (1909) and Buenos Aires (1914)

	Total Employment	Share of Total Manufacturing Employment	Share of Total City Population	Value Added per Worker (1914 US $)	Capital per Worker (1914 US $)
Top Five Industries in Chicago (By Employment)					
Clothing, men's, including shirts	38,370	10.75%	1.85%	$1,191.50	$1,023.20
Foundry and machine-shop products	36,868	10.33%	1.78%	$1,426.24	$2,625.67
Printing and Publishing	33,439	9.37%	1.61%	$1,702.41	$1,513.60
Slaughtering and Meat Packing	27,147	7.61%	1.31%	$1,576.51	$4,566.25
Lumber and timber products	11,680	3.27%	0.56%	$1,099.02	$1,628.57
Top Five Industries in Buenos Aires (By Employment)					
Dressing	35,731	23.93%	2.26%	$568	$763
Metallurgy and related	16,243	10.88%	1.03%	$727	$1,254
Weaving, leathers, furs, fiber, yarn and fabrics	9,260	6.20%	0.58%	$665	$1,201
Bakeries	8,500	5.69%	0.54%	$625	$516
Printing press and lithographies	6,644	4.45%	0.42%	$877	$1,174

Notes:
(1) Chicago data from the 1910 Census of Manufacturers.
(2) Buenos Aires Data from the Censo Nacional 1914.

Table 3:
19th Century Variables and 20th Century Economic Performance

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent variable: Log GDP per capita 2000									
Log GDP per capita 1900	1.011***				0.238			0.242	0.339*
	[0.097]				[0.22]			[0.250]	[0.17]
Schooling (All levels) 1900		14.44***			7.540***	7.400***	14.35***	7.595***	2.698
		[1.70]			[2.15]	[1.35]	[1.75]	[2.259]	[1.82]
Manufacturing share of output circa 1913			0.0300***			0.0098*			
			[0.0089]			[0.0054]			
Average Polity2 score 1870-1900				0.0732***			0.0008	0.0028	
				[0.017]			[0.015]	[0.015]	
Average Polity2 score 1970-2000									0.0840***
									[0.020]
Observations	37	36	16	47	25	13	33	23	24
R-squared	0.653	0.701	0.439	0.154	0.659	0.833	0.687	0.654	0.856

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Table 4:
19th Century Variables and 20th Century Democratic Institutions

	(1)	(2)	(3)	(4)	(5)
Dependent variable: Average Polity2 score 1970-2000					
Log GDP per capita 1900	5.365***				-1.17
	[1.26]				[2.17]
Schooling (All levels) 1900		57.10***			51.98**
		[9.81]			[21.63]
Manufacturing share of output circa 1913			0.169**		
			[0.070]		
Average Polity2 score 1870-1900				0.514***	0.12
				[0.12]	[0.144]
Observations	36	34	15	48	23
R-squared	0.358	0.465	0.251	0.219	0.38

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Transition Remarks

The previous essay concluded by performing a simple statistical exercise that asks whether America's education advantage a century ago can explain the income differences between America and Argentina today. Using a very simple regression analysis, the essay finds that Argentina and America's relative income differences today are roughly in line with those that would be predicted by their past differences in education, given the global connection between education and economic growth during the 20th century. In a sense, then, this paper suggests that education was a critical reason why Argentina's being rich but not modern mattered over the 20th century.

Yet even if historic education can explain the gap in modern incomes in a statistical sense, it does not explain how that income gap evolved. Education seems to be important not only because of contemporaneous productivity, and technological growth, but also because there appears to be a link between education and political outcomes. Perhaps education also influenced the industrial composition of the country and that mattered for the political economy of long run trade policy.

The next paper moves from Argentina's early 20th century conditions to the possible mechanisms that led to Argentine underperformance over the last century. Using benchmark economic models, Taylor explores the relative contribution of trade and capital investment to Argentine stagnation. The increasing isolation of the Argentine economy is explored in later chapters, but here Taylor gives a sense of the extent to which Argentina's growth may have been retarded by its reliance on inward-looking economic policies.

Taylor documents the rising trade frictions, such as export taxes, that impacted Argentina during the 20th century, which may have increased trade costs by as much as 50 percent. These trade costs, in turn, made it harder for Argentina to cheaply import "capital goods and intermediate inputs." A standard economic model predicts that trade barriers on this level "would lower GDP by roughly .200 log points or 20 percent in the long run steady state." The primary reason for the reduction in GDP is the higher cost of intermediate goods. By contrast, the impact of reduced technology transfers is likely to be quite small.

Taylor's exercise sets the stage for the book's subsequent discussion of Argentina's trade policies, which seem to have clearly played an important role in limiting Argentina's growth. He also emphasizes the gap in capital investment between Argentina and other countries. This gap is measured by examining returns to capital investment, which appear to have been significantly higher in Argentina than elsewhere, which in turn implies that Argentina was investing relatively little in capital. If Argentine capital was lower quality than capital elsewhere, then this would mean that the return on investment was even higher in Argentina, suggesting that the underinvestment was even larger.

A simple calculation suggests that this underinvestment can also explain a large part—perhaps as much as one quarter—of the current income difference between the U.S. and Argentina. But why did Argentina invest relatively little in capital? Taylor offers several explanations. One possible reason is the relatively high frequency of macroeconomic crashes that severely reduce the returns to investment. These crashes often have political or global sources. Another explanation is that the Argentine government did too little to protect property rights.

While Taylor emphasizes traditional economic challenges for Argentine under-performance, his explanations lead to public policy and politics. Argentina's trade barriers were not given by geography—they reflected policy choices. Argentina's underinvestment in capital likewise had some connection to political weakness. Taylor's explanations therefore push us to further peel the onion and explore the deeper political and institutional sources of Argentine economic weakness.

CHAPTER THREE

The Argentina Paradox: Microexplanations and Macropuzzles

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1. Introduction

There is an old saying among economists, possibly apocryphal, and of unclear attribution: "throughout history there have been only four kinds of economies in the world: advanced, developing, Japan, and Argentina."

This idea can be more concretely grasped by looking at evidence on the long run levels of income per capita in a broad range of countries over the last two centuries in Figure 1. Material living standards have advanced across the entire world, but the well known Great Divergence is quite apparent. A few rich countries have become much richer; a larger group of poorer countries have grown more slowly average. Within each group are notable exceptions, with some very poor countries making little progress at all. However, most striking are those countries witnessing a reversal of fortune, moving from one group to the other.

Once poor countries that are now rich include Japan, where the transition began more than 100 years ago, and other East Asian countries following along like Korea and Taiwan, whose transition started only 50 years ago and is now almost complete. But going the other way there is only one notable country that started life relatively rich and ended up comparatively poor: this is the great puzzle or paradox of Argentina. In the 19th century it was among the top five countries in income per capita, richer than all European countries except Britain and on a par with other rich settler societies like the United States, Canada, and Australia. It is now close to the average country in its level of income per capita, and its citizens enjoy only 40% of the average income per capita of the 12 core countries of Western Europe.

1.1. "MicroExplanations": Trade and Investment

This paper explores some of the main contours of this puzzle as it emerged after 1929, and some of the explanations that have been advanced for it, in particular the central roles played by barriers to trade and investment. There are many such distortions—perhaps too many for the tastes of economists easily seduced by monocausal explanations tied to a

toy model with a minimum of parameters. But this is an untidy economic history, a country where in economic policy terms almost anything that could go wrong has, at some time, actually gone wrong. In this weirdest of historical laboratories, dozens of strange economic policy experiments have been run in the last 200 years, often for long periods, and not infrequently with lasting consequences. In sum, some key "microexplanations" can help us to understand what went wrong at the nexus of public policy and economic performance.

1.2 "Macropuzzles": Elusive Deep Determinants?

Yet beyond these proximate causes, of equal or greater concern to some economists has been the search for so-called "deep determinants" of economic outcomes, consisting of causally—and often temporally—distant factors that might be placed as primal or exogenous factors which "explain" the proximate cause and, hence, the ultimate outcome of economic underperformance. Among the most widely cited explanations are a country's geography (including land/resource endowments as well as climate/disease environment), its colonial experience, and the origins of its legal system. We shall review each of these explanations as it applied to the Argentine case, and find that, in contrast to many other countries, some explanations do not fit too well. For example: Argentina is a predominantly temperate country, it has been dominated by European settlement, it has maintained high literacy despite inequality, and its legal origins are a peculiar hybrid of common and civil law ideas. Thus, in the debate over the causes of economic success and failure, Argentina stands as an exception to many of the rules which seem to apply elsewhere, deepening the mystery.

This contrast leaves us with the "macropuzzles": we have much work left to do in order to piece together a plausible story not of what went wrong, but why it went wrong. What were the political economy mechanisms that derailed Argentina in the twentieth century? A century ago, despite some bumps in the road, the country was prosperous and literate, in a temperate-zone, economically open, and progressing towards macroeconomic stability and a liberal constitutional democracy. It was not so unlike the other settler countries. Today, a century later, it looks very different.

1.3 The Explicandum

In the two main sections of the paper that follow we look at some commonly discussed proximate factors behind Argentina's relative economic decline. We attempt to put these factors in some kind of empirical perspective and evaluate how much they might have contributed to Argentina economic slow down.

To do so we will be primarily concerned with the steady state impact of such effects on output. In all cases the exact levels of these distortions have varied substantially over time, but given the slow convergence to steady state in any benchmark neoclassical model (empirically or theoretically), these factors will have a high degree of historical persistence across years and decades in any calibrated dynamic model.

With the strong forces of inertia noted, it is worth keeping in mind the kind of income gaps we have to explain. The income per person level in Argentina today (about $8,000) is about two-fifths of that in the rich world Western Europe (about $20,000). Thus we are looking for a factor, or set of factors, that when imposed on a rich country can cause income to fall by a factor of 2/5 (or drop 60%); or equivalently, factors which when removed from a poor economy could cause incomes to rise by a factor of 5/2 (or increase by 150%). Or, perhaps more cleanly, in log terms we seek to explain a change in relative income of just under 1.000 log points.

2. Argentine Trade in the 20th Century

For most of the twentieth century, Argentina's trade volumes (as a fraction of GDP) have been very low, whether relative to their initial levels in the 1900–14 period, or relative to the trade levels one might predict in a similar economy of comparable size and geographic remoteness.

Figure 2 traces the evolution of the trade share over time in Argentina, measure by exports plus imports divided by GDP. From a high of 80% or more on the eve of World War One, this ratio fell to levels below 20% in the 1920s and 1930s and has remained there ever since (Berlinski 2003). Even with the push towards liberalization in the 1990s this ratio barely ticked up during that decade. This pattern constitutes the main empirical fact about trade in Argentina in the 20th century.

One question is how much of this trend is explicable in terms of (potentially changeable) trade policy frictions. And, in addition, how much of those frictions reflected policies in Argentina as compared to the Rest of the World. From the 1930s to the 1960s, trade barriers were high almost everywhere in the global economy. However, while Argentina's stance was not that peculiar by the standard of developing countries, where inward looking development strategies were the norm, it was unusual by the standard of the rich countries, the club to which ostensibly Argentina wished to belong, or rather remain. After 1945, the gradual progress of GATT (and in Europe of the EU project after 1957), carried trade integration rapidly forward, but until the Uruguay Round (circa 1990) Argentina like most other developing countries stood apart from this process, and policies remained strongly protectionist.

Data on the distortionary impact of quotas is scant, but these barriers were often very significant in the Argentine context, whether imposed directly or by the quota rationing of foreign exchange (as in the 1940s and early 1950s). Trade taxes are easier to document, and Figure 3 shows what we know about average import and export taxes in the long run (Berlinski 2003). Import taxes were not trivial prior to World War One as they were a key revenue source, but export taxes were zero. But in the 1920s and 1930s average trade taxes began to climb. They abated during World War 2 and the early postwar exchange control epoch. Then import and export taxes climbed rapidly after 1960, to about a 15% level for each, or a 30% distortion total. Judging from the timing of two asymmetrical spikes in the 1980s, export taxes tended to evaporate in hyperinflation episodes, while import taxes tended to rise in an offsetting fashion, but these figures may also reflect accounting problems. In the liberalization period of the 1990s export taxes

were lifted, but import taxes remained high, although trade policy become somewhat more liberal on other dimensions (e.g., quota removals for GATT/WTO compliance and an attempt to start a regional trade area, MERCOSUR).
What would be the likely impact of these trade barriers on income levels? We cannot hazard a precise answer but we can use some simple impacts based on either calibrated models or econometric estimates. In this setting I will neglect the standard dead-weight loss considerations since utility losses arising from static consumption and production distortions are typically an order of magnitude too small to be useful in discussions of the Great Divergence (usually 1%–2% at most). I narrow the focus further by examining the impact of trade frictions on two of the most widely-discussed channels through which protectionist policies might lower incomes.

First, higher trade costs raise the costs of imported capital goods and intermediate inputs. These costs are nontrivial, and they matter all the more in countries that are both very open *and* have comparative disadvantage in these products. Argentina is a classic example of such a country, and the understanding of this type of drag on economic performance dates back to the classic analysis of postwar underperformance by Diaz Alejandro (1970).

Let's now feed some numbers into a model, backed by econometric support, that can capture this effect. Suppose, as noted above, trade costs increase by 50% due to trade barriers (the rough magnitude of the trade tax burden since 1950). Also suppose also that, imports in the initially open economy would be 40% of GDP (the figure last seen in Argentina circa 1910, the last date when both it *and* the rest of the world were close to fully open). Let us assume that intermediate inputs account for 50% of imports, can capital goods account for 25% the roughly stable figures seen in decades of historical data in Argentina (Berlinski 2003).

Using the Estevadeordal and Taylor (2008) very standard open-economy neoclassical model, we would conclude that the trade taxes would lower GDP by roughly 0.200 log points or 20% in the long run steady state. Two thirds of this would arise due to higher costs of intermediates (an effect analogous to a negative productivity shock) and one third would arise from the higher cost of capital goods (an effect analogous to a negative savings rate shock). These are quantitatively large effects when the full gap to be explained is 1.000 log points, since they explain one fifth of Argentina's decline.

A further place to look for an impact of trade frictions on output is in the process of technology transfer. Here there are plenty of candidate theoretical models, but no consensus on the structure and calibration that best fits the data, nor is there solid statistical evidence for this channel. Accordingly let us rely on recent empirical estimates and, since the effects will turn out to be small anyway, allow ourselves to compute an upper bound for this effect. In recent work Acharya and Keller (2008) examine the impact of expanded imports from the "technology leader" country on the TFP levels in follower countries, controlling for import levels and R&D intensity in the leader, and interactions between the two. For their analysis, based on mostly developed countries, and the U.S. is the leader.

Here, we consider how the same analysis might apply to Argentina as a follower, where the OECD might serve as the R&D source. One of the upper bound results in Acharya and Keller (2008, Table 8) suggests that a "high" estimate (the 95th percentile) for the elasticity of local TFP with respect to import volume is about 0.06 for the case of R&D intensive sectors. (For many sectors the effect is small or negative, reflecting the possibility of countervailing forces where, say, import competition is destructive of an industry that cannot catch up.)

If we apply the 0.06 elasticity to the post-1914 halving of Argentina's trade volumes, then this implies a reduction of TFP due to weaker technology transfer of about only 3%. In steady state, given endogenous capital accumulation, the impact on income would be somewhat larger and might account for an overall income effect of 5% or just 0.050 log points. So technology transfer via imports would appear to be a very small part of the overall story: the statistical evidence for the channel is quite weak in aggregate, even if we make several calibration assumptions designed to make its impact as large as we dare. To sum up, in contrast to income losses due to inhibited technology transfer (about –5% or –0.05 log points of income) the bulk of the income losses due to trade policy frictions (about –20% or –0.200 log points of income) would seem to derive from direct input costs.

3. Argentine Investment in the 20th Century

A second area we might examine as an explanation for Argentina's low income is capital scarcity. By this we mean, in a standard neoclassical growth model, a suboptimal capital/labor ratio, denoted k=K/L. In the simplest model, output per worker y=Y/L is expressed as y = A k^a, where A is productivity (total factor productivity or TFP) and a=1/3 the typical exponent in modern empirical work (Gollin 2002).

The steady-state of the model, at a per worker capital level k* and output level y*, can be solved by assumptions on capital accumulation, typically by either Solow or Ramsey assumptions. In either of these models k* and y* rise endogenously in response to an increase in TFP, or A. Thus, in levels accounting, a country's income level (relative to some reference country, 0) can be broken down into (1) a shortfall in TFP, that is A below A0; and (2) a friction preventing k from reaching it hypothetical optimal level k*, due to investment taxes or other distortions that create a wedge and keep the marginal product of capital MPK above its optimal level MPK*. Since the production function is Cobb-Douglas, MPK=a APK is proportional to APK=Y/K, and so these deviations can be written, following Hall and Jones (1999) as:

$$y/y0 = A/A0 \cdot (MPK0/MPK)^{a/(1-a)}$$

where K/Y is replaced with 1/MPK, additional human capital terms are omitted for simplicity, and where the exponent in this equation is ½, given that a=1/3.

As regards the Great Divergence in incomes between rich and poor countries, the consensus since Hall and Jones, has been that the A/A0 term above explains much more of the divergence than the MPK/MPK0 term (e.g., see Easterly Levine; Gourinchas Jeanne; Caselli Feyrer, inter alia). Indeed, for Argentina, Hall and Jones used 1988 data

to compute that the MPK term above explained about 5% of the income difference between Argentina the United States. Does this mean that the MPK explanation is dead? Not quite. I argue that ideas from recent empirical research can provide us with an improved understanding of the evolution of the Argentine capital stock. Properly computed, MPK distortions make a significant contribution to the income gap. For example, Figure 4 plots the implied MPK for the United States and Argentina using the Hall-Jones method based on installed capital derived from a perpetual inventory method (PIM). Their estimates stopped in 1988, since that was the last year of PWT 5.6, their data source. But we now have PWT 6.2, with coverage until 2004, and we can see that 1988 was quite an unusual year.

Argentina had overborrowed and overinvested prior to the debt crisis, and then in 1988–90 output was depressed as the economy slumped into recession and hyperinflation, with installed capital heavily suffering heavy underutilization. If one wanted to pick a moment to make Argentina's APK, and hence MPK look as low as possible, that would have been the year to choose, suggesting a small MPK distortion in total, and none at all after a price adjustment, and hence minor capital scarcity problems. Mismeasurement is therefore a serious issue.

And as we can see, for most of the last three decades the story has been very different. Using data back to 1960 and the Hall-Jones PIM standardized depreciation rate of 6%, the Argentine MPK level appears to be on average 50% higher than the US level, a considerable wedge. I would argue that the deviations from this pattern in the 1980s and in 2000–03 are easily understood and should be discounted: these were periods of severe economic downturn when measured installed capital is not the same as capital in use. Were it possible to further refine Argentina's measured capital input time series every year for capacity utilization levels—something no statistician has yet done—then we would probably discover similar gaps even in the recession periods.

Are these wedges entirely due to a factor we have already considered, the relative price of capital? If so, we must subtract that out so as not to double count, by evaluating MPK at local rather than world prices. The chart shows that this does make a small difference. Evaluated at local prices the gap is clearly not so large, but it is still significant, and it matches up with other recent capital stock estimates using different methodologies. For example, Coremberg (2003) pegs the Argentine and U.S. capital output ratios in 1998 at 2.85 versus 1.95 respectively, translating into APK levels of 0.351 versus 0.513, and in turn (assuming a=1/3) MPK levels of 0.117 and 0.171.

These independent country-specific estimates very closely match the rough estimates in Figure 1 after applying the domestic price correction (where the 1998 MPK levels are 0.180 and 0.129). These gaps have factored in the trade distortions considered above: these are, in other words, evidence of *additional* capital wedges, beyond barriers to trade in capital goods.

These data push back a little against the "it's not k, its' A" line of argument so commonly applied to developing country underperformance. Even researchers working in traditions

traditionally sympathetic to TFP-based explanations have had to concede that the large MPK gaps in the 1990s are clear evidence of "capital shallowing" in Argentina. That is, even in the most dramatic period of economic success in recent years, there was a pronounced failure of capital accumulation to keep pace with the path one might expect during a productivity boom (Kydland and Zarazaga 2002). These findings suggest that Argentina *does* have some difficulty in mobilizing adequate capital accumulation, even when profitable conditions appear. Perhaps from the 1960s to the 1980s slow investment was the counterpart of decelerating productivity, and Argentina could coast along with a depreciating capital base and modest net additions; in the 1990s the scope for TFP led growth appeared but capital was not adequately mobilized.

The income implications of these gaps are nontrivial. Suppose MPK in Argentina is, on average, 50% or 0.500 log points above the U.S. level as is suggested in the above estimates from the 1990s, from either the PWT or Coremberg. Then in the above expression, applying the exponent of ½, this capital accumulation friction explains 25% or 0.250 log points of the overall income difference between the two countries, and we have explained another one quarter of the Argentine puzzle.

If capital is low, and MPK is high, compared to the neoclassical benchmark, this begs the question: why has Argentina under-invested to such an extent that the marginal product of capital has found itself, so often, stuck far above reference levels? What is the nature of the investment wedge? What underlying factors cause this distortion? I cannot quantify every possible channel, but I propose several candidate explanations which center on factors that either raise the cost of capital or the risk of investment, and all may warrant further scrutiny:

- *Macroeconomic rare events.* As is well known, returns to risky investments often appear excessive given what seem like plausible models of risk aversion (Mehra and Prescott 1985). However, the possibility of rare "crash" states or valuation jumps, which wipe out significant wealth through large capital losses, may well be sufficient to resolve this puzzle (Rietz 1988; Barro 2005). And undoubtedly, Argentine history is filled with many examples of crashes that severely damaged many kinds of investment returns. High or hyperinflation events eroded nominal debts on several occasions. These and other major economic crises have often left the banking sector in ruins, causing credit crunches and broader losses on a wide range of financial instruments. If, as a result, investment returns are more crash prone in Argentina then investors may demand a higher return as compensation for volatility and/or skew, implying a higher equilibrium MPK in aggregate. These risks may also be manifest in a repressed financial system with lower money multipliers and leverage, further tightening credit.
- *Default risk and property rights.* In addition to rare events driven by market fluctuations, possibly in response to macroeconomic policies, we also have to recognize that explicit confiscation or redistributions of wealth, or other failures of property rights, have often figured in Argentina's history. Beyond the serial pattern of default (Reinhart and Rogoff 2004), we would include bank suspensions, forced debt conversions, pesifications, and other expropriations. Although on occasion, ex post, these events were discriminatory as to locals

versus foreigners, on most occasions, and in general ex ante, such differential treatment may not have been expected.

If capital price distortions (e.g., trade policy) explain 0.250 log points of income difference, and capital accumulation frictions (high MPK) explain another 0.250 log points, we have explained one half of the 1.000 log point income difference. This is not trivial. A 50% increase in income per person would lift Argentina from the $8,000 level to the $13,000 level (roughly on a par with Greece, Portugal, and approaching South Korea). And even in 1913, at its relative peak, Argentina's income was at most 70%–80% of U.S. or U.K. levels, so were even half of today's gap closed like this we would probably not speak so much of an Argentine puzzle.

Still, can we explain any more of the OECD-Argentina gap? There is reason to think that we can, for various reasons, given several empirically important factors we have not yet accounted for.

- *Investment quality.* All calculations of MPK rely on calculations of capital stocks based on PIM or HV methods and many standardized assumptions. But capital "quality" may be generally lower in poorer countries. Public investments are often more dilapidated in poor countries with low quality of governance, and where large fractions of public investment spending are lost to bribery and corruption (Tanzi and Davoodi 1997). Firm data from some countries suggests that the same may be true of private sector investments (Bu 2006), perhaps due to private sector corruption; or due to high costs or barriers to technical maintenance; or due to capital complementarities with adversely maintained public capital, leading to premature discard or undermaintenance. Capital is thus less productive and of lower capacity than its vintage alone would suggest and some correction for higher rates of depreciation is warranted. For example, the Hall Jones method assumes a 6% depreciation rate on all capital. But these rates may be far too low for uniform application to rich and poor countries. Bu (2006) estimates "low" median firm depreciation rates for all fixed assets as 16% (Philippines) or 12% (South Korea) in the 1990s. In Indonesia and some African countries the reported median depreciation rates are higher still, between 25% and 60%. This poses a profound problem for capital stock and MPK estimates, because the results are *highly* sensitive to the depreciation parameter: increase this parameter by 1% and the implied PIM measure of the capital stock falls by 1%, and implied MPK rises by 0.67% (if a=1/3). If capital quality is lower and depreciation higher than typically assumed, Argentina could be even more capital scarce than has been commonly thought.
- *Investment misallocation.* The MPK calculations also rely on the assumption that capital is efficiently allocated within the economy, or that MPK is equalized across sectors. But a contrary view with a log tradition maintains that this is unlikely to be the case in developing countries. Instead, investment may be misallocated for a variety of reasons—such as corruption and inefficiency in the private financial sector or the role of the state in allocating finance. Work by Hsieh and Klenow (2007) on China and India suggests that, compared to the U.S., an efficient re-allocation of capital could be the equivalent of a 50% or larger increase in TFP. It is quite plausible that similar misallocation problems, although

perhaps not as grave, could affect Argentina and would go along way to explaining any remaining income gaps, over and above what we have measured so far. This is likely to be a productive area for future research, using industrial census data and other measurements.

- *Investment variety.* Input price distortions were probably the main trade-related drag on Argentina's growth in the twentieth century. After 1914, and particularly from the 1930s to the 1950s, this scenario could be ascribed in some large part to highly unfavorable global conditions for open trade; but once global trade started to boom thereafter, self-inflicted trade policy distortions would remain as the principal cause of the problem. The estimate presented above (0.200 log income point) may also be an understatement since it focuses only on the so-called "intensive margin"—the quantity of a given set of goods imported. But recent empirical research in the trade literature suggests that comparable economic costs may be inflicted by input tariffs on the "extensive margin"—by limiting the variety of inputs that are imported. If these results carry over to intermediate and capital inputs, as they well might, then we would have identified yet another trade related barrier to investment. Quantifying that impact for a broad range of countries, as well as for Argentina itself, remains an important goal of future research.

These three additional factors—investment quality, allocation, and variety—represent additional barriers to efficient investment which have also probably acted as a drag on Argentine economic performance, even if the magnitudes in question remain open frontiers for research.

5. Concluding Thoughts: Deep Determinants

The discussion so far of likely "microexplanations" suggests that we know, within some approximate bounds, how various economic policies and institutional deficiencies in the Argentine economic environment might have contributed to economic underperformance. And indeed these contributions appear to be empirically large, sufficient to explain much of the divergence witnessed. But this only pushes the question deeper: why have such choices been made and what can account for them?

For all countries, not just Argentina, economists and historians have grappled with this question in a bid to explain the deep and exogenous origins of the Great Divergence. The problem, as I argue in this section of the paper, is that in the particular case of Argentina the explanations that have been proposed—and which may seem to work quite convincingly in many other countries—do not appear half as persuasive when applied to Argentine economic history.

5.1 Geography and Empire

To set the stage let us consider a now conventional casual ordering in the levels accounting literature. As above we claim that policies causally affect outcomes, which we might write as "*policies → income per person*" in simple notation. A problem that concerns some scholars is the potential for reverse causality from incomes to policies, suggesting we look for deeper determinants that explain policies. For example:

X → institutions → policies → income per person

If X is an exogenous deep determinant, it may then be brandished as an instrumental variable to avert endogeneity problems when regressing incomes on either policies or institutions (e.g, see Acemoglu, Johnson and Robinson 2001; Rodrik, Subramanian, and Trebbi 2004).

Candidates for X are numerous in the literature. Geographic determinists have focused on latitude, or climate/crops, or disease endowments. Disease may have direct effects on labor productivity (Gallup, Sachs, and Mellinger 1999). Crops may affect production organization and subsequent institutions, such as slavery, and hence the path to democracy and capitalism (Engerman and Sokoloff 1997; Easterly and Levine 2003). Alternatively, the impact of disease and climate may have been more indirect, with European colonists less (more) likely to settle in the tropical (temperate) regions, and more (less) likely to construct "extractive" institutions there (Acemoglu, Johnson and Robinson 2001).

In those accounts where historical institutional choices matter (Engerman and Sokoloff 1997; Acemoglu, Johnson and Robinson 2001), the key to a present day impact is via a political economy persistence mechanism, whereby even after independence a high level of inequality preserves colonial extractive institutions, favoring elites, and leading to high inequality in incomes and education, and persistently low levels of economic development.

It now starts to become apparent why some of these theories may be poorly equipped to explain the case of Argentina. Argentina is essentially in a temperate zone, not a tropical zone, and that is especially true of the economic heart of the country—the *pampas* and *littoral* regions. Those regions are also populated by a stock of people of European descent, and they are physically and culturally separate from the country's colonial centers in the *altiplano*. Slavery existed, but was brief and localized. Most importantly, the country did not endure persistent underdevelopment: whatever its physical and political legacy at independence, by 1900 this was a rich country, a functioning democracy with expanding suffrage, and most importantly an economy equipped with a decent schooling system and, for its time, creditable levels of human capital (see the chapters by Llach and Campante and Glaeser for more discussion on the role of education and human capital).

Argentina resembled Canada more than Cameroon in 1900. The problem to be explained is not that the country never developed—but that it had the potential for success, at one time it lived up to it, and then found ways to fall back into underdevelopment. It is, by construction, very difficult for geographic and historical "deep determinants" to explain this kind of reversal when they rely on persistence of institutions, inequality, and economic backwardness over time. And, by way of more direct refutation, a micro-level study of the proposed inequality-based transmission mechanism raises further doubts: recent research has shown that inequality was not purely a legacy of the colonial period

(Arroyo Abad 2008): in fact from 1820 to 1914, many countries saw inequality rise and fall more due to external shocks (terms of trade, migration), and the inequality at independence thus turned out to be a poor predictor of their inequality in 1914.

One way out of this conundrum is to keep the focus on exogenous factors, but to look either at alternative deep determinants (e.g., law) or else at the interaction of historical initial conditions with the powerful exogenous shocks coming from the rest of the global economy at key moments. I end with some speculations on these two themes.

5.2 Legal Origins

Influential work by Glaeser and Shleifer (2002) argues that an alternative and plausible "deep determinant" of economic success is "legal origin"—whether a country has a common law or civil code legal system. Empirically, legal origin is correlated with the colonizing power, and therefore forms part of a broader argument that among all empires the British did more good than others by transmitting better institutions to the lands they conquered (Ferguson 2003). Common law obtains in the Anglosphere of rich settler countries like the U.S., Canada, Australia, and New Zealand. The civil code prevails in continental European countries and their typically much poorer former colonies. In other former British colonies, say, the poorer regions of Africa and Asia, post-independence legal structures reflect a mixed system with common law elements and some civil code structures.

Once again, for those seeking deep determinants, Argentina offers an interesting, unique, and somewhat perverse case that is not easily classified. It is commonly noted that either system, common or civil, has a tendency to become somewhat mixed over time, as jurisprudence asserts its power in civil law, and as legislatures construct codes in common law systems. But Argentina was a very unusual case in that it was a mixed system from the start.

The early Argentine legal system was an outcome of a long political struggle from the period of independence (the failed Assembly of 1813 which tried to unite the provinces and establish government) until the country was finally unified (1859). Early efforts to write a constitution failed, not least given tension between centralists in Buenos Aires and opposing forces elsewhere. The other provinces, minus Buenos Aires province, promulgated the first Constitution in 1853, under the intellectual influence of Alberdi, with clear inspiration from the U.S., Swiss, and other early constitutions. The Argentine civil code only came later, in 1869, after unification, and was written by Vélez Sársfield.

How did these systems co-exist in practice and what economic effects did they have? Did one or other form take the upper hand at different times? Superficially, it appears that the common law features, especially judicial review and other powers, were often exercised in the 19th century. But in the twentieth century the pendulum has swung more toward purely civil law operation, under both democracy and dictatorship—to such an extent that in the last decade the country has often called on foreign experts to assist in rebuilding some of the key functions of jurisprudence that have long lain dormant. Most legal origin evidence is cross sectional in nature, but here is an odd example of within-country time

series variation. The coincidence of economic decline and the withering of Argentina's constitutional and common law traditions perhaps deserves further scrutiny for those interested in the applicability of the legal origin theory.

5.3 Potential for Trade

Lastly, one important exogenous factor that is likely to have affected the path of institutions and policies in Argentina is the global economic environment, that is, the potential for international trade and capital flows. Prior to 1914 a growth strategy based on openness to capital inflows, frontier expansion, and the strong pursuit of comparative advantage based on primary exports carried the country to very high levels of income per capita income.

Was this strategy viable after 1914? Given the advent of the worldwide retreat to autarky that started then and last half a century, no. But what if the world economy had remained integrated? What would Argentina's counterfactual economic history have looked like? Could it have maintained high living standard and growth without being diverted onto the track of economic isolationism? No doubt the inevitable closing of the frontier in early 20^{th} century Argentina, implied a gradual structural shift from agriculture to manufacturing and services anyway (Di Tella and Zymelman 1967). But that shift would not have quickly overwhelmed Argentina's natural endowment based comparative advantage. Argentina's structural shift was therefore rapidly accelerated by an autarkic economic environment—one that was at first imposed from abroad in the 1920s and 1930s, against the grain of domestic policy; but which was then reinforced by autarkic domestic policies which emerged in the 1940s and 1950s, and persisted over time to the present, long after the rest of the core economies of the world had dismantled barriers in trade and finance.

What explains this shift and why might it have mattered more in the case of Argentina than in other developing countries that followed the import substitution doctrine? Taking the second question first, I think the answer has something to do with the fact that Argentina had more to lose, on two levels. First, it had developed something like a modern economy, with adequately functioning market institutions, a hope of monetary stability (after 1891), and some semblance of democratic politics and rule of law as a foundation. No other country that we today call developed had advanced this far in 1914. Second, unlike many other countries at the time, Argentina had more scope to achieve gains from trade—in both goods and capital markets. And these gains were at risk if the open trading environment broke down. Argentina had very high trade openness and relied on foreigners for almost half of the local capital stock and labor supply. For other countries with smaller trade shares and smaller financial inflows, the end of the first age of globalization entailed a fairly bothersome adjustment; for Argentina it entailed a radical and painful reorientation, one delayed in the 1920s and 1930s by the unfulfilled hope that the pre-1914 liberal order might magically be restored.

As to the second question—why the shift?—we should perhaps consider the important interaction between economic openness, vested interests, and internal political economy dynamics. For example, in a different era, it has been argued that the "shock" of Atlantic

trade *expansion* empowered mercantile/capitalist interests in the Anglo-Saxon Northwest corner of Europe, allowing this region to embrace economic and political reforms that enhanced openness and competition in the Early Modern period (Acemoglu, Johnson, and Robinson 2005). In Argentina, we may have seen something of the same path dependence driven by trade shocks, only in reverse: the shock of global trade *contraction* discrediting and weakening the old outward-looking order, and allowing new interests to arise with more autarkic goals. Significantly, again, Argentina's extreme comparative advantage would also play into this dynamic. Just as gains from trade would be larger in Argentina than in other countries, given the peculiar factor endowment, so for the same reasons the redistributive effects of autarky would be great too (for any trade distortion, when Harberger triangles are large, so too are the rectangles that measure redistribution of income, and thus power—see Rogowski 1989).

These observations fit with a broader theme in economic history which argues that economic and political competition are key complements (North, Weingast, and Wallis 2009). Framed another way, one might say globalization and democracy go hand in hand, and, with empirical tests based on plausible instruments, this proposition holds up reasonably well (López Córdova and Meissner 2008).

Adverse external shocks therefore pose a danger to political institutions and, via path dependence, these events may have far reaching consequences for economic policies. The case of Argentina is perhaps an extreme example: with the most to lose, the adverse global shocks in the mid-20th century were almost bound to cause the most damage here—a sobering thought since, as I write, the world tries to navigate its way out of another Great Depression.

Figure 1—The Great Divergence and Argentina

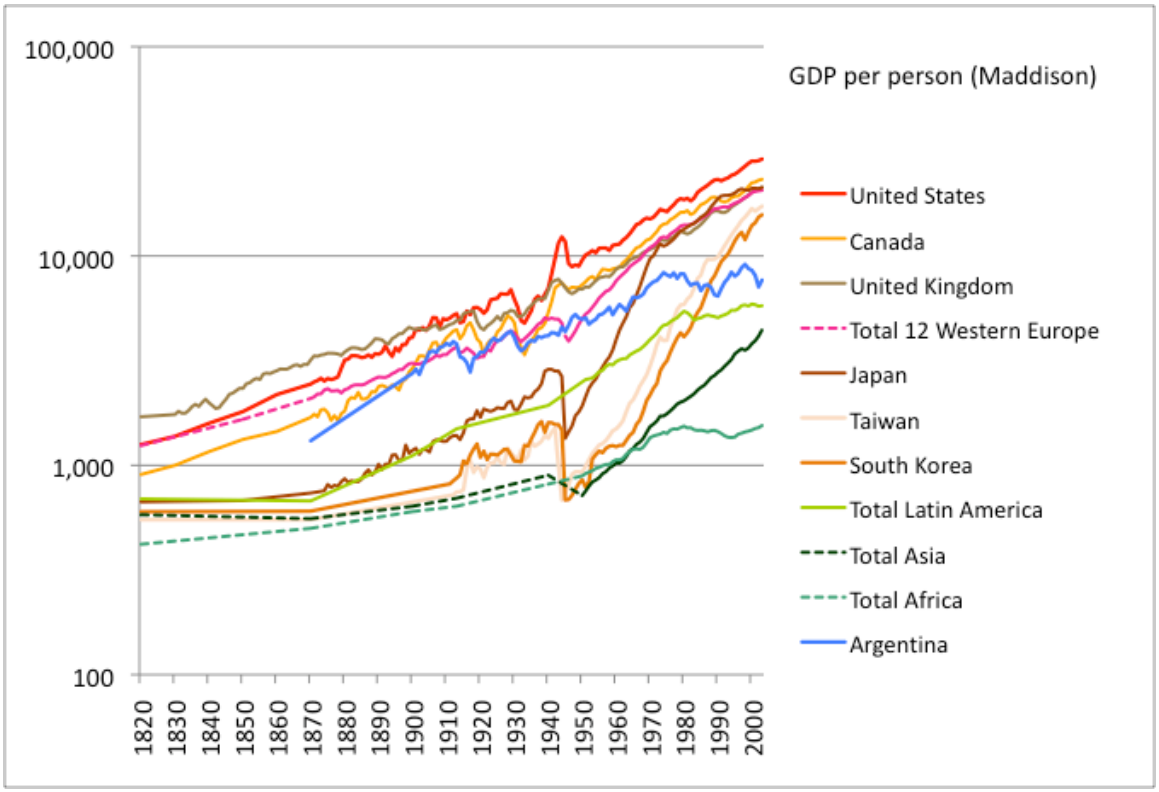


Figure 2—Trade volumes

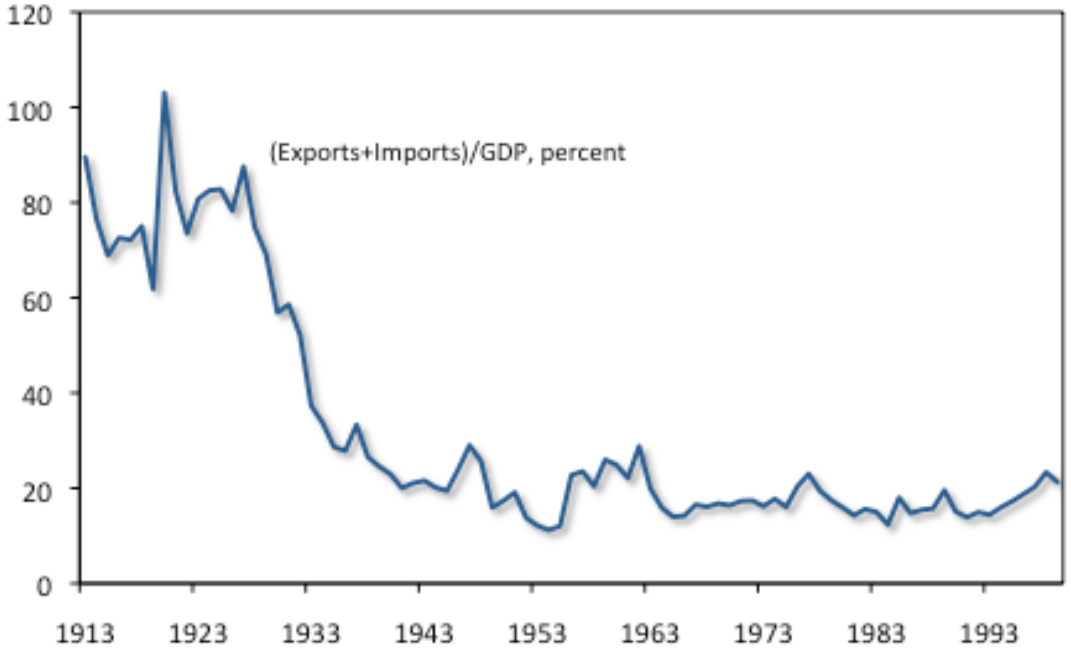


Figure 3—Trade taxes

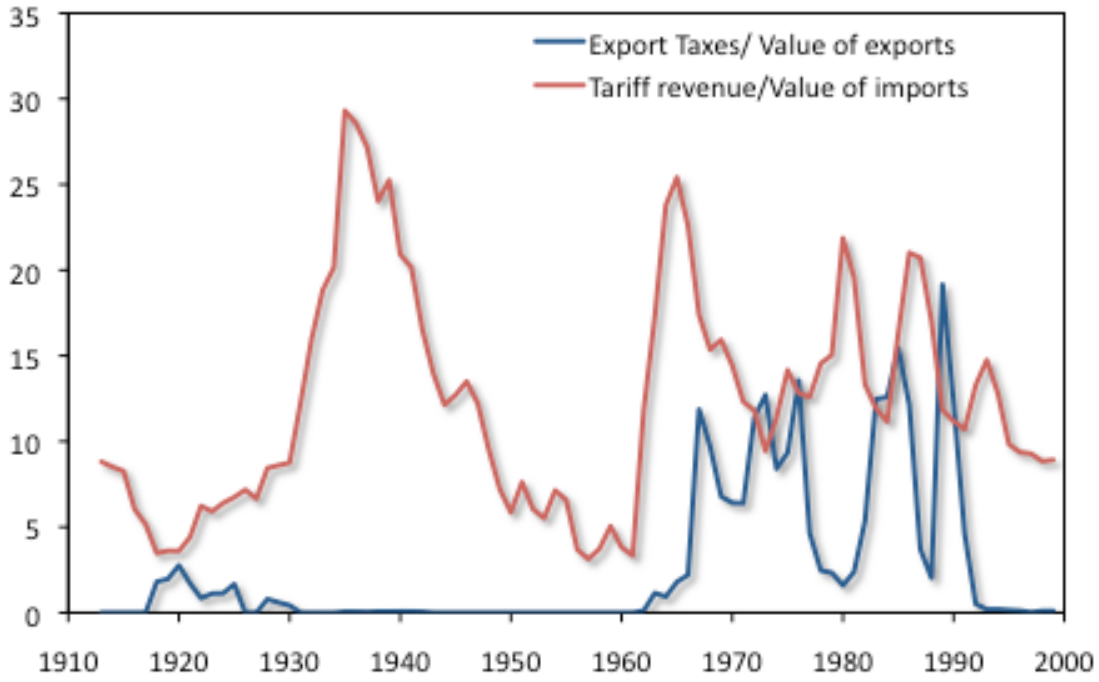
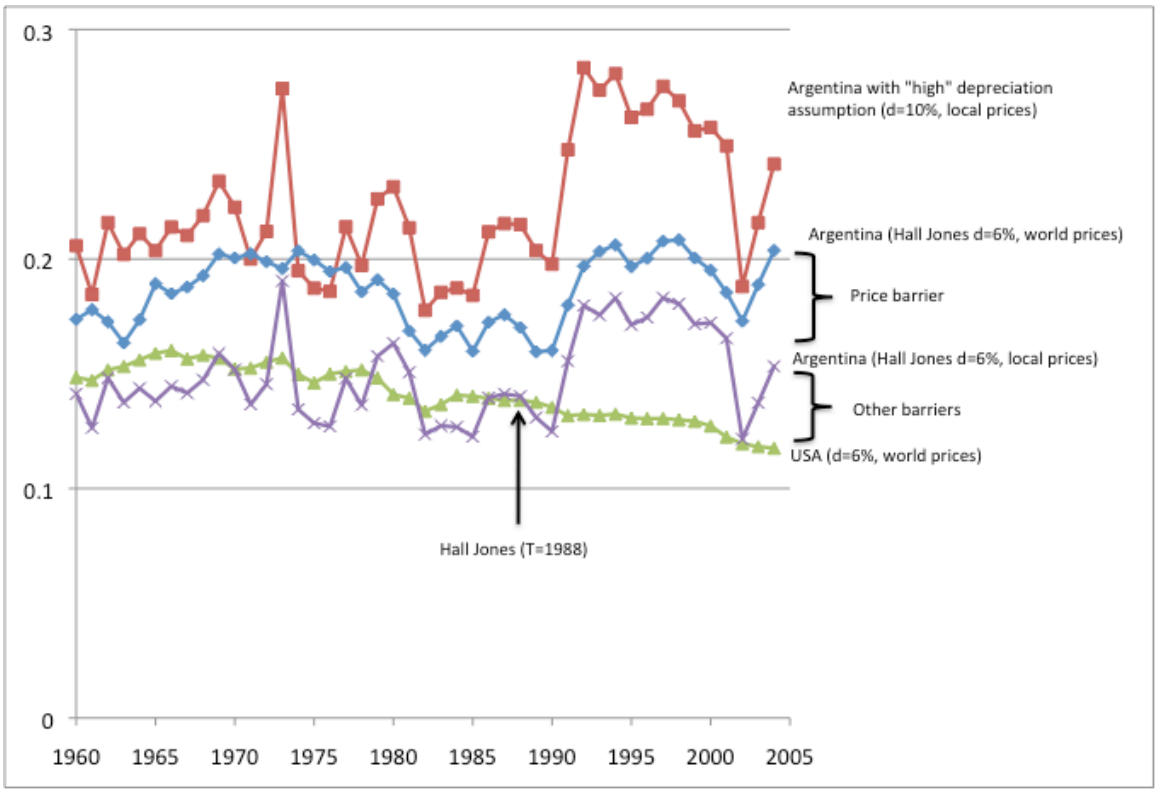


Figure 4—The marginal product of capital



Transition Remarks

The previous essay argued that Argentine trade barriers may have played a major role in explaining Argentina's economic underperformance, which motivates the next two essays, which both examine Argentine trade policy in greater detail. The next essay provides us with a detailed picture of Argentina's economic isolation and its economic effects. The essay that follows further explores the causes and attempts to explain why Argentina experienced "60 years of solitude."

The next essay begins with an overview of Argentina's trade flows during the 20th century. As a share of Gross Domestic Product, imports and exports decline from around 40 percent during the years before the Great Depression to around 10 percent after 1960. The bulk of the decline occurred during the 1930s, but there was a brief post-war trade surge that had disappeared by 1960. In recent decades, agriculture has become a smaller share of Argentina's exports and has been replaced by light manufacturing and other processed goods.

Even when Argentina was at its most global, before World War I, there were substantial import tariffs typically slightly under 20 percent. Yet while these tariff rates seem high relative to our current free trade era, many countries, including the United States, had higher tariff rates during this period. After all, in the 19th century, tariffs were a convenient means of raising revenues for countries that lacked the legal or technical capacity to implement a widespread income tax.

When the world sank into depression in 1929, Argentina, like many of its trading partners, raised its tariff barriers. Import taxes rose to almost 30 percent. The 1930s also saw a substantial deterioration in Argentina's terms of trade. While Argentina's output was relatively cheap in 1910, it became relatively expensive a quarter century afterward.

Argentina also followed policies aimed at protecting local industries that further isolated the country. Exchange rate manipulation made it more expensive for Argentines to purchase imported goods. These exchange rate policies—the gap between buy and sell rate for Argentinian currency—"worked as an implicit export tax or import tariff." These policies seem to have had a distinctly chilling impact of both imports and exports.

During the post-war period, agricultural policies in the west, such as the European Common Market, further damaged Argentina's agricultural exports. At home, Perón was following an import substitution economic development strategy that invested in heavy industry and protected them from global competition. These policies largely shut Argentina off from the increasingly important global trade in manufactured goods.

After 1967, Argentina increasingly experimented with limited trade liberalization. This process was not easy, because there are always losers, as well as winners, from free trade. Politically powerful groups were able to keep protection, while politically weaker industries were more

likely to be exposed to international competition. Gradually, though, Argentina has finally begun opening up reversing six decades of isolation.

The essay documents the impact of that isolation in several ways. Perhaps the most remarkable fact is the divergence of agricultural yields between Argentina and the U.S. During the open era, before 1929, crop yields were quite similar in the two countries. After all, they competed on the same global markets. After 1930, however, Argentina's yields in wheat and corn diverged very sharply from those in the U.S. They have only started to converge again during the more recent epoch of openness. The efficiency consequences of moving to a closed economy also appear to have been severe.

CHAPTER FOUR

Argentine Trade Policies in the XX Century: 60 Years of Solitude

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Abstract

At the turn of the last century, the Argentine economy was on a path to prosperity that never fully developed. International trade and trade policies are often identified as a major culprit. In this paper, we review the history of Argentine trade policy to uncover its exceptional features and to explore its contribution to the Argentine debacle. Our analysis tells a story of bad trade policies, rooted in distributional conflict and shaped by changes in constraints, that favored industry over agriculture in a country with a fundamental comparative advantage in agriculture. While the anti-export bias impeded productivity growth in agriculture, the import substitution strategy was not successful in promoting an efficient industrialization. In the end, Argentine growth never took-off.

1. Introduction

At the turn of the last century, the Argentine economy was on a promising path to prosperity, a prosperity which, in the end, never fully materialized. Argentina failed in many dimensions and various concurrent factors—addressed in different chapters of this book—help explain this debacle. Often, directly or indirectly, a major culprit is international trade.[1] This is the focus of our paper. We have two broad objectives: to uncover the exceptional features of the history of Argentine trade policy; and to assess the contribution of these exceptional features to the economic performance of Argentina.

In our analysis, we follow a descriptive approach based on two major sources of data: a compilation of quantitative and qualitative accounts from 1890 to 1966 taken from the literature on Argentine history, and a comprehensive (i.e., disaggregated) trade policy dataset (on imports and exports) from 1966 to 2006 that we put together for this project. These data are used to document the high degree of anti-export bias of Argentine trade policy. We emphasize two manifestations of such bias: the burden imposed by economic policies on the agricultural export sector; and the benefits granted to manufacturing sectors that typically competed against

[1]The chapter by Taylor in this volume shows that international trade can account for around 25 percent of the income gap between Argentina and the developed world.

imports from the rest of the world—the model of import substitution.[2]

To understand the Argentine anti-export bias and the import-substitution policy, we provide an account of two major factors that help explain both the cross-section structure of protection as well as the overall trends in this structure of protection: the distributional conflict and constraints, and how these shape the Argentine policy-making process. Broad differences in sectoral protection (industry versus agriculture or imports versus exports) are the result of distributional conflict between landowners, industrialists, and workers. The finer differences (at more disaggregated level of the import nomenclature, for instance) are also a consequence of distributional conflict (within the manufacturing sectors, for instance, or between unskilled and skilled labor) as well as of political economy considerations (lobbies or unions). The trends, in turn, can be understood with changes in the way different governments weighed the distributional conflict and with changes in the constraints faced by those governments. The Great Depression and World War I and II, international commodity prices, international institutions (like the World Trade Organization), exchange rates, and fiscal budget considerations, affect the feasibility of the policies available to the government and thus shape trade policy. Our account is thus based on the interplay of endogenous domestic decisions and exogenous shocks, with roots in the inherent Argentine distributional conflict, that hindered the long-run economic growth of the country. These ideas provide the stylized facts about trade policy that motivate the modeling framework of the next chapter in the volume (by Sebastian Galiani and Paulo Somaini).

The resulting anti-export bias and import substitution model had negative consequences for growth and economic performance. We document this by first looking at the evolution of agricultural productivity in the country (compared to the U.S.), and, second, by assessing the evolution of productivity in the Argentine industrial sector vis-à-vis other countries. In the end, we show that the anti-agro bias impeded growth in agricultural productivity and the import substitution model failed at boosting productivity growth in industry. These are major factors that help explain why Argentina was unable to grow and achieve its once-tangible prosperity.

The remainder of the paper is organized as follows. In section 2, we document historic aggregate trade flows and describe the pattern of Argentine trade. In Section 3, we characterize the structure and evolution of import tariffs from 1870 to 2006. In section 4, we document the Argentine anti-export policies by providing an account of export taxes from 1966 to 2006. In section 5, we assess some of the consequences of bad trade policies. Section 6 concludes.

2. Trade Flows, Trade Patterns, and Trade Policy

In this section, we present an overview of trade flows, trade patterns, and trade policy in Argentina. Argentina was initially an open economy, then it closed to trade, and finally opened up again in recent years. The trends in openness (the ratio of exports plus imports to GDP) from the 1900s to 2006 can be seen in Figure 1. During the first globalization era, Argentina showed high openness ratios, which ranged from 30 to 40 percent for a period of almost 30 years. In contrast, trade openness significantly declined during the 1930s and 1940s, then slightly recovered at the end of the 1940s, and continued to decline throughout the 1950s and 1960s. From the 1970s to the early 2000s, the ratio of exports and imports to GDP remained relatively stable (with fluctuations) and, finally, strongly increased in recent years, especially after the 2001 crisis.

[2]Due to the Lerner symmetry theorem, in fact, these are manifestations of the same phenomenon.

Argentine comparative advantage lies primarily on agricultural goods, broadly defined so as to include both primary products as well as agro-manufactures. In fact, Argentina has historically been considered as one of the "grain yards" of the world. To a large extent, this is because the country is relatively abundant in land. Irwin (2002) argues that, in a sample of twenty five developed and developing countries, Argentina had the highest ratio of productive land to population in 1890, followed by New Zealand, Australia, Canada and the United States. Table 1, based on data compiled by Lai (1998), confirms this claim. Between 1875 and 1889, Argentina had the highest ratio of productive land per capita, 216.44 acres per capita. By the mid-1940s, Argentina remained largely abundant in land, but showed much lower ratios compared to, for instance, Canada or Australia. The country also ranked high in the relative endowment of livestock. Based on data from the 1895 Argentine Census, we report in Table 2 that, compared to eight other countries including the U.S. and Australia, Argentina ranked first in horses, second in cattle and third in sheep.

The relative un-abundance of skilled labor and capital (compared to the developed world) also contributed to a specialization in agriculture, especially in the early years. To assess the stock of human capital, we look at literacy rates. Data from Sokoloff and Engerman (2000) are reported in Table 3. In 1900, 52 percent of the Argentine population was literate. The literacy rate was much higher than in other countries in the region, such as Brazil (25.6 percent), Chile (43 percent), Costa Rica (33 percent) and Mexico (22.2 percent). However, it was lower than in developed countries, namely the U.S. (86.7 percent) and Canada (80 percent). In fact, the ratio of skilled to unskilled labor (computed as the rate of the literacy rate over its complement, the illiteracy rate) was actually 5.5 times higher in the U.S. than in Argentina (and it was 3 times higher in Canada). Clearly, while Argentina appeared as relatively well-endowed in skills in the early 1900 with respect to developing countries, skilled labor was relatively un-abundant compared to developed countries.

To look at capital abundance, we build approximations to the capital to land ratio by using the calculations of Argentine's wealth reported in the National Census of 1914. For Argentina, we find that the ratio of industrial capital relative to the value of the agricultural resources (livestock plus land) was 0.10. This indicator was 0.39 for France (1909), 0.63 for the United States (1904) and 0.80 for Sweden (1908). This suggests a relatively scarcity of capital in the country.[3]

The same pattern of factor endowments is seen in more recent year. We use data on the stock of skilled and unskilled labor, capital and land compiled by Cusolito and Lederman (2009). Relative endowments in 2000 for a sample of the most relevant countries for our purposes are listed in Table 4. Argentina is currently relatively abundant in land: the country ranks fifth in the land/labor ratio. The capital/labor ratio is relatively low (Argentina ranks 47th), while the skilled to unskilled ratio is also relatively low (Argentina ranks 41st). These observations reveal that the factor abundance of the country resides mostly in land and unskilled labor and that the sources of comparative advantage of Argentina, measured by its factor endowments,

[3]These figures are consistent with the industrialization index reported by Bairoch (1982). Bairoch's index reveals, first, a relatively low level of industrialization in the developing world (especially Latin America), and, second, an increasing gap relative to developed countries. Gomez-Galvarriato and Williamson (2008) build a different industrialization index for 1910, which measures industrial performance using as a proxy net exports of cotton textile manufactures per capita (the index includes yarn, thread and cloth of all sorts). According to this index, Argentina (net imports of -5.47\$ per capita) and Australia (-8.7\$ per capita) recorded the highest dependence on imported cotton textile manufactures.

have remained unchanged since the late 1800s.

This structure of factor endowments implies a historic specialization in goods mostly intensive in land and unskilled labor which are, to a large extent, agricultural goods. This can be seen by looking at the patterns of trade. For the early years, we rely on Vazquez Presedo (1971). In the 1900s, agricultural primary products accounted for most of Argentine's exports. In fact, at the end of the 18th century and at the beginning of the 19th century, Argentina was the third exporter of wheat in the world (after the United States and Russia). Furthermore, the Argentine share of wheat exports among the eight major exporters doubled from 9 to 18 percent during the 1891-1910 period. In addition, the combined exports of Agriculture (primary products) and Processed Food (agro-manufactures) accounted for more than 90 percent of total Argentine exports in the early 1900s.

Using more recent customs data, Figure 2 plots the trends in the share of exports of Agriculture (primary products), Processed Food (agro-manufactures) and Other Products from 1970 to 2006. Clearly, the share of agricultural exports declined in time. There were peaks of over 60 percent in 1971 and 1983 but the shares plummeted in the 1980s and 1990s, reaching a lowest value of less than 30 percent in 2006. The share of Processed Food was relatively stable throughout the period, with a slight increase starting in the mid-1980s. In consequence, the trend in the share of exports of Other Products is almost a mirror image of the trends in Agriculture, with a clear upward trend from around 25 percent in the early 1970s to nearly 50 percent in 2006.

In Table 5, we present the average share of exports and imports from 1970 to 2006 at the 1-digit level of the Harmonized System. Looking at export shares first, we verify the downward trend in Agriculture and the slight increase in Processed Food. Furthermore, we observe that the shares of Mineral Products, Chemical Products, Plastics and Transport increase in time. In contrast, Textiles, Footwear, and Leather become less important. Looking at imports shares, the main categories are Chemical Products, Machinery and Transport Equipment. Clearly, Argentina exports mainly primary products and agro-manufactures, with an increasing participation in minerals and fuels, and imports instead capital goods and inputs.

The overall trends in trade openness can be explained by both external factors (such as the Great Depression, World War I and II) and internal factors, such as import tariffs, quantitative restrictions, and export taxes. The focus of our chapter is on the role of trade policies, how they distort relative prices and how they affect trade volumes and trade patterns. To investigate these issues, we explore the history of import protection in section 3 and of export taxes in section 4. As we will see, however, external and internal factors are interrelated and trade policy can sometimes be affected by changes in external conditions.

3. Tariffs (1890-2006)

In this section, we provide an account of the history of Argentine tariff policy. Our objective is to derive a list of stylized facts that constitute the salient and exceptional features of interventions to imports in Argentina. We cover most of Argentine history, from 1890 to 2006. Due to differences in the quantity and quality of trade policy data, we split the analysis in two. The first analysis covers the period 1890-1966 and is based on the abundant, but fragmented, data available in the literature. The second analysis covers the period 1966-2006 and it is instead based on a huge data collection effort on detailed export taxes and import tariffs, at a high level of disaggregation (8 digits). This effort generated a unique dataset of trade policy for

thousands of product lines in Argentina for the last forty years of Argentine history.

1. 1890 - 1966

The period from around 1810 to World War I was the first "global century:" transport costs continuously declined and commodity markets were increasingly integrated (Williamson and O'Rourke, 1999). During this period, Argentine tariffs were relatively high. Based on data from Clemens and Williamson (2002), Table 6 reports measures of average tariff rates (calculated as the ratio of total revenue from import duties and the value of total imports). The highest tariff rates can be found in Latin American countries. In Argentina, for instance, the average tariff from 1870 to 1899 was 26.1 percent (which was high, but actually lower than in Brazil, Colombia, Peru and Uruguay). Argentine tariffs remained high from 1900 to 1913 (23.4 percent) and only declined to around 18 percent, on average, in the post World War I period. Note that, during the late 1800s and early 1900s, import tariffs were one of the main sources of revenues for countries like Argentina (i.e., countries abundant in land, scarcely populated, and with limited access to capital markets). In these cases, internal taxes on expenditure and wealth were hard to collect (Irwin, 2002).[4] This suggests a revenue-raising motive, rather than a purely protectionist motive, behind trade policy during this period.

During this first phase of globalization, despite high tariffs, Argentina enjoyed very high growth rates in comparison not only to the rest of the periphery and but also to the Core. The main source of growth was agriculture. This growth was driven by at least three major factors: an increase of the harvested area following the expansion of the Argentine border (after the "Campaña al Desierto—"military campaigns against the indigenous local population); the penetration of the railways (mostly financed by British capitals) that facilitated crop transportation and exports; and booming international markets for exports (Cortés Conde, 1993).

After a few dark years during World War I, Argentina boomed in the 1920s. Imports and exports rapidly expanded in a growing world that was recovering from the war. In consequence, both the agricultural and industrial sectors grew. The domestic industry benefitted not only from increased world aggregate demand and higher relative prices but also from high exchange rates and from changes in the structure of tariffs. On the one hand, import taxes were expressed in *aforos* and, in 1923, the value of the *aforos* was increased (Barbero and Rocchi, 2003). On the other hand, from 1909 to 1927 tariffs on manufactured products were increased while tariffs on raw materials were reduced, thus increasing effective protection (Díaz Alejandro, 1970).[5]

World trade doomed with The Great Depression of the 1930s. The large decline in economic activity around the world, the abandonment of the Gold Standard, and a move towards bilateralism (as opposed to multilateralism) halted trade. This had strong negative implications for Argentina. Further, the improvement of the terms of trade that boosted the growth in the periphery in the early globalization era, strongly reversed in the 1930s. According to Clemens and Williamson (2002), the decline in Latin America's terms of trade was of nearly 40 percent. This scenario pushed many developing countries into autarky in the 1940s, 1950s and 1960s, in a context of a highly interventionist industrialization strategy which is usually known as

[4] Centeno (1997) finds that the average share of customs duties in total revenues across eleven Latin American republics was 57.8 percent between 1820 and 1890.

[5] As a result, General Motors and Ford established assembly plants in Argentina in 1917 and 1925, respectively. According to Garcia Heras (1983), tariffs on semi-finished cars were 20 percent lower than on finished vehicles.

"import substitution industrialization" (ISI).

In Argentina, the Depression of the 1930s is indeed considered as the formal beginning of the import substitution process. In Figure 3, we see that Argentina reverted to protectionism. While tariffs had been increasing since the early 1920s (due to mostly a revenue motive), there was a sharp jump in 1930 when the average import tariff increased from 16.7 percent to 28.7 percent in 1933. Furthermore, Díaz Alejandro (1970) reports that Argentina actually raised tariffs by more than the U.S. and Canada. From 1925-1929 to 1930-1934, for instance, Argentina increased tariffs by 7.5 percentage points, compared to increases of 4.7 percentage points in the U.S. and 0.6 percentage points in Canada. After the peak of the Depression, tariffs were reduced slightly, but remained high (Figure 3).

In the 1930s, Argentina started manipulating the exchange rate to provide additional protection to the local industry. In 1933, the government created a dual exchange rate system, a so-called "controlled" market and a "free" market. Traditional agricultural exports and imports from the U.K. were traded at a low exchange rate in the "controlled" market, where the difference between the sale and buy rates worked as an implicit export tax or import tariff. Imports from the U.S. were instead traded in the "free" market at a higher exchange rate. The fact that U.K. and U.S. imports were not traded in the same exchange market was not casual. Since the U.S. had become Argentina's main import partner, the higher exchange rate in the "free" market lowered U.S. competitiveness and promoted the development of a local industry to replace U.S. imports.

In the 1940s, Argentina deepened the promotion of the local industry, a policy driven in part by necessity—another World War had blocked Argentina's imports—and in part by conviction. Shortly before Perón's access to power in June 1946, the government created the IAPI—The Argentine Institute for the Promotion of Exchange. This institution held the monopoly over the country's foreign trade and originally had an evident anti-agriculture bias. The IAPI withheld around 50 percent of world agricultural export prices to finance both imports and to support newly created public companies. In the meantime, import tariffs were raised, the multiple exchange rate system was maintained and a scheme of import permits was created. In this context, many local firms that would later become very important (such as Techint—mostly steel—or FATE—tires) were born. In addition, Argentina suffered from the nationalization of railways, telephones, electricity, public transport and other utilities and services between 1945 and 1950 (the early Peronist years).[6]

During the 1950s and 1960s, several concomitant external factors conspired against Argentine agricultural exports, thus encouraging further domestic protection. First, in the late 1940s, the restrictions faced in the international grain market as a result of the country's exclusion from the Marshall Plan hit Argentina's exports very hard. Second, while world trade recovered in the 1950s, the composition of trade shifted against Argentine comparative advantage: exports of manufactured goods grew consistently more than exports of primary products. This coincides with the emergence of intra-industry trade (mostly among Western Europe, the U.S. and

[6]It is noteworthy that Argentine protectionism boosted while the General Agreement on Tariffs and Trade (GATT) emerged in 1947. The GATT contained two principles: a multilateral approach that was against trade discrimination (captured by the creation of the Most Favoured Nation clause) and an explicit rebuttal of quantitative restrictions in international trade. The initial Geneva Round of the GATT in 1947 achieved a reduction in import tariffs of up to 35% in the case of the United States and a lower but yet significant figure in the case of Western European countries. The following rounds of 1949 and 1951 did not achieve further reductions but prevented the erosion of previous gains that aimed at major trade liberalization, still very far away.

Japan). Third, the agricultural protectionism that followed the end of World War II hindered Argentine exports. In Western Europe, the hindrance originated in the Common Agricultural Policy inside the European Economic Community (EEC) in 1962. In the United States, the hindrance originated in a system of subsidies and tariffs that protected its agricultural sector in the early 1950s.

Argentina turned towards inner development. In 1952, the Peronist government launched its second five-year plan with the aim of developing the heavy and basic input industry as well as the oil sector (concession to start prospecting work were given to Standard Oil in April 1955). Frondizi, the next president, deepened policies for the development of heavy industry as well as the automotive industry. And in the 1960s, President Illia mostly shared the view to support and develop the heavy industry. Nevertheless, something new appeared in the economic policy agenda: the local market solution for the industry was growingly seen as inefficient (particularly in light of the experience of the automotive industry, which had grown strongly but kept consuming a large deal of foreign currency), and the idea of an exporting industry was gaining consensus among the country's authorities.

2. Import Substitution: The Evidence from 1966 to 2006

For the period 1966-2006, we were able to compile very disaggregated data on export and import tariffs. The data collection effort built on previous work done by Galiani and Porto (2010), who study the impacts of tariffs on wages. Their database contains detailed tariff data at ISIC 3-digits (International Standard Industrial Classification) from 1974 to 2001. In this paper, we expand the Galiani and Porto database in two fronts. First, our tariff data is more detailed, reaching up to 6 to 8 digits of disaggregation. Second, we extend the time coverage backwards (to 1966) and forward (to 2006). Furthermore, we add the whole series of 8-digit export taxes from 1966 to 2006 (see section 4).

The preparation of the data involved significant work. The data on tariffs come from two sources. WITS (World Integrated Trade Statistics) provides detailed data on tariffs based on the Harmonized System from 1991 to 2006. WITS data are electronically available (with paid subscription). Tariff data from 1966 to 1990 are available only on hard copies of the Guía Práctica, a publication of Argentine Customs detailing the tariff rates for thousands of product lines using the NADI nomenclature (Nomenclatura Arancelaria y Derechos de Importación). This information had to be manually typed and matched to the Harmonized System nomenclature.

In our account of import protection, we begin with time trends in average tariffs. In Figure 4, we report the swings in tariff reforms observed by Argentina from 1966 to 2006.[7] Overall, the trends in average tariffs portray a general process of trade liberalization staged in various different reform episodes.

Starting in the 1930s, Argentina adopted a strategy of strong import substitution that can still be seen in our data. In 1966, the earliest year of our data, the average tariff rate was close to 200 percent. The 95th percentile reached over 300 percent, and even the 5th percentile was close to 100 percent. This aggregate level of protection is staggering and reveals how deep the process of import substitution was.

The first liberalization episode took place after 1967 and up to around 1976. Large tariff cuts

[7]These swings were characterized in Galiani and Porto (2010).

were implemented and, during the early 1970s, the average tariff was slightly below 100 percent. Tariffs were still high but relatively stable during this period. Part of this liberalization is explained by a "compensated devaluation," whereby the devaluation of the exchange rate is accompanied by reductions in tariffs to reduce the impact on the relative prices of tradable goods.

The second episode of large tariff cuts took place between 1976 and 1979, during the Military dictatorship. During these years, the average tariff rate declined steeply, reaching around 30 percent in 1980. There was also a reduction in the extreme values and in the dispersion of tariff rates.

During the 1980s, the average tariff was kept relatively constant. Interestingly, notice that, in the early 1980s, while the high extreme values (the 95th percentile) declined slightly, the low extreme values (the 5th percentile) actually increased. One shortcoming of our data is the lack of information on non-tariff barriers. In Argentina, quantitative restrictions were intensively used in the early stages of the import substitution process (1950s). However, they were eliminated in the 1960s and never used again, except in the 1980s. In consequence, the 1980s were actually a period of reversal to protection because the relatively flat trend in the average tariff came together with an increase in non-tariff barriers.

The last episode of liberalization took place with President Menem in the 1990s. These reforms came in two stages. From 1989 to 1991, the average tariff declined from 30 to 18 percent, the dispersion in tariff rates was also reduced, and all non-tariff barriers were pulled down. The second stage in the Menem reform was the adoption of Mercosur—a regional trade agreement among Argentina, Brazil, Paraguay and Uruguay—between 1994 and 1996. The intrazone tariff among members was in most cases reduced to zero. The common external tariff (extrazone) was negotiated between members and implied a further reduction in tariffs in some cases and a reversion to protection in others (as in the case of food products in Argentina, for example). In our data, we account for Mercosur by weighting the intrazone tariff by the share of imports coming from Mercosur (which underestimates the average tariff). There was a slight decline in tariffs after 1996, only fairly noticeable in the average trends. There was also a slight reversal to protection in the 2000s, after the crisis of 2001. But this reversal was short lived since tariff levels returned to previous levels in 2003-4.

A major factor shapes Argentine trade policy: the distributional conflict. By distributional conflict, we mean the natural tension in the country between the sector with comparative advantage, Agriculture, and factor ownership. Agriculture is intensive in land, which is mostly owned by richer landowners. Industry is the domain of workers. In this scenario, free trade, ceteris paribus, worsens the distribution of income in Argentina and this provides a distributional root for protection and anti-export bias. There are of course many other factors that complement the distributive concern in the determination of trade policy. These factors affect the economic environment and constraints that shape the context into which trade policy is dictated. In Argentina, key factors are the level of international commodity prices, the evolution of international institutions, the exchange rates, and the fiscal resource needs of the government in office.

The story about the interplay between the distributional conflict inherent to the Argentine society and external shocks is developed in the next chapter by Galiani and Somaini. They model a three-sector economy (agriculture, manufacturing and nontradable services) that uses three factors, land, labor and capital. Factor owners (workers, landlords, capitalists) have

different preferences over trade protection (i.e., tariffs or export taxes). The model identifies several distinctive dynamic patterns that are broadly consistent with the evolution of the Argentine economy and the trade policy described in our chapter. The authors show that, for very high terms of trade, the economy can specialize in agriculture and services (thus importing manufactures) in a political equilibrium that supports free trade policy. This story is consistent with our account of the period 1930-1943 in Argentina. However, as the terms of trade worsen, the economy begins a gradual but persistent industrialization process that carries support for protectionism until it becomes a viable political equilibrium (consistent with the post 1943 period in Argentina). In the model, however, protection has reinforcing effects because the additional flow of capital and labor to the secondary sector raises even more demands for protectionism. This describes an import substitution strategy that might drive the economy towards near autarky. In Argentina, this is consistent with the situation of the economy towards the early 1970s.

The emergence and the strengthening of the IS model in Argentina strongly correlates with the overall level of protection after the 1930s and up to the late 1960s and 1970s. The debacle of the import substitution model can be traced back to changes in the economic conditions and environment. There are at least three factors that made the model become increasingly unsustainable. First, there was an increasing pressure to eliminate inefficient policies that impeded GDP growth. As highlighted in Galiani and Somaini in this volume, the abrupt change in the trends in tariff protection after the oil crisis points to dynamic factors such as the increasing cost of technology adoption in the manufacturing sector as well as the fiscal constraints to finance subsidies to the manufacturing sector. Second, population growth, unions and unbalanced consumption growth towards services were over time debilitating the protectionist coalition. Third, a major factor that explains the trends in tariff reforms in Argentina in recent years was the increasing need to participate in world for a and to comply with the Uruguay Round and the WTO accession.[8]
We now turn to the cross-section variation in tariffs and look at the evolution of tariffs for different groups of products (at the 2-digit level). Table 7 lists the average tariff for the four broad stages of liberalization described above. Footwear has always been the most protected sector. Textiles and Leather have also received consistently higher levels of tariff protection. The case of Food Processing is interesting because the sector ranked third in 1966-1970 but subsequently lost protection relative to Textiles (starting in 1971) and Stones, Machinery, Metals, Plastics, and Transport Equipment up until the 1990s. From 1991 to 2005, however, the sector recovered protection and it ranked fourth.

There has also been some variation in the ranking of low-protected industries. Minerals were the least protected sectors during the first two periods but it was replaced by Agriculture after 1977. In addition, Minerals and Chemicals were at the bottom of the distribution throughout all the stages of liberalization. An interesting case is the Wood sector which moved between the middle and top of the distribution during the first three periods but became the third least protected industry starting in 1991. There is a somewhat analogue story with Machinery, which was always in the middle of the ranking except during the 1980s (when it became the third most protected industry).

Figures 5 and 6 give a better sense of the relative structure of protection across time periods. We show the evolution in tariffs for each major product group (solid line) relative to

[8]Of course, this does not preclude the taxation of exports, as we show in the next section, and hence the possibility of continuing with a protectionist model.

Agriculture (broken line). In general terms, tariffs have been cut in all sectors, though clearly in different degrees. While the historical sectoral differences in protection levels persist today (the most protected industries in the 1960s are still the most protected in the 2000s, and likewise for the least protected), the liberalization process has caused sectoral tariffs to converge to a large extent.

Another feature revealed by Figures 5 and 6 is how agriculture was left unprotected, relative to other sectors in the economy. The sectors with significantly higher tariff levels than the agricultural sector were Textiles, Footwear, Processed Food and Leather (Figure 5). Instead, Transport, Machinery, Metals, Plastics, Minerals, Chemicals and Wood also show higher tariffs than Agriculture, but the differences are much less pronounced (Figure 6). The only exception is the Mineral sector which had less protection during certain periods (before 1976 and after 1991).

The cross-section structure of tariffs can also be explained by the distributional conflict and how it evolves in time (due to changes in the way the conflict is assessed by different governments or to changes in the trends in the constraints faced by those governments). We argue that the structure of protection in Argentina, which has favored industrial manufactures like textiles or footwear over agro-manufactures, can be accounted for by two interrelated theories, lobbies (and political economy) and unions.

The political economy argument is based on the protectionists lobby literature developed by Grossman and Helpman (1994, 2001). In this theory, industries are organized in lobbies which make contributions to the government in exchange for protection. The government, in turn, receives these contributions and maximizes social welfare. The outcome is a set of equilibrium sectoral tariff rates that balances the power of the lobbies and the efficiency losses in different industries. There is little evidence of the role of industry lobbies in Argentina. Olarreaga and Soloaga (1998) show that active lobbying can explain the exceptions to both the intrazone and the common external tariff in Mercosur. However, Olarreaga, Soloaga and Winters (1999) show that terms of trade, as well as political economy factors, explain the formation of the common external tariff of Mercosur members.

Another powerful explanation of sectoral tariffs, especially in Argentina, is unions. This setting, explored in Galiani and Porto (2010), exploits the power of unions as a determinant of tariffs. In Galiani and Porto, unions have the power to appropriate part of the tariff rent, which is then distributed to unskilled labor. In the Argentine data, their results suggest that the trends in the structure of protection, and the impacts on the trends in the structure of wages, can be explained by combining long-run forces, as in a Heckscher-Ohlin model, with short-run departures like unions.

4. The Anti-Export Bias

Only relative prices matter, and thus the anti-export bias in trade policy can arise by protecting the import competing industry or by directly taxing the export sector. In consequence, we now explore the structure of export taxes and the most recent evolution from 1966 to 2006. Compiling data on export taxes was actually harder than compiling the data on import tariffs because WITS does not carry information on export taxes and the whole series from 1966 to 2006, only available via the Guía Práctica, had to be manually typed. From 1966 to 1990, Argentina utilized the NADE nomenclature (Nomenclatura Arancelaria y Derechos de Exportación) and, from 1991 to 2006, the Harmonized System. Concordances between these

two nomenclatures had to be manually built as well.

Trends in export taxes are reported in Figure 7. The solid line shows averages across all sectors and the broken lines are the 5th and 95th percentile of the export tax rates. These are not intended to be confidence bands for the mean, but to give a sense of the extreme values applied in practice.

The first salient feature of our data is the presence of long episodes of active policies of export taxes in the recent past, an undeniable manifestation of the anti-export bias. The second salient feature is that the intensity of taxation varies and that export taxes do not follow a clear trend over time. As we will see, they depend, to a large extent, on the Presidency in office and on its attitude towards free trade, exports and the distributive conflict.

From a relatively low base in the early 1970s, export taxes reached a peak of nearly 15 percent in the mid-1970s. During this early period, many sectors enjoyed no taxes (the 5th percentile is zero, for instance, from 1970 to 2001), but others were hit very hard with tax rate peaks of over 40 percent in the mid-1970s. These are high rates by almost any standards.

Export taxes were reduced significantly at the end of the 1970 and early 1980s, when the Military was in power. Instead, they increased with the advent of Democracy in 1983. However, while the average export tax remained positive throughout all the 1980s, both these averages and the extreme values never reached the higher levels of the mid-1970s.

A striking change occurs in the 1990s. Consistent with the liberalization period of Menem and Cavallo, export taxes were completely eliminated and the sector remained fully liberalized until the Presidency of Kirchner, when export taxes were actively utilized again. They remain in heavy use today. Moreover, it is interesting to note that while historically there have been sectors with zero taxes (see 5th percentile), after 2002 all sectors faced positive export taxes. The trends in averages clearly mask lots of details. Export taxes in Argentina tend to be concentrated in a few sectors at very high levels. The agricultural sector has been traditionally the most taxed sector throughout time along with mineral products. We explore this in Figures 8 and 9. There are six panels in each Figure. Each panel compares the Agricultural sector (broken line) with other major sectors (solid line). In Figure 8, we see that the Agricultural sectors fared very badly relative to Chemicals, Plastics, Textiles, Footwear, Machinery and Transport, all sectors with very low levels of taxation. The comparison sectors in Figure 9 are instead sectors that face some level of export taxes. While the Agricultural sector is still more heavily taxed, all sectors show positive taxes and, in addition, show similar trends in time.

An additional piece of evidence that shows the hurdles faced by the agricultural sector is given in Table 8. We counted the numbers of years, from 1966 to 2006, in which each sector had positive export taxes. Interestingly, the Agricultural sector and Processed Food (together with Chemicals) faced positive export taxes for 33 out of 40 years. In contrast, Footwear, Machinery and Transport are among the least-often taxed sectors, with 7 and 13 years respectively.

While the overall anti-export bias in undeniable, there are interesting differences within agriculture. To see this, we plot the trends in average export tax for the four most important sectors in agriculture, Cereals and Oil Seeds, Dairy, and Meat in Figure 10. Clearly, export tax rates within the agricultural sector move in accordance with the general tendency described above. But Cereals and Oil Seeds were often taxed at a much higher rate than Dairy and Meat. In the peak of the mid-1970s, the *average* export tax on Cereals and Oil Seeds was close to 40

percent, while it was 10 percent for Dairy and 20 percent for Meat. In contrast, the most recent export tax intervention of the 2000s had heavily affected Dairy as well. It is important to notice that, within these high averages, there are individual products that faced extreme tax rates; a notorious case is soybeans (in the Oil Seeds group) with current tax rate of 35 percent.[9]

The combination of export taxes liberally applied, especially on the agricultural sector, and significant protection granted to the manufacturing sector are the result of the distributional conflict outlined in section 3. In the end, Argentine trade policy shows a clear anti-export, anti-agriculture bias.

5. Some of the Consequences

In this section, we briefly discuss some of the consequences of Argentine trade policies. Since these policies have numerous impacts on various outcomes it is impossible to provide a comprehensive assessment. Instead, we present evidence to support the broad claims of our analysis: i) the historical debacle of Argentina can in part be explained by bad trade policies; and ii) their manifestation is a marked anti-export bias and an inefficient import substitution model.[10]

1. Agriculture

To document the implications of trade policies on agricultural performance, we explore here various outcomes, including the volume of exports and the share of Argentine agricultural production on world production, an index of agricultural production, and the performance of yields in Argentine agriculture (vis-á-vis the U.S.).
In Panel a) of Figure 11, we show the evolution of Argentine exports (largely composed of agricultural exports—both primary products and agro-manufactures). Exports grew steadily until the late 1930s and early 1940s, when, concurrently with the IS model, they plummeted. Exports recovered in the 1980s and early 1990s, and after the mid-1990s, they skyrocketed, especially due to technology adoption in agricultural. Panel b) of Figure 11 uncovers interesting features of these trends. We report the share of corn, wheat and soybean production of Argentina in world production. We see that the shares of corn and wheat grew steadily from the early 1900s until around the 1930s. The shares abruptly collapsed in the late 1930s and early 1940s up until around the 1950s. From the 1950s to the 2000s, the production shares of corn and wheat stagnated: they showed a slightly increasing trend from 1950 to the mid-1970s, a slightly declining trend from the 1970s to the 1990s, and a slightly increasing trend in the 1990s.

The trends in the production shares of soybeans are different. Soybeans were only adopted in Argentina in the 1972-1973, almost 20 years later than in the U.S. The story, told by Reca (2007), gives an interesting portrait of Argentine history. Whereas soybean production had been heavily encouraged in the U.S. since the 1930s, the Argentine agricultural sector always resisted its adoption and the Argentine government never took actions to promote it—it was considered an "exotic plant." The scenario changed in 1972-1973, only by chance. Argentina used to import balanced animal feed from fish flour produced in Peru (from the "anchoveta peruana," a type of anchovies). A change in sea currents in the Pacific Ocean caused a disruption in anchoveta production in 1972 and a scarcity of balanced feed in Argentina. As a

[9]In 2006, when our data end, taxes on soybeans are "only" 22.5 percent.
[10]See the chapter by Lucas Llach (2009) in this volume for a detailed account of the relative performance of Argentina vis-à-vis other countries.

result, soybeans were finally adopted in 1973-1974 after a joint initiative of the balanced feed industry and the Argentine Secretary of Agriculture. Soon after adoption, Argentina became a major producer, at an increasing rate. With the exception of a small dip at the end of the 1990s, the share of Argentine soybean production in world production has been increasing continuously, reaching over 15 percent in the 2000s.

To further illustrate the performance of the agricultural sector, we built an index of Cattle, Corn, Soybean and Wheat Production in Argentina for the 1914-2007 period. This index, plotted in Figure 12, implicitly shows how Argentine agricultural production responded to the set of policies and shocks faced by the country. Given all our previous accounts, it is not surprising to see that the agricultural production index increases only gradually from 1914 until about the 1980s. It is only in the 1990s that production takes off.

For end this discussion, we finally compare yields in Argentina vis-à-vis the U.S. The results are in Figure 13. Wheat yields are reported in the upper-left plot. From 1900s to around 1920, yields in the U.S. were higher than in Argentina. The catch-up took place around 1922 and wheat yields remained comparable up until the mid-1950s. A sharp divergence is observed afterwards. The productivity gap increased between the mid-1950s and the late 1980s, and only narrowed in the 1990s. A similar pattern is observed in corn (upper-right plot). Corn yields are comparable from the early 1900s until 1940. U.S. yields sharply and steadily increased after that. While Argentine corn yields also increase, they do it at a much slower pace, especially between 1950 and 1990. In consequence, relative productivity between the U.S. and Argentine diverged. As with wheat, yields seem to slightly catch-up, during the 1990s. In the bottom plot of Figure 13, we report trends in soybean yields. Productivity in the U.S. has been ever increasing at a steady pace. In Argentina, as we mentioned above, adoption took place much later than in the U.S. but yields quickly caught up by 1980s. The productivity gap widened slightly during the late 1980s and early 1990s, but quickly vanished again in the late 1990s. The notable catch-up in wheat, corn and soybean yields observed during the 1990s is the consequence of favorable incentives to introduce new technologies, adopt new hybrid seeds, encourage the mechanization of agriculture and utilize biocides and fertilizers (Bisang, 2007; Ekboir, 2003).

Arguably, trade policies are a key factor behind the agricultural trends (both in export shares and in yields), mostly because these trends broadly coincide with the three phases in the anti-agriculture bias of Argentine trade policies that we identified in previous sections. An initial phase of rapid growth occurred when the economy was essentially open, and factors like the expansion of the border and railroad innovations facilitated agricultural production destined to growing international markets. This is also a period when the President fair well in the "Rural." During most of the second phase, starting sometime in the 1930s and 1940s, Argentine policies had an explicit anti-agricultural bias rooted in the inward-development strategy and the import substitution industrialization. Agriculture lagged in comparison with the rest of the world and export markets were gradually lost. The Presidential speech at the "Rural" often faced rejections and boos. In the last phase, especially during the 1990s, the agricultural sector regained some of its initial momentum, production and exports increased (especially of soybeans) and productivity caught up. This success materialized amidst periods of pro-agro bias (as in the early 1990s) and anti-agro bias (as in the 2000s).[11]

[11]Reca (2006) describes the sources of growth of agriculture during this period. Until 1930, 93 percent of agricultural growth is explained by the addition of new arable land, while improvements in yields account for the remaining 7 percent. Between 1931 and 1952, the decline in production is mostly due to a reduction in harvested area. From 1952 to 1987, yields and harvested area equally explain production growth. Finally, starting in 1988,

2. Industry

To assess the ineffectiveness of the Import Substitution model in the country, we compare the evolution of industrial productivity in Argentina and in other countries. Data scarcity limits the comparisons that we are able to make, especially when it comes to the history of developing countries that adopted a similar IS strategy. However, we were able to compile data for Brazil based on Colistete (2009) and Taylor (1998). The experience of Brazil serves our purpose well because Brazil followed a model of import substitution and actually protected its industry to a larger extent than Argentina did. Taylor (1998), for instance, reports that around 1960, the overall rate of protection in Brazil was higher than that of Argentina. However, the Brazilian industry performed better than Argentine industry. In Brazil, industrial productivity (measured as gross output per industrial worker) grew at an annual rate of 5.2 percent between 1945 and 1979 (Colistete, 2009). In Argentina, instead, industrial productivity grew at 2.6 percent, on average, between 1946 and 1963 and afterwards actually declined at an annual rate of 0.5 percent between 1963 and 1974 (based on our own calculations using data from the Industrial Census).

Internationally, the Argentine industry was also an underachiever. In Table 9, we report the growth of the industrial output per worker for Argentina and several more developed countries. During the period 1948-1994, Argentina showed the lowest productivity growth in our sample. Furthermore, it is the only country were productivity actually shrank during some of the sub-periods (1948-1954) and (1963-1974). This is strong evidence that the IS model failed and that it never contributed to a fruitful industrialization. It is also worth mentioning that in the last sub-period (1974-1994), there has been a catch up in the output per worker in Argentina with the rest of the countries, and its growth rate was only surpassed by Taiwan. These, to a large extent, may be actually attributable to the liberalization of tarde that ultimately led to the survival of only the internationally competitive industries in Argentina.

6. Conclusions

There is a consensus that Argentina, once on a promising path to success, never managed to take off and achieve prosperity. The explanation of such a debacle is complex. It takes a detailed and careful assessment of various factors to account for the economic failure of a country with those promising initial conditions. In this chapter, we have reviewed the role of trade policies.

Argentine trade policies swung from episodes of open trade, especially at the end of the 1800s and during the early 1900s, to episodes of a strong anti-export bias and import substitution, especially after 1930 and until the 1990s. Our analysis tells a story of bad trade policies, rooted in distributional conflict and shaped by changes in constraints, that favored industry over agriculture in a country with a fundamental comparative advantage in agriculture. While the anti-export bias impeded productivity growth in agriculture, the import substitution strategy was not successful in promoting industrialization. In the end, Argentine growth never took-off.

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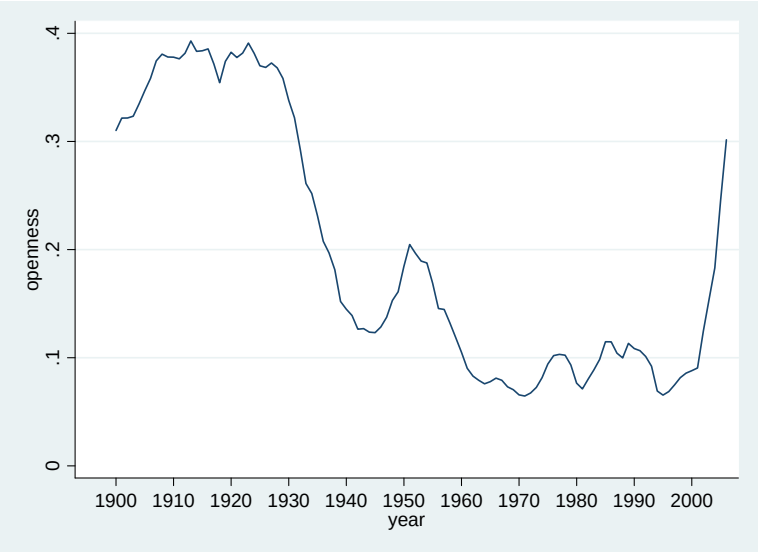
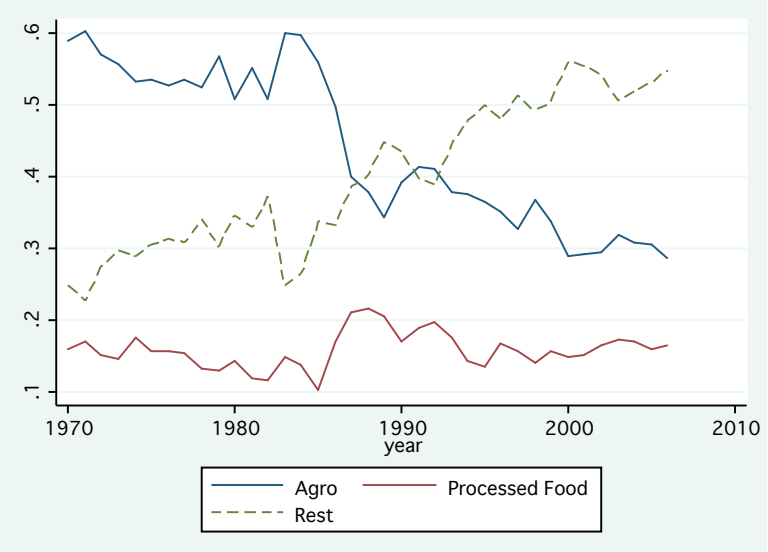
the expansion of harvested area explains 60percent of the growth rate, and yields the remaining 40 percent.

Figure 1
Trade Openness
Exports + Imports as a Share of GDP



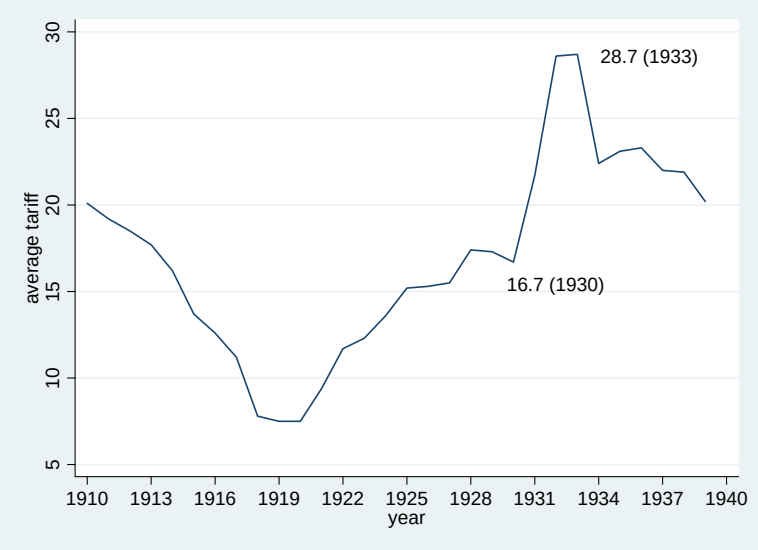
Source: : Own calculations with data from ECLAC, INDEC and Ferreres(2005).

Figure 2
The Composition of Argentine Exports
(shares of total Argentine exports)



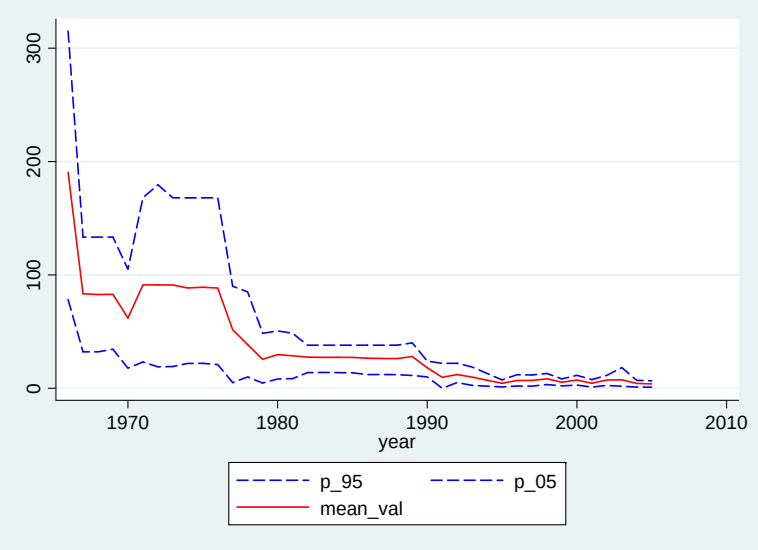
Source: Argentine trade policy data collected by the authors. See text.

Figure 3
Average Import Tariffs
1910-1940



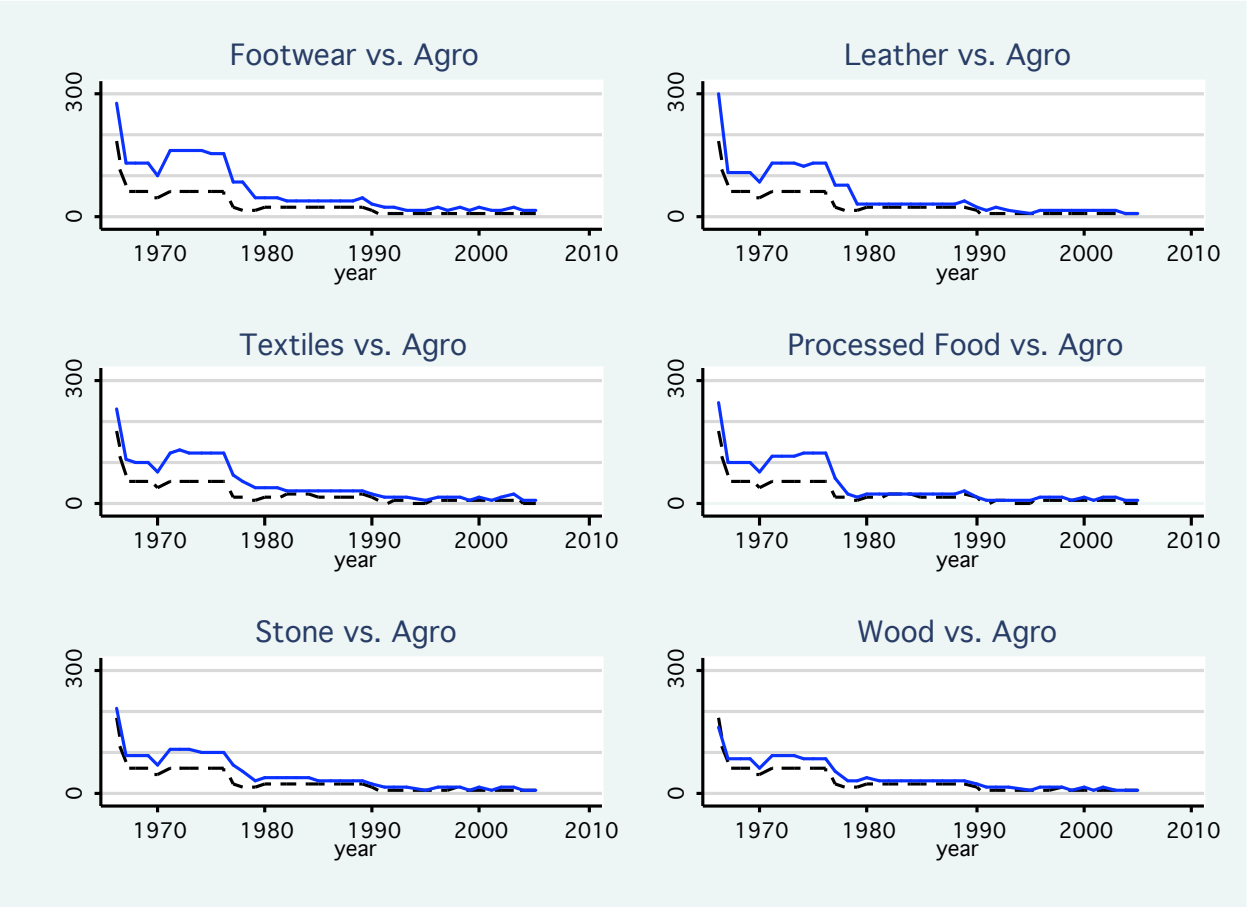
Source: Díaz Alejandro (1970). Import tariffs are calculated as the ratio of revenues from import taxes and the value of imports.

Figure 4
Trends in Average Tariffs
1966 - 2006



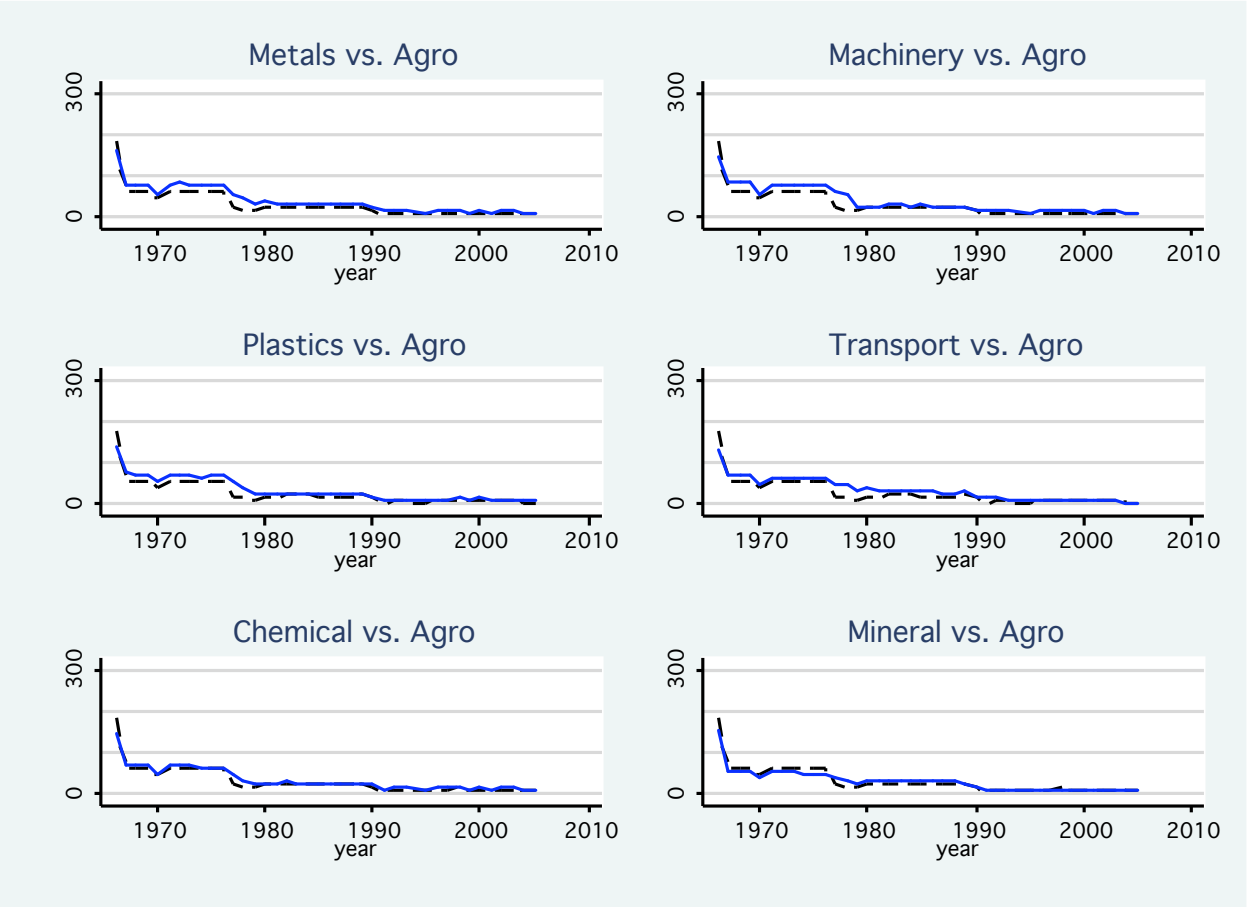
Source: Argentine trade policy data collected by the authors. See text.

Figure 5
Relative Sectoral Protection Against Agriculture



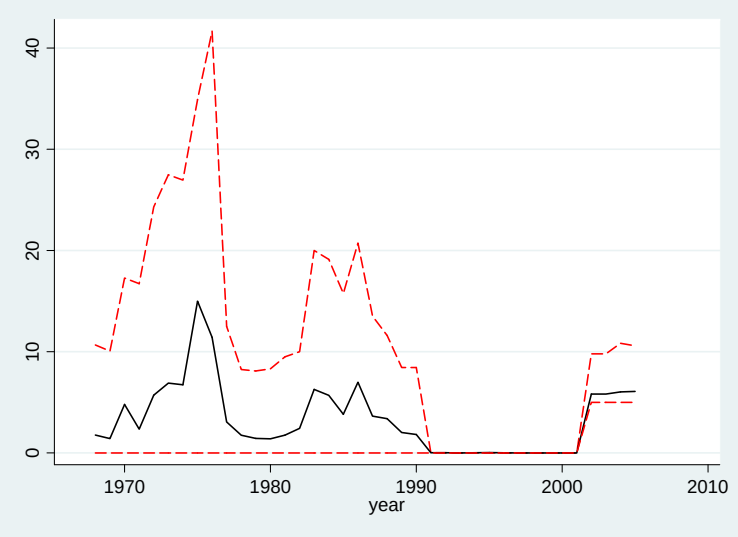
Source: Argentine trade policy data collected by the authors. See text.

Figure 6
Relative Sectoral Protection Against Agriculture



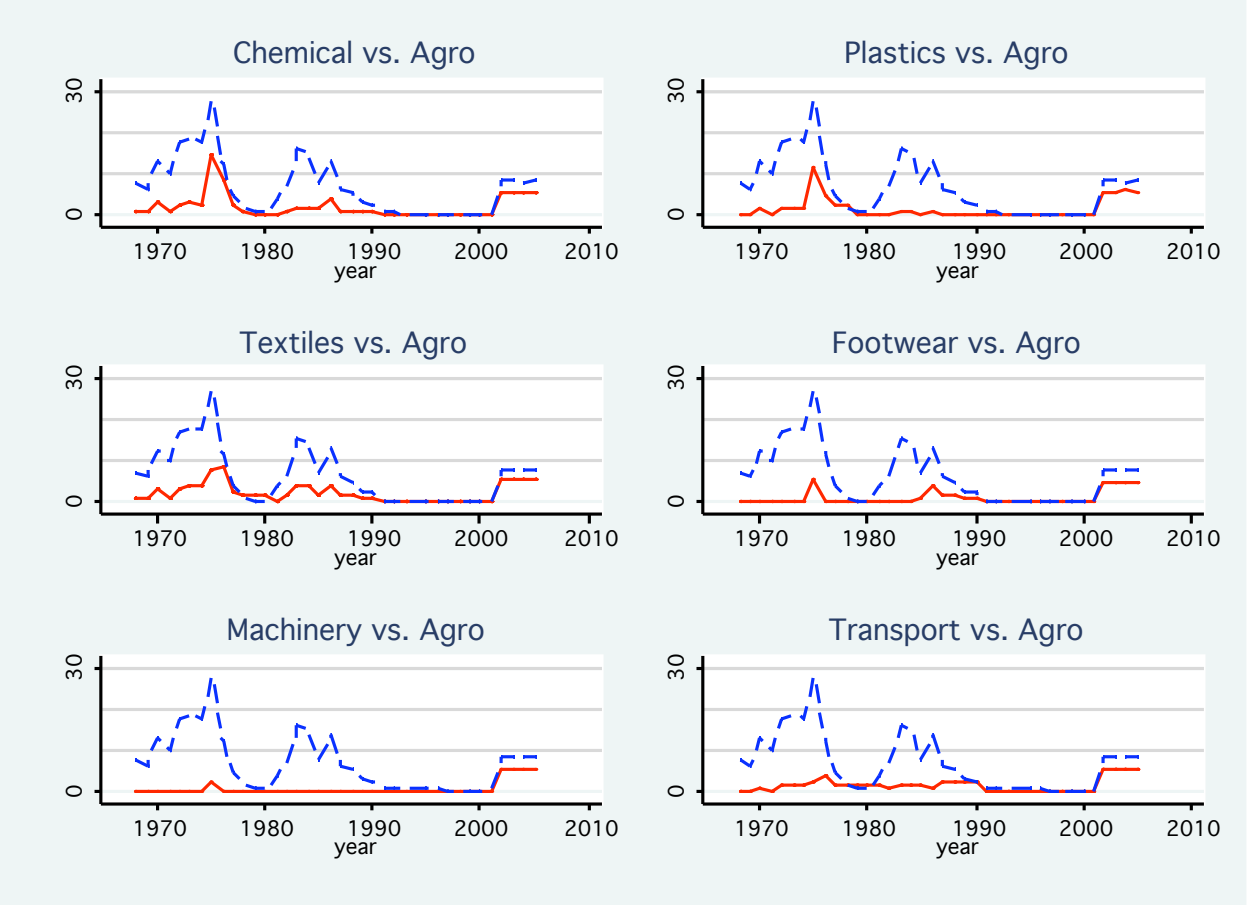
Source: Argentine trade policy data collected by the authors. See text.

Figure 7
Average Export Taxes



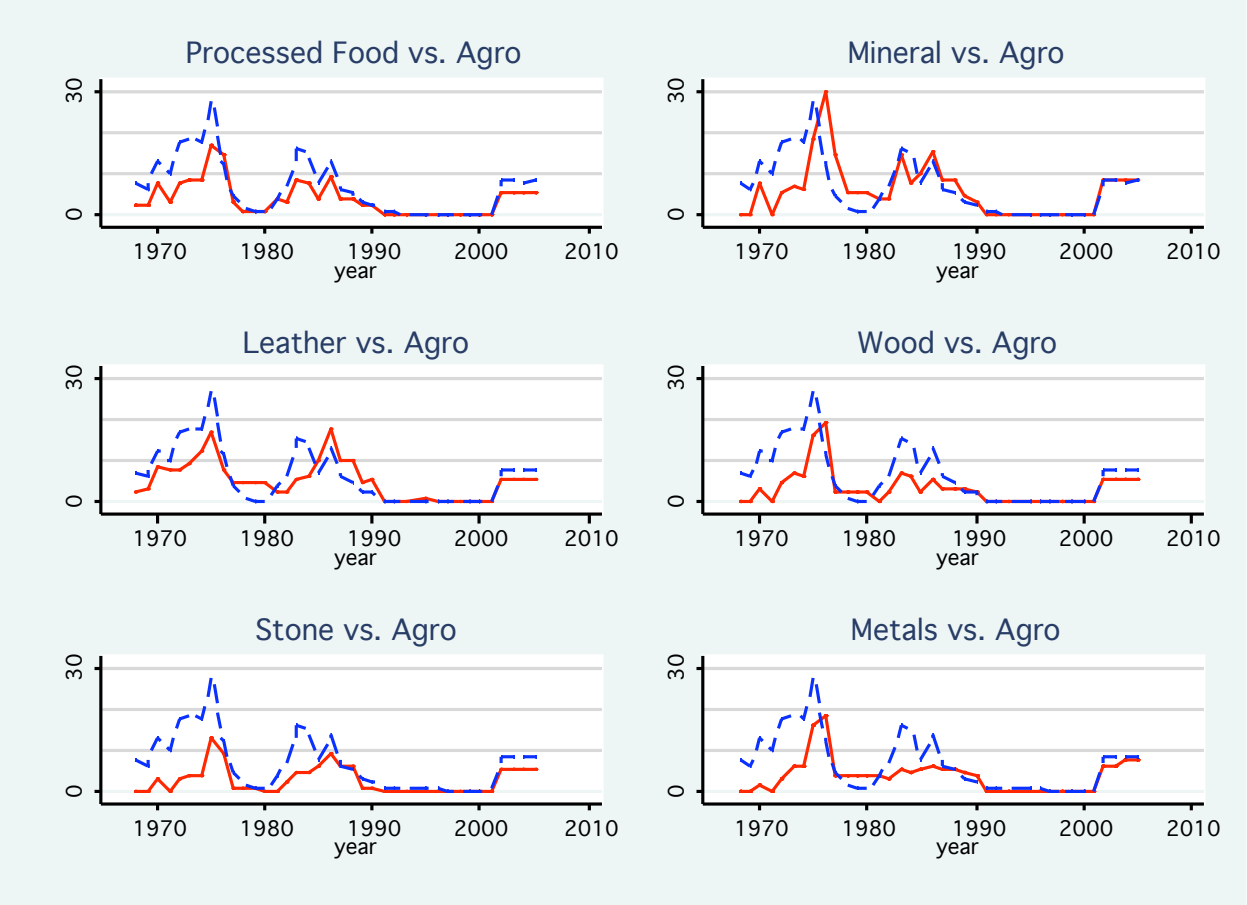
Source: Argentine trade policy data collected by the authors. See text.

Figure 8
Average Export Taxes at 2-digit Groups



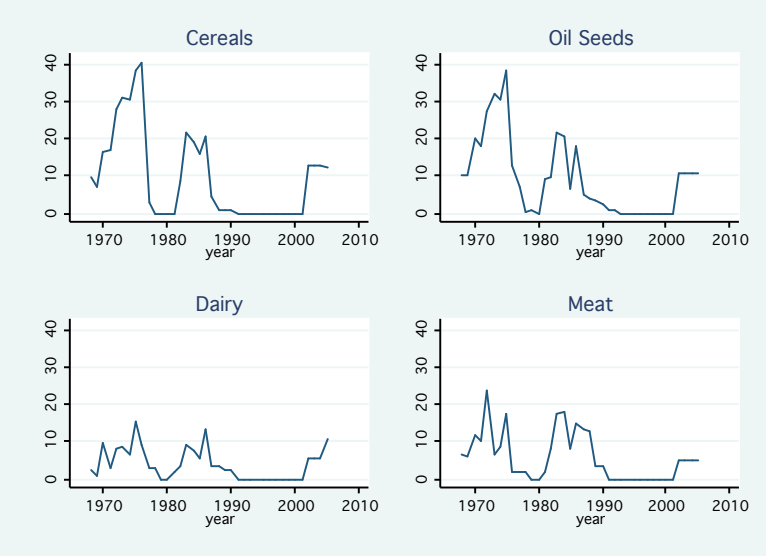
Source: Argentine trade policy data collected by the authors. See text.

Figure 9
Average Export Taxes at 2-digit Groups



Source: Argentine trade policy data collected by the authors. See text.

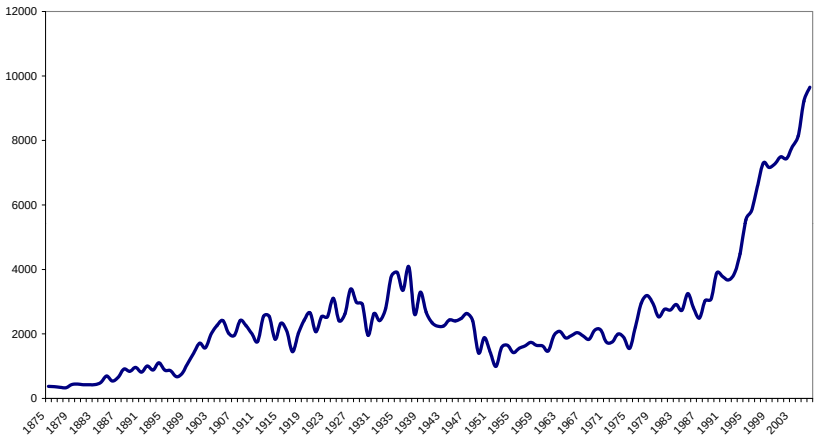
Figure 10
Agricultural Groups



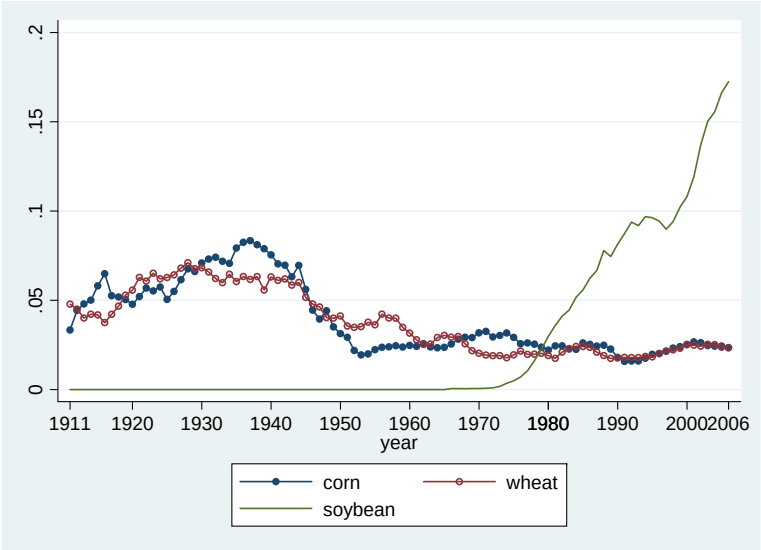
Source: Argentine trade policy data collected by the authors. See text.

Figure 11
Evolution of Argentine Agriculture

a) Volume of Exports per capita

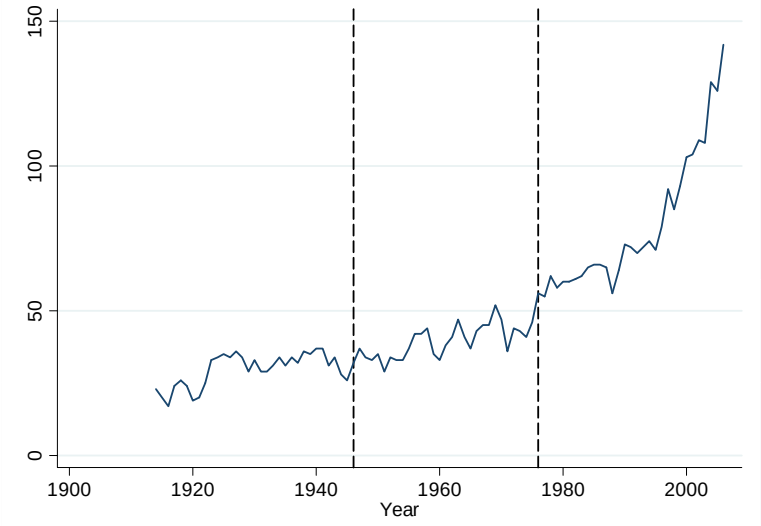


b) Argentine Share of Agricultural Production: Wheat, Corn, and Soybean



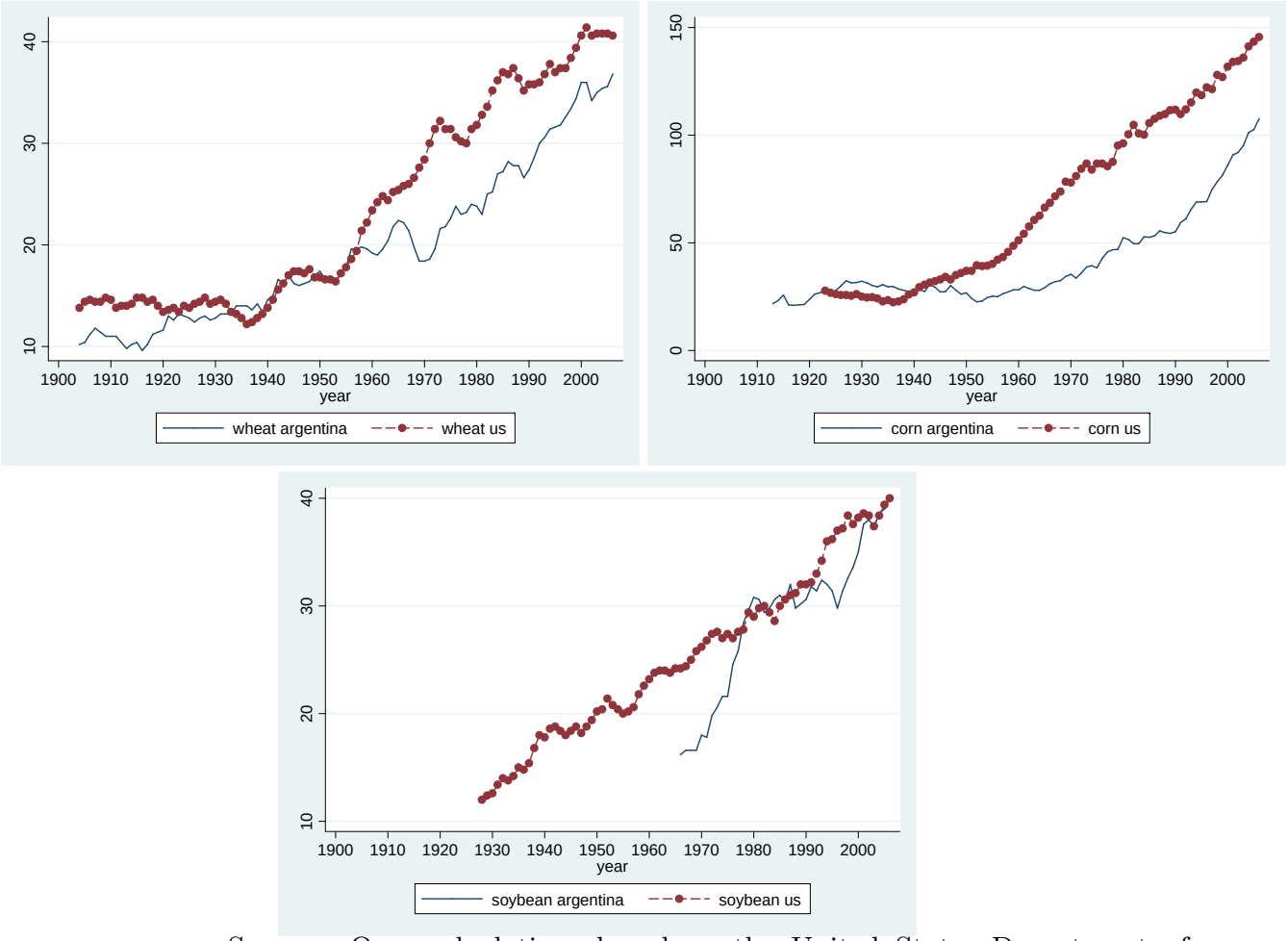
Source. Panel a): CEPAL (ECLAC) office in Buenos Aires. Panel b): Own calculations based on Ferreres (2005) until 1960, and FAOSTAT from 1961 to 2006.

Figure 12
Index of Cattle, Corn, Soybean and Wheat Production
Argentina 1914-2007



Source: Source: Junta Nacional de Granos (1975) and SAGPyA.

Figure 13
Yields in Agriculture: Wheat, Corn and Soybeans
Argentina and the United States



Source: Own calculations based on the United States Department of Agriculture, Secretaría de Agricultura, Ganadería, Pesca y Alimentos de Argentina, and Junta de Granos (1975).

Table 1
Productive Land per Capita (in acres)

1875-89

Abundant in Labor		Moderately Abundant in Land		Abundant in Land	
United Kingdom	1.42	Trinidad (Caribbean)	5.66	Chile	25.43
Japan	1.76	Malaya	7.31	United States	34.91
Switzerland	2.33	Russia	7.48	Mexico	43.79
China	2.38	Siam/Thailand	8.65	Costa Rica	62.49
France	2.7	Malaysia	6.21	Canada	101.81
Spain	4.44			Brazil	102.27
				South Africa	124.75
				Australia	174.4
				Argentina	**216.44**

1946-1949

Abundant in Labor		Moderately Abundant in Land		Abundant in Land	
Singapore	0.08	Thailand	5.2	Ethiopia	22.24
Japan	0.95	Malaysia	6.21	**Argentina**	**29.4**
Taiwan	0.98	United States	11.77	Brazil	29.96
United Kingdom	1.06	Chile	11.99	Canada	102.27
China	1.97	Costa Rica	16.18	Australia	130.36
Trinidad	1.98	South Africa	18.52		
France	2.64	Russia	19.54		
Indonesia	4.27	Mexico	19.96		
Spain	4.29				

Source: Lai (1998).

Table 2
Livestock per Capita
1895

	Cattle		Horses		Sheep	
	Cattle/Pop.	Rank	Horses/Pop.	Rank	Sheep/Pop.	Rank
Australia	357	3	49	2	2995	1
New Zealand	132	4	34	4	2912	2
Argentina	542	2	111	1	1859	3
Uruguay	650	1	47	3	1602	4
United Kingdom	28	9	5	9	77	5
United States	76	5	24	5	68	6
France	34	7	7	8	54	7
Russia	29	8	23	6	52	8
Germany	35	6	8	7	27	9

Source: Argentine Census (1895).

Table 3
Literacy Rate and Skilled Labor

	Year	Literacy Rate	Skilled/Unskilled
Argentina	1900	52	1.1
Brazil	1900	25.6	0.3
Chile	1900	43	0.8
Costa Rica	1900	33	0.5
Mexico	1900	22.2	0.3
Uruguay	1900	54	1.2
Canada	1870	80	4.0
United States	1890	86.7	6.5

Source: Sokoloff and Engerman (2000).

Table 4
Relative Factor Endowments

Country	Capital/ Labor	Rank	Land/ Capital	Rank	Land/ Labor	Rank	Skilled/ Unskilled	Rank
Argentina	55.5	28	3.5	25	1944.4	5	0.81	33
Australia	148.1	10	3.7	23	5495.5	1	2.76	6
Austria	165.2	6	0.2	63	379.7	42	2.35	11
Benin	3.0	65	35.4	7	1073.1	13	0.11	66
Bolivia	9.4	57	10.4	15	974.4	15	0.41	46
Brazil	35.1	33	2.3	31	801.2	23	0.28	57
Cameroon	4.3	62	29.0	10	1243.7	11	0.15	63
Canada	140.4	14	2.2	32	3069.7	3	3.92	4
Chile	57.8	26	0.6	55	343.7	46	1.07	24
China	14.5	51	1.4	36	204.1	58	0.62	37
Colombia	18.4	47	0.9	44	160.2	62	0.46	43
Costa Rica	19.9	44	0.8	46	160.1	63	0.43	44
Denmark	144.4	12	0.6	56	855.7	21	2.13	12
Dominican Rp	20.6	43	1.3	38	275.6	52	0.38	48
Ecuador	26.3	39	1.3	41	335.3	47	0.59	38
Egypt	11.1	55	1.4	37	154.7	64	0.56	40
El Salvador	11.9	54	2.5	29	293.7	51	0.24	58
Finland	144.5	11	0.6	54	886.6	19	2.38	10
France	152.2	9	0.5	59	712.5	30	1.25	20
Greece	85.7	23	0.7	49	584.6	34	0.90	29
Iceland	125.7	17	0.0	72	48.0	72	1.21	21
India	7.6	58	6.1	18	463.8	39	0.29	56
Indonesia	16.1	49	1.5	35	237.5	54	0.37	50
Ireland	104.4	21	0.6	52	663.9	31	1.78	15
Israel	138.7	15	0.1	67	150.6	65	1.61	16
Italy	153.1	8	0.2	62	369.9	43	0.88	31
Jamaica	24.5	40	0.7	50	165.0	61	0.73	35
Japan	184.8	5	0.0	71	72.8	71	2.56	8
Kenya	4.2	63	10.9	14	454.8	40	0.18	60
Korea Rep.	241.5	1	0.1	69	180.9	60	3.05	5
Malawi	1.6	69	30.7	9	495.4	37	0.05	69
Malaysia	57.6	27	0.4	61	209.6	57	1.02	25
Mexico	44.8	29	1.6	33	729.3	28	0.68	36
Mozambique	1.2	71	46.1	5	558.5	35	0.03	72
Nepal	7.0	59	4.3	22	300.4	50	0.18	61
Netherlands	142.8	13	0.1	68	121.3	68	2.07	14
New Zealand	111.8	19	0.8	48	866.1	20	2.11	13
Nicaragua	15.4	50	8.8	16	1349.3	8	0.34	53
Norway	185.3	4	0.2	65	402.4	41	6.87	2
Pakistan	10.3	56	5.1	20	527.8	36	0.20	59
Panama	36.3	32	1.3	40	471.3	38	0.93	28
Paraguay	18.8	46	7.9	17	1488.3	7	0.36	51
Peru	23.6	41	1.5	34	360.7	44	1.02	26
Philippines	16.1	48	1.3	39	209.6	56	1.16	23
Portugal	88.0	22	0.4	60	344.8	45	0.38	49
Romania	29.5	37	3.2	26	938.1	17	2.69	7
Senegal	2.9	66	24.8	11	721.1	29	0.09	68
Singapore	202.9	3	0.0	73	0.5	73	1.44	17
South Africa	19.8	45	4.3	21	854.0	22	1.38	19
Spain	113.4	18	0.7	51	751.7	26	0.88	30
Sri Lanka	12.3	53	1.0	43	117.1	69	0.81	32
Sweden	132.1	16	0.5	58	632.1	33	4.08	3
Switzerland	203.2	2	0.1	70	112.7	70	2.45	9
Togo	3.2	64	46.7	4	1506.6	6	0.16	62
Trinidad	62.8	24	0.2	64	140.0	66	0.95	27
Tunisia	33.9	35	2.9	27	981.3	14	0.30	54
Turkey	31.1	36	3.7	24	1150.5	12	0.29	55
Uganda	0.9	73	72.7	2	650.8	32	0.12	65
UK	111.0	20	0.2	66	219.3	55	1.39	18
Uruguay	39.9	30	2.4	30	961.0	16	0.81	34
USA	159.5	7	0.8	45	1309.6	9	8.71	1
Venezuela	35.0	34	0.8	47	274.2	53	0.38	47

Source: Cusolito and Lederman (2009).

Table 5
Mean Share of Exports (Imports) during 1970-2005

Sector	1970-1979		1980-1989		1990-1999		2000-2006	
	Export	Import	Export	Import	Export	Import	Export	Import
Agriculture	0.555	0.049	0.495	0.039	0.372	0.033	0.302	0.026
Processed Food	0.154	0.013	0.158	0.014	0.164	0.024	0.165	0.018
Mineral Products	0.007	0.139	0.046	0.133	0.105	0.052	0.189	0.061
Chemical Products	0.033	0.141	0.045	0.180	0.049	0.146	0.057	0.193
Plastics	0.005	0.039	0.013	0.053	0.019	0.060	0.032	0.074
Leather	0.046	0.000	0.046	0.001	0.044	0.003	0.027	0.004
Wood	0.012	0.074	0.010	0.039	0.019	0.044	0.020	0.040
Textiles	0.066	0.020	0.050	0.027	0.039	0.041	0.015	0.037
Footwear	0.003	0.000	0.001	0.001	0.002	0.006	0.000	0.006
Stone	0.003	0.013	0.004	0.013	0.008	0.012	0.004	0.011
Metals	0.032	0.178	0.067	0.093	0.050	0.059	0.043	0.057
Machinery	0.052	0.251	0.044	0.295	0.054	0.319	0.045	0.277
Transport	0.026	0.046	0.014	0.060	0.059	0.131	0.072	0.132

Source: Argentine trade policy data collected by the authors. See text.

Table 6
Average Import Tariffs
1870 - 1938

	1870-1899	1900-1913	1919-1938
Argentina	26.1	23.4	18
Brazil	34.5	40	23.4
Chile	19.4	18.3	22.1
Colombia	33.5	47.4	29.3
Cuba	22.5	25.6	26.2
Mexico	16.6	21.9	21.2
Peru	32.4	23.2	16.3
Uruguay	29.7	33.3	19.6
China	3.2	3.3	11.3
Indonesia	4.9	5.2	10
Japan	6.2	7.7	5.9
Philippines	10.3	21.2	8.1
Siam/Thailand	3.6	7.4	15.1
Burma/Myanmar	4	11.3	22.5
Ceylon	6.2	7.3	13.3
Egypt	11	14.2	26.3
India	3.4	4.7	17.3
Turkey	7.4	9.5	30.7

Source: Clemens and Williamson (2002).

Table 7
Tariff Statistics for periods of 1966 to 2005

Sector	1966-1970		1971-1976		1977-1979		1980-1990		1991-2005	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Footwear	151	69	158	2.152	69	21	38	6	15	4
Leather	139	89	130	3.623	58	28	28	3	11	3
Processed Food	127	67	121	3.201	35	23	25	4	10	3
Textiles	126	63	126	1.894	53	15	34	5	13	4
Stone	109	56	102	2.236	48	16	31	4	10	3
Wood	91	40	84	2.918	35	15	28	3	8	2
Machinery	89	32	73	2.411	43	20	20	4	11	2
Metals	87	41	76	2.517	42	11	28	3	10	2
Plastics	83	32	67	1.441	40	12	25	2	10	2
Agro	79	57	56	0.227	13	3	19	2	5	2
Transport	77	32	63	2.641	40	11	29	4	10	4
Chemical	76	37	61	1.759	30	11	22	2	8	2
Mineral	69	48	46	2.411	26	7	24	4	2	1

Source: Argentine trade policy data collected by the authors. See text.

Table 8
Number of Years with Positive Export Taxes
1966- 2006

Sector	Years
Agro	33
Processed Food	33
Chemical	33
Leather	30
Wood	28
Textiles	28
Mineral	26
Metals	26
Transport	26
Stone	24
Plastics	17
Footwear	13
Machinery	7

Source: Argentine trade policy data collected by the authors. See text.

Table 9
Evolution of Industrial Productivity
1948 - 1994

	1913-1935	1935-1943	1948-1954	1954-1963	1963-1974	1974-1994	1948-1994
Argentina	0.6%	-7.5%	-2.0%	3.1%	-0.5%	4.6%	2.2%
Canada			2.5%	4.7%	3.4%	2.8%	3.3%
Australia			n.a.	n.a.	n.a.	3.3%	3.3%
Japan			13.1%	9.0%	8.4%	3.4%	6.6%
France			3.8%	4.7%	5.0%	3.3%	4.1%
Italy			7.3%	5.5%	5.7%	3.9%	5.0%
Holland			5.0%	4.5%	6.6%	3.1%	4.4%
Norway			3.7%	3.2%	3.9%	1.3%	2.6%
Sweden			1.9%	4.1%	5.0%	3.2%	3.7%
United Kingdom			1.3%	2.2%	3.6%	3.3%	2.9%
Taiwan			n.a.	n.a.	n.a.	5.0%	n.a.
Belgium			n.a.	n.a.	6.2%	4.1%	n.a.
United States			1.7%	3.0%	2.4%	3.2%	2.8%

Sources. Argentina: own calculations based on IV Censo General de la Nación, Censo Industrial de 1946, Dirección General de Servicio Estadístico Nacional, Censo Nacional Económico (1964, 1974, 1985, 1994), Anuario Estadístico de la República Argentina (Tomo III), Estadística Industrial, 1949-50, Censo Industrial 1954. Rest of the countries: own calculations based on U.S. Department of Labor, Bureau of Labor Statistics, March 2009. Note: for all countries except Argentina, the available data covers the period 1950-1994.

Transition Remarks

The previous two papers have both argued that Argentine trade policies led to a relatively closed economy and a poorer country. But why did Argentina follow trade restricting policies that eventually impoverished the country? One explanation is that it was an honest mistake. After all, many well respected economists supported imported substitution during its heyday.

But another explanation is that political forces conspired to move Argentina from an open to a closed economy. The next paper explores how an initially open economy can shift towards tariffs and then get locked into protectionism. It argues that Argentina got caught on a path towards isolation where political interests closed economic borders.

The stylized model in the chapter focuses on three economic sectors: agriculture, industry and services. Argentina, it is assumed, has a comparative advantage in exporting agriculture. At the start of the 20th century, that sector was dominant and as a result there was widespread support for free trade. Neither the large agrarian capitalists nor their humbler workers had much to gain from tariff barriers.

During the middle decades of the 20th century, a combination of natural technological progress, global shocks to terms of trade and a depression-induced hike in trade barriers, caused the industrial sector to increase substantially in size. The sector had a much stronger interest in protection and as it grew more important, tariff barriers increased in size. Both industrial workers and capitalists benefitted from protection from global manufacturing competition.

The important insight of the paper is that these tariffs create path dependence. By maintaining an overly large industrial sector, the tariffs maintain a lobby for high tariffs. Since so many workers stood to lose from free trade, there was little chance for free trade to get widespread support. The decline in protection can only come as the non-trading service sector increases in importance.

The paper poses a critical question: why did other new world economies not fall into similar tariff traps? The paper suggests that political institutions, which enabled welfare-enhancing bargains, were absent in Argentina. According to this view, American industrial workers were willing to accept openness in exchange for other social benefits, while Argentina had no means of delivering a comparable deal. This key political insight sets the stage for the book's emphasis on politics.

CHAPTER FIVE

Path-Dependent Import-Substitution Policies: The Case of Argentina in the 20th Century[1]

Sebastián Galiani
Paulo Somaini[2]

Abstract. We use a simple three-sector model to narrate the economic history of Argentina during the 20th century as seen through the prism of its integration into and dis-integration from the world economy. Assuming that capital moves between the primary and secondary sectors more slowly than labor moves between the secondary and tertiary sectors, we show that import-substitution policies exhibit path dependence. We contend that the endogenous industrialization of the inter-war period generated political changes that paved the way for import-substitution industrialization during the post-war period. Even if this inward-oriented strategy failed to spur economic growth, protectionist policies became entrenched. In the absence of mature political institutions, the liberalization process was delayed and, when it finally did occur, it was extremely costly.

1 Introduction

Argentina tends to grow relatively faster when its economy is integrated into world markets. Why, then, did it remain closed to world trade for 60 years during the 20th century? In this paper we contend, like many other authors have in the past (see, among others, Díaz-Alejandro, 1970; Díaz-Alejandro, 1984; Mallon and Sourrouille, 1975; O'Donnell, 1977; Waisman, 1987; Rogowski, 1989; Gerchunoff, 1989; Taylor, 1994 and Gerchunoff and Llach, 2004), that a severe distributional conflict lies at the core of this phenomenon. In Argentina, for a large part of the 20th century, what was efficient was not popular. In the words of one insightful economic historian of the Argentine Republic:

" ... Argentina is too transparently a Stolper-Samuelson country where a zero-sum view of economic policy is plausible in the short and even the medium term" (Díaz-Alejandro, 1984).

The ideas behind the Stolper-Samuelson theorem explain the increasingly pronounced urban-rural

[1]We are grateful for the comments provided by editors Rafael Di Tella and Edward Glaeser, three anonymous referees, Hugo Hopenhayn, Douglas North, Jeffrey Williamson and seminar participants at Harvard (March 2009) and LACEA (October 2009) in Buenos Aires. We have also benefited greatly from conversations with D. Heymann and would like to thank Ivan Torre for his excellent research assistance.
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political cleavage seen in the aftermath of the Second World War; however, they do not explain the process of integration into world markets. We show that these processes can be understood once we add a non-tradable sector and frictions in the mobility of capital across sectors. Under these conditions, free trade can benefit all factors of production. However, even if that is the case, protectionism may persist if political institutions are not able to enforce long-term agreements between political actors.

Up to the 1930s, Argentina was well integrated into the world economy and, although some protectionism naturally arose in the wake of the worldwide crisis of the 1930s, it was only after the Second World War that the country closed its economy off from world markets and then remained in a situation close to autarky until the mid-1970s. It was only after a long period of absolute economic decline and devastating hyperinflation that an intensive program of reform and integration into the world economy was adopted.

In this paper we present a simple three-sector model to narrate the economic history of Argentina during the 20th century as seen through the prism of its integration into and dis-integration from the world economy. In our model, the primary sector uses land and capital to produce agricultural goods; the secondary sector employs labor and capital to produce manufactured or industrial goods; and the tertiary sector uses only labor to produce services. We assume that (as in fact is the case) Argentina has a comparative advantage in the production of agricultural goods. Thus, the economy exports agricultural goods and imports manufactured goods; services are non-tradable and are always produced in equilibrium. The government's intervention in the economy is limited to taxing trade and distributing the proceeds among the relevant agents.

We characterize the steady-state equilibria of this economy and show that the economy could operate under specialization and trade, where neither labor nor capital is employed to produce manufactured goods; under diversification and trade, where the manufacturing sector is active in production; or under autarky, where there is no trade (for the sake of completeness, we also show that there are other equilibria where the patterns of trade reverse).

We focus on the functional distribution of income; therefore, we consider three socioeconomic groups: workers, landowners and capitalists. We use our model to characterize these different groups' demands for protectionist policies. Assuming that capital moves between the primary and secondary sectors more slowly than labor moves between the secondary and tertiary sectors, we show that import-substitution policies exhibit path dependence. Indeed, this is a very important insight in understanding the economic history of Argentina.

Using the insights derived from our model, we then argue that much of the distributional conflict that arose during that period was among owners of different production factors and that trade policies were widely used to shift income across groups. At the beginning of the century, the country was specialized in the production of primary goods and was highly integrated into world trade. During the inter-war period, trade opportunities and the terms of trade worsened, and this led to an incipient industrialization process. Argentina started the second half of the century with a very different economic configuration. Industrialization had come a long way, and integration into world markets was weak. These new economic conditions also changed the political equilibrium; urban workers employed in the manufacturing sector and industrialists were now major social

actors, and they were demanding protectionist policies. Traditional sectors comprised of owners of factors employed in the primary sector, on the other hand, supported free trade policies. This distributional conflict surrounding trade policy shaped the politics of the second half of the century.

The years that followed the Second World War were a time of an extraordinarily rapid expansion of trade in which Argentina was not an active participant. Instead, it embarked on an ambitious process of import-substitution industrialization that resulted in bumpy cycles of economic expansion followed by sharp recessions. Argentina had the opportunity to return to an export-led growth strategy, but the new political forces that emerged from the industrialization process during the inter-war period were able to block any attempt to liberalize.

Liberalization could have been achieved gradually, thus mitigating the losses of those with vested interests in protected activities. However, that would have required a set of political institutions capable of enforcing intertemporal agreements between political groups. Sadly, Argentina lacked such institutions (see Spiller and Tommasi, 2009). Instead, the dismantlement of the import-substitution strategy came only after a substantial deterioration of economic and political conditions. The steps that were then taken toward liberalization were abrupt and were applied as shock policies by political groups that had political power but that did not represent a consensus of the Argentine population. As a result, Argentina's integration into world markets proved to be extremely costly in terms of inequality.

Our main thesis is that the interplay of economic and political forces that were spurred by international conditions during the inter-war period trapped the country into an anti-trade equilibrium which limited economic growth. The conditions that generated the anti-trade trap in Argentina, however, should have also generated the same effect in other new-settler, land-rich economies. This poses a pressing question: Was Argentina the only economy that fell into an anti-trade trap? We argue that most economies that shared the endowment configuration of Argentina faced a distributional conflict of similar characteristics but with different intensities and outcomes.

The rest of the chapter is organized as follows. In Section 2, we relate our work with the existing literature and explain why we focus on trade policy. In Section 3, we set up and solve the model. In Section 4, we interpret the economic history of Argentina during the 20th century as seen through the prism of our model. In Section 5, we compare Argentina with other new-settler, land-rich economy: Australia. Finally, in Section 6, we present out conclusions.

2 Why is Trade Policy Important?

There is a vast amount of literature on the decline of Argentina during the 20th century, and a wide variety of factors have been identified as causes of its dismal economic performance. However, there is broad agreement in the literature that this period was marked by a severe distributional conflict that shaped the politics and the economics of the country (see, among others, Díaz-Alejandro, 1970; Díaz-Alejandro, 1984; Mallon and Sourrouille, 1975; O'Donnell, 1977; Waisman, 1987; Rogowski, 1989; Gerchunoff, 1989; Taylor, 1994 and Gerchunoff and Llach, 2004).

Essays on Argentine economic history usually describe, in more or less detail, the periods of economic crisis that alternated with stability and recovery; this is usually referred to as a "stop-and-go" process (see Díaz-Alejandro, 1970; Mallon and Sourrouille, 1975; and Gerchunoff and Llach, 2004). These authors note that the crises were usually caused by overvaluation of the domestic currency, high inflation and current account deficits, whereas stabilization generally involved some combination of fiscal austerity, devaluation and price controls. Once the economy had been stabilized, the government resumed its profligate behavior which led inevitably to yet another “stop”. These stop-and-go cycles were closed linked to the real exchange rate, or to the relative price of tradables versus non-tradables; stabilization required a real devaluation, whereas government deficits generated real appreciation.

We will focus on a different relative price: the terms of trade, i.e., the price of exports relative to the price of imports. We will also discuss the effect of protectionism on such relative prices as perceived by economic actors. In order to isolate the analysis from the effect of the real exchange rate, we are going to build a model in which there is no debt and the trade balance has to be balanced in every single period.

The real exchange rate is a key element in analyzing short-term debt management problems, short-term capital flows and agents' perceived wealth (Heymann, 1984). However, long-run trends in the terms of trade and persistent trade policies are key to an understanding of long-term investment and capital reallocation in the economy. Ultimately, these factors are more influential in shaping the political and economic landscape. That is why our narrative deals with general developments over a span of decades rather than delving into the details of each one of the sudden stops that plagued Argentina during this period.

For at least 50 years, successive Argentine governments intentionally distorted producer prices by setting import tariffs and export duties and maintaining a dual exchange rate mechanism (see Brambilla et al. (2010) in this volume). These distortions altered the allocation of resources in the economy, which in turn affected the political equilibrium.

Finally, we do not minimize the role of organizations and institutions in shaping the course of history (North, 1990; Cortés-Conde, 1998). As we argue in this paper, once the import-substitution development strategy had proven to be inefficient, liberalization measures could have been instituted gradually in order to mitigate the losses of those with vested interests in protected activities. A gradual but steady process of liberalization would have required consensus among different interested groups and a mature institutional framework capable of limiting the incumbent government ability to discretionally introduce major shifts in trade policy and benefit some groups at the expenses of others. Argentina lacked such institutions, and as a result trade liberalization occurred abruptly, without consensus and too late.

3 A Simple Model

In this section we introduce a simple model that we use to articulate the analytical discussion in the next section. We use a model with two tradable goods and one non-tradable good. The tradable goods are labeled as agricultural (a) and manufactured (m). The agricultural good is produced in

the primary sector, using land and capital, while the manufactured good is produced in the secondary sector, using labor and capital. The non-tradable good (n) is labeled as a service and is produced using labor only. The economy is endowed with K units of capital, T units of land and L units of labor.

The tradable goods are produced using the following Cobb-Douglas production functions:[3]

$$Y_a = AT^{1-\alpha}K_a^{\alpha}$$

$$Y_m = ML_m^{1-\beta}K_m^{\beta}$$

The non-tradable good is produced with the following linear technology:

$$Y_n = L_n$$

where Y_i is the total output of good i and K_i (L_i) is the amount of capital (labor) employed in sector $i \in \{a, m, n\}$. A (M) is total factor productivity in the primary (secondary) sector. We assume that capital is used more intensively in the secondary sector: $0 \le \alpha \le \beta \le 1$. We also assume that there are many competitive firms in each sector, which allows us to cast the model in terms of a representative firm of the sector that behaves competitively.

Since our focus is on the functional distribution of income, we consider three types of agents: workers, endowed with one unit of labor; landowners, endowed with equal shares of the total rewards to land; and capitalists, endowed with equal shares of total capital. Agents consume the three goods (a, m, n), for which they have identical preferences as represented by a Cobb-Douglas utility function:[4]

$$U_j = \phi_a \ln c_{aj} + \phi_m \ln c_{mj} + (1-\phi_a-\phi_m)\ln c_{nj}$$

where c_{ij} is the consumption by agent j of good i. We will use C_i to denote aggregate consumption for good i.

We assume that the Argentine economy is a price-taker in world markets. Therefore, the international price for the agricultural good p_a and the manufactured good p_m are considered exogenous. The terms of trade are denoted by $\pi = p_a/p_m$, i.e., the relative price of exports over imports. We also assume the absence of any international capital markets; therefore, trade should be balanced in equilibrium.

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[3]The parameters A and M in the production functions of the tradable goods can be interpreted as neutral technological shocks. However, if the production function were instead to include an additional imported input with a low elasticity of substitution, then an increase in the price of that input could be interpreted as a change in A and/or M.

[4]Homogeneity of degree one allows us to ignore distributional issues in computing the steady state of the economy and studying its equilibrium properties. Unitary elasticity of substitution also simplifies the computation of the steady state.

The government intervenes in the economy by taxing trade. Without loss of generality, we assume that the government introduces an ad-valorem tax on exports at rate τ. We are going to confine our attention to taxes on exports of the primary good. Since the equilibrium depends on relative prices, the effect of any tax on imports can be replicated by a tax on exports (Lerner symmetry result). Because we are interested in Argentina, which is a country with comparative advantages in the primary sector, we will not fully develop the case in which the pattern of trade reverses. If the economy reverses its pattern of trade, we assume that export taxes (on the manufactured good) are zero. The economic agents take the export tax, τ, as given. Unless the country is in autarky, domestic prices are given by $p_a^d = p_a(1-\tau)$ and $p_m^d = p_m$, where the nominal exchange rate is normalized to 1. We assume that the government reinjects the tax proceeds into the economy via lump-sum transfers to agents.

3.1 The Long-Run Equilibrium

In the long-run equilibrium, firms hire capital and labor competitively and produce according to their production functions, while consumers sell their endowments to the firms and buy the produced goods with the proceeds. In the appendix, we solve for the long-run equilibrium of this economy (see Section 7.1). Here, we will highlight our results.

It will be useful, for our purposes, to consider the preferences parameters (ϕ_i), the technological parameters (α and β) and the endowments of the economy as being fixed. We will focus on the effects of changes in the terms of trade (π) and export duties (τ). As shown in the appendix, there are four types of long-run equilibria:

• Specialization: the country produces only in the primary and tertiary sectors; it imports the manufactured good and exports the agricultural good.

• Diversification and trade: the country produces in the three sectors; it imports the manufactured good and exports the agricultural good.

• Autarky: the country produces in the three sectors; there is no trade.

• Diversification and reversal of the pattern of trade: the country produces in the three sectors; it imports the agricultural good and exports the manufactured good.

Each pair (π, τ) is associated with one and only one of these equilibria; therefore, under the assumptions made, we can represent the areas or regions that correspond to each of these types of long-run equilibria in the (π, τ) plane:

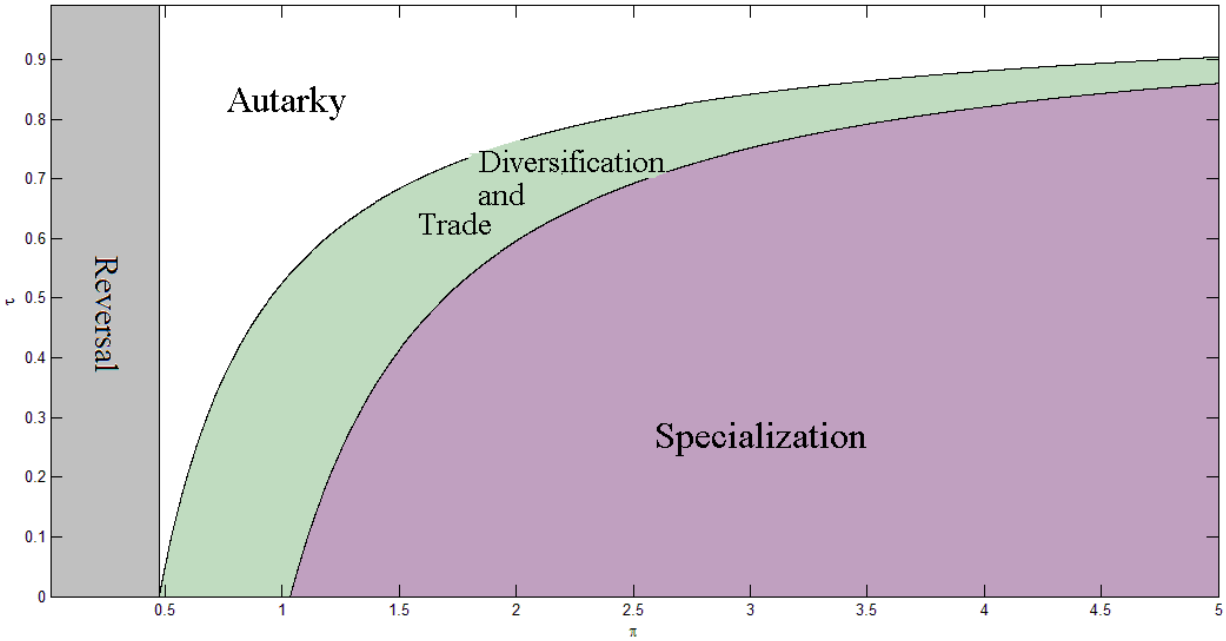

Figure 1: The Long Run: Four Regions.

Notice that, for a given tax rate τ, as the terms of trade worsen (π decreases), the economy moves from specialization to diversification and trade, to autarky and, finally, to a reversal of the patterns of trade. For higher levels of taxes τ, the autarky region is larger.

Consider the share of capital employed in the secondary sector: $\kappa = K_m/(K_m + K_a)$. This is a measure of industrialization that will be useful in our discussion about preferences for protectionism. Figure 2 shows how this share varies in the long-run equilibrium for different configurations of terms of trade and taxes. A figure for $\lambda = L_m/(L_m + L_a)$ would look similar.

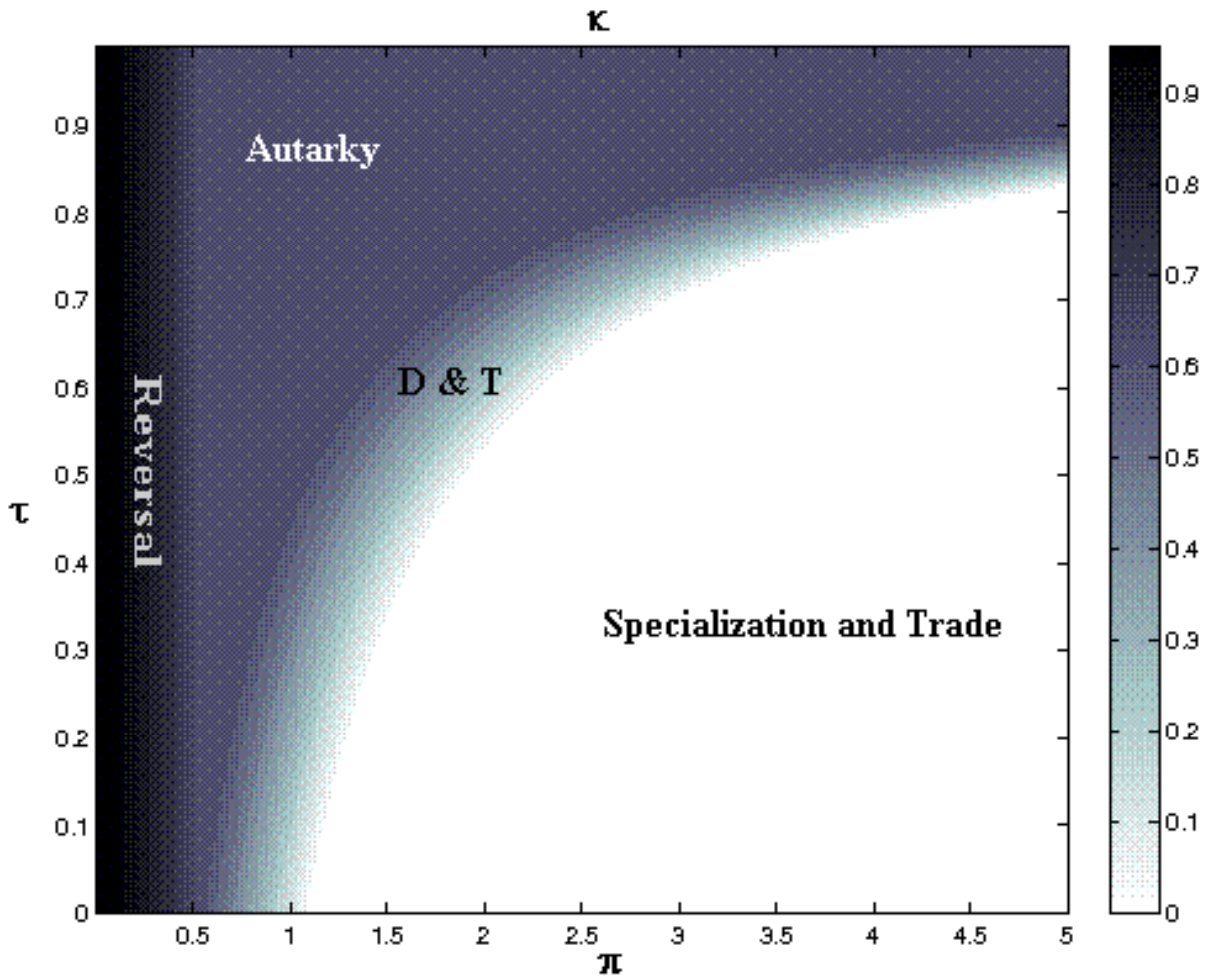

Figure 2: The Long Run Equilibrium, κ

Notice that the specialization region in Figure 1 coincides with the region where κ equals zero in Figure 2. Under specialization and trade, capital and labor employment in the secondary sector are zero.

In the autarky region, the tax rate is set high enough so that the country will not trade with the rest of the world; consequently, changes in π or τ will have no marginal effect on the resulting allocation of resources in the economy. For any point in the region, the factor allocation is the autarky allocation, which we denote as κ_{aut} and λ_{aut} (see Section 7.1.1 in the appendix). The autarky region in Figure 1 coincides with the region with $\kappa = \kappa_{aut}$ in Figure 2.

In the diversification and trade region, the manufacturing sector employs capital and labor. As we move upward and to the left within this region, both κ and λ increase from zero, as in the frontier with the specialization and trade region, up to κ_{aut} and λ_{aut} in the autarky region. The diversification and trade region in Figure 1 coincides with the region where κ is increasing in Figure 2.

Finally, in the reversal of patterns of trade region, the tax rate on agricultural exports has no effect on the real economy. As π decreases, the secondary sector grows and employs more resources. The reversal region in Figure 1 coincides with the leftmost region in Figure 2. As the terms of trade worsen, the share of capital in the secondary sector approaches one; however, the share of labor, λ, converges toward an upper bound that is less than one, since some workers are always employed in the tertiary sector.

It seems appropriate to make two remarks about our model and its usefulness in analyzing the Argentine economy. First, we have simplified the analysis to two tradable sectors. Therefore, our model does not allow for an equilibrium in which some manufactures are exported while others are imported. This is due to the assumption that manufactures are a homogeneous good. A careful interpretation of our model is nonetheless helpful in building our narrative of Argentina's economic history. The manufacturing sector should be interpreted as comprising the activities that compete with imports, the primary sector as the set of activities oriented toward the international market, and the tertiary sector as the services and manufactures that are naturally protected from external competition. Thus, our model assumes that exportable activities are intensive in capital and land, import-competing manufactures in labor and capital, and non-tradables in labor.

Second, we should interpret the autarky equilibrium as representing a situation in which the economy has exhausted its possibilities of import substitution, rather than as an actual autarkic situation. During the period under consideration, Argentina was never in actual autarky; however, it took its import-substitution strategy almost all the way to its technological limit. Of course, there were some inputs that had to be imported because it was simply not feasible to produce them domestically.[5]

3.2 Political Economy

Our assumption that each agent owns a single type of input allows us to group agents according to the input they own and the industry where they are employed. As we show below, the tax rate τ affects the real remuneration of each of these groups in a different way. Some groups will gain from an increase in protectionism (higher τ), while others will lose. Thus, there is a distributional conflict around protectionism.

Notice that no conflict would arise in an economy where each agent owns the same bundle of inputs. Yet agents endowed with different resources have conflicting interests. The essence of the rivalry between proponents of free trade and advocates of protectionism lies in the assumption that each agent can be identified with one of the socioeconomic groups based on the inputs that the agent owns and the industry in which the agent is employed.

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[5] We can reinterpret our model to accommodate an imported input. For a linearly homogeneous Cobb-Douglas production function on K, L and the imported input F, we can write the value-added function $VA = Y - p_f F$. If F is chosen optimally for a given p_f, K, and L, then the value-added function is also a linearly homogenous Cobb-Douglas on K and L. Our production functions should be reinterpreted as value-added functions. An increase in the international price of the imported input can be reinterpreted as a negative productivity shock in the sector where the input is employed.

The reader will recall that we have assumed that tax revenues are distributed in lump-sum transfers to agents; thus, the agents' attitudes will also depend on the share of total tax revenues that each one of them expects to receive. Since we do not specify who the recipients of the lump-sum transfers are, we should bear in mind that, even if a group's real remuneration is reduced by an increase in export taxes, its overall utility might increase if the group receives a disproportionately bigger share of tax revenues. We should also bear in mind that, given the first welfare theorem, it is impossible to put each and every agent in a better-off position by increasing the tax rate and redistributing the revenues**.**

In analyzing the effect of changes of τ on each group's welfare, we consider the short-, medium- and long-run time horizons. In the short run, no reallocation of factors takes place. In the medium run, only labor is allowed to move between the secondary and tertiary sectors. In the long run, all factors can be reallocated, and the economy fully adjusts to its new long-run equilibrium.

In Appendix A (Section 7.2.1), we show that the diversification and trade region is particularly prone to distributional conflict. This is because, in the other regions, either all interests are aligned (under specialization) or a marginal change in the export tax rate has no real consequences (under reversal of the pattern of trade and autarky). Therefore, we will focus on pairs (π, τ) such that the economy will be in the diversification and trade region.

In the *short run*, protectionist policies will benefit owners of factors employed in the secondary sector and will harm those employed in the primary and tertiary sectors. Since the proportion of factors employed in the secondary sector increases as we move upward and toward the left in the diversification and trade region, protectionist policies have more short-run support as we move closer to the autarky region and less support as we move closer to the specialization area (see Proposition 3 in Appendix A).

In the *medium run*, landlords and capitalists with investments in the primary sector will oppose protectionism, while capitalists with investments in the secondary sector will support it. Workers will now have a homogenous attitude toward τ; either all workers will prefer protectionism, or all of them will oppose to it. We show that the pairs of (π, τ) at which workers switch from opposing protectionist policies to supporting them lies in the diversification and trade region (see Proposition 5 in Appendix A).

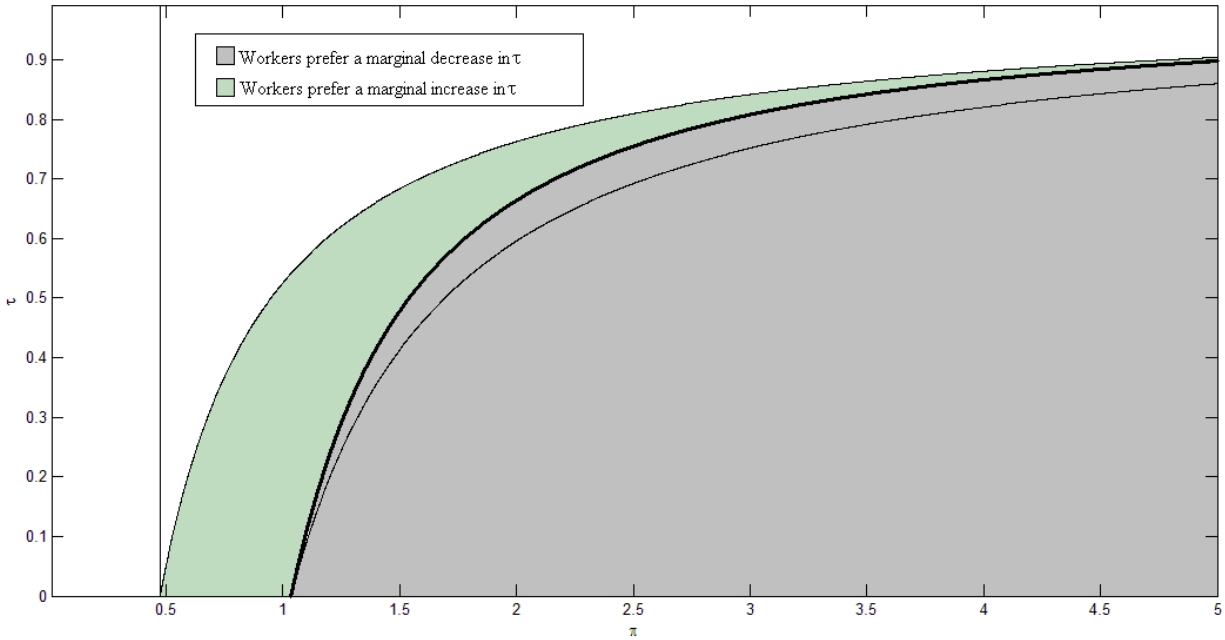

Figure 3: Medium Run Preferences over τ

In the *long run*, landlords will always oppose protectionist policies and will benefit from improvements in the terms of trade (Proposition 6, Appendix A). One of our key results is that workers will also prefer a zero tax rate if π is sufficiently high (Proposition 7, Appendix A). In this case, workers prefer to be employed in the tertiary sector where they can take advantage of the high level of national income induced by high terms of trade. The result for capitalists is similar; for a sufficiently high π, far-sighted capitalists will also support free trade policies.

The key insight that we want to convey here is that agents will support or oppose policies according to their source of income and their relevant time horizon. In the diversification and trade region, agents' attitudes toward protectionism exhibit an interesting pattern. Landlords oppose them in all cases; capitalists employed in the manufacturing sector support them both in the short and medium terms.[6] Who prevails in this struggle depends on several factors that are beyond the scope of this paper; however, our analytical model gives us some mileage in answering this question. It seems fairly reasonable that the size of the capitalist faction that supports protectionism will be positively correlated with the likelihood of these policies being enacted. Moreover, in a democracy, workers could be the pivotal faction that shifts the balance of power.

Clearly, as we move upward and to the left in the diversification and trade region, protectionist policies will enjoy wider support. As we move in this direction, both workers and capitalists will be more likely to advocate these policies. In the short run, there will be more workers and

[6]We will assume that capitalists are not far-sighted. We are careful to draw the distinction between different time horizons in view of the fact that capital is not perfectly mobile across sectors. If we were to assume that capital is, in fact, not mobile at all and that capital reallocation occurs only through a process in which depreciated capital in one sector is not replaced while the other sector has a positive net rate of investment, then it would make perfect sense to assume that capitalists whose capital is already locked into one of the two sectors will only care about the short and medium terms.

capitalists employed in the manufacturing sector. In the medium run, workers as a whole group are also more likely to prefer taxation.[7]

This model can also generate endogenous pressure for the enactment of free trade policies in a protected economy that experiences favorable terms of trade or high levels of productivity in the primary sector. As π grows, far-sighted workers will stand to benefit greatly from free trade policies. Landlords' remuneration under free trade is greater when π is large, and they will therefore support these policies more actively. Consequently, if the economy is trapped in the autarky equilibrium, higher π will intensify the distributional conflict because those who want to challenge the status quo have more incentives to do so.

3.3 Path-Dependent Import-Substitution Policies

We will now discuss how, starting from a situation of specialization, a significant and exogenous worsening of the terms of trade may lead to an incipient industrialization process, change the "political equilibrium", and lead to the introduction of an import-substitution policy. Interestingly enough for our case study, even if the terms of trade were to later rebound to the previous level at which the economy operated under specialization, new endogenous political forces may have developed that prevent the economy from returning to its initial stance. As in the cases of path dependence discussed in the literature on inefficient institutions (see, among others, North, 1990), there are self-reinforcing mechanisms for the persistence of import-substitution policies.

Suppose that the economy is specialized in the primary sector. In that case, the preferences of all agents in the economy are aligned; they all agree on a zero export tax rate. Naturally, this does not mean that they agree on the level of redistribution by other means such as an income tax, but we are abstracting from the analysis of these issues here. Suppose that the terms of trade worsen significantly and that the country naturally initiates an incipient industrialization process, i.e. the economy moves into diversification and trade. Initially, protectionist policies will lack support, since most of the capital is still employed in the primary sector and most workers produce services. If workers take into account the medium-run prospects, they may favor an increase in τ; however, for most of them, it is likely that the short-run costs of a tax increase would outweigh the medium-run benefits.

As the process of industrialization deepens, either because of a further deterioration in the terms of trade or because of capital flows from the primary to the secondary sector, the short- and medium-run support for protectionist policies increases, and eventually these policies may be implemented. Protectionism tends to be self-reinforcing, since now more capital and labor will flow to the secondary sector. New waves of demand for protectionism drive the economy toward autarky, which might be characterized as an import-substitution strategy. Notice, however, that for this to happen, either the economy has to have a high level of capital -i.e., to be rich enough- to transfer capital from the primary sector to the manufacturing sector, and the shock has to be sufficiently long-lasting to allow the economy to accumulate enough capital in the manufacturing

[7]There is a significant difference between the outcomes in the short and medium terms. In the medium run, workers are a homogeneous group and, when they change their preferences toward protectionism, they do so as a group. In the short run, only those employed in the secondary sector will support protectionist policies; therefore, anti-trade policies gain adherents gradually as λ increases.

sector to give rise to a protectionist coalition.

Suppose now that, once the economy is industrialized and the import-substitution strategy has driven the economy close to autarky, the terms of trade improve. In the short run, this harms all the agents who have switched to the secondary sector. However, if these agents hold political power, they will not allow capital to flow back to the primary sector; instead, they will increase the export tax. If the tax is increased to levels that ensure autarky the improvement in the terms of trade will not have any real effect. The economy will be trapped in a situation where every improvement in the terms of trade will be neutralized and nobody will gain (or lose) from it.

If the terms of trade improve the distributional conflict becomes more intense. Workers may benefit from a reduction in the tax rate in the long run. Moreover, landlords' incentive to exert influence in the political arena will increase, because the benefit of reducing the level of protectionism increases with the terms of trade. They will be opposed by industrial capitalists and short-sighted workers who benefit from protectionism. This distributional conflict may grow in intensity, destabilizing the political equilibrium and, depending on how the conflict is resolved, spurring liberalization. Similarly, the distributional conflict will also become more severe if the productivity in the primary sector increases.

The next subsection deals with other forces that may give rise to trade liberalization, not through increased distributional conflict, but by weakening the protectionist political coalition of workers-capitalists.

3.4 Forces Leading to Trade Liberalization

Events that reduce the proportion of workers and capital in the manufacturing sector will weaken the coalition that supports protectionist policies. We have discussed how an increase in the price or productivity of the agricultural sector may generate enough distributional conflict to prompt the formation of a coalition of landlords and long-sighted workers that support liberalization. In this subsection, we will show what other kinds of events can shift employment and capital allocation when the economy has traveled far enough down the road of protectionism.

In our basic model, protectionism will lead the economy somewhere near autarky. The assumptions of Cobb-Douglas preferences and technology imply that the shares of labor and capital (λ and κ) in autarky depend only on the Cobb-Douglas shares (α, β, ϕ_m and ϕ_a) and not on factor endowments or productivity (see Section 7.1.1 in Appendix A). This will not be the case if we relax the Cobb-Douglas assumption. We can first relax the assumption of unitary elasticity of substitution in preferences and technology. We can go even further and relax the homotheticity assumption. We note that, if preferences are elastic but technologies are not, the share of workers employed in the secondary sector decreases with both population growth and productivity in the primary sector.

Finally, we conjecture that labor unions that were created or empowered to maintain and support protectionist policies also generated frictions in the labor market that ended up depriving them of their most vital input: unionized workers.

3.4.1 Relaxing the Cobb-Douglas Assumption

In this section we analyze how shocks to factor endowments and productivity can change the factor allocation of an economy in autarky. As shown in Section 7.1.1 in the appendix, if preferences and technology are Cobb-Douglas, then the shares of labor and capital (λ and κ) in autarky will depend only on the parameters (α, β, ϕ_m and ϕ_a), rather than on factor endowments or productivity. However, under more general preferences or technologies, capital and labor shares will depend on productivity and endowments.

In Section 7.3 in the appendix, we show how changes in endowments or productivity can shift the allocation of labor and capital if we relax the assumption of unitary elasticity of substitution. We could comment on many different shocks that, together with some assumptions about the elasticities of substitution (EoS), would result in a smaller share of workers employed in the manufacturing sector (lower λ); however, we are going to focus on just two shocks: population growth and technological improvements in the agricultural sector.

Population growth will decrease λ if the EoS in consumption is greater than the EoS in the production of manufactures. The intuition is that an increase in the number of workers will push wages down. As a result, both manufactures and services will become cheaper. However, the percentage fall in price will be sharper in services (i.e., services will become cheaper relative to manufactures) because services employ only labor. The increase in the demand for services will be directly related to consumers' elasticity of substitution. Because labor becomes cheaper, the manufacturing sector will become more labor-intensive. The increase in demand for labor in the secondary sector will be related to the elasticity of factor substitution. If consumers' preferences exhibit more elasticity of substitution than manufacturing firms' technology, the share of workers employed in the service sector will increase. A similar argument shows that the shift in the share of capital, κ, will have an opposite sign from the shift in λ. Therefore, under these circumstances, we may expect to see that, as population grow, λ decreases and κ increases.

Higher productivity in the agricultural sector will reduce λ if the EoS in preferences is greater than 1 and than the EoS in the technology of manufactures.[8] Moreover, the share of capital, κ, will decrease if the EoS in preferences is greater than 1. The intuition is that an increase in productivity in the agricultural sector will depress the autarky price of the primary good and increase the return of capital. High substitution elasticity in consumption implies that consumers will increase the share of primary goods in their bundles and that capital will move from the secondary to the primary sector. Low elasticity of substitution in the manufacturing sector implies that the marginal productivity of labor in that sector will decrease rapidly as a consequence of decapitalization; therefore, labor will shift to the tertiary sector.

Alternatively, if preferences and technology are not homothetic, then it is possible to obtain decreasing λ and κ following exogenous shocks if they change the total income of the economy or total production of a particular good. For example, if the manufacturing sector becomes more capital-intensive, then the autarky equilibrium will result in a smaller λ and a larger κ. Similarly, if preferences shift toward services as income grows, then neutral

[8]It will also reduce λ if the EoS in consumption is less than 1 and than the EoS in the production of manufactures.

technological improvements or increases in all endowments will reduce λ as more workers become employed in the service sector. Moreover, if the share of total income represented by food expenditures tends to decrease and food is produced in the primary sector, then the primary sector will tend to shrink under autarky (i.e., κ increases). More importantly, since the primary good has less weight in the consumption bundle, the impact of trade liberalization on workers and industrial capitalists is less harmful.

3.4.2 Trade and Unions

We have discussed how protectionist policies shift labor and capital employment to the secondary sector, which reinforces the political demand for protectionist policies. So far, we have abstracted from the institutions and organizations that might emerge to represent these demands. As we will argue later, labor unions were organized and empowered during the Peronist period and were key actors during the following forty years. Labor unions' most visible role was not lobbying for protectionism but intervening in the wage-setting and employment decisions of manufacturing firms in order to keep real wages high and avoid layoffs. In this section, we will explain why, if the number of workers in the economy is increasing, unions' zeal to prevent wage declines will lead to an increase in the share of workers employed in the service sector and to their ultimate loss of political power.

Labor unions can influence wages in two basic ways. First, by restricting the access of workers to the manufacturing sector (e.g., enforcing closed-shop agreements), they can prevent wage equalization between the secondary and tertiary sectors and maintain a positive industrial wage premium in the medium and long run. Second, through aggressive collective bargaining, they can obtain a higher share of total remuneration and reduce the return to capital in the sector in the medium run. In an environment where the relative supply of workers is increasing, unions will have to rely on some of these interventions if they are to keep real wages from falling.

If labor unions effectively restrict access to the manufacturing sector, the service sector will absorb a disproportionately high number of new workers in the medium run and long run. This will result in a growing share of workers employed in the service sector being opposed to the labor unions; they will be against both restricted access and protectionist policies.

On the other hand, if labor unions can use their market power to set wages above the value of the marginal product of labor, then the remuneration of capital in unionized activities will decrease. In the long run, capital will flow to alternative uses, such as agriculture or non-unionized manufacturing activities. Decapitalized, unionized manufacturing activities will not hire new employers and, as a result, union membership will decline in relative terms.

In both of the cases reviewed above, unions' objectives of keeping wages high and avoiding layoffs of union members run counter to their long-run survival in a context where population growth outpaces capital accumulation.

3.5 Lessons from the Model

The key result of our model is the finding that protectionist policies are path-dependent. A

land-rich economy that is well integrated into world markets may embark upon an industrialization process in response to poor terms of trade, especially if the new prices are not a transient shock. This incipient industrialization process is possible if the economy has enough capital -i.e., if it is rich enough- and labor; otherwise, the secondary sector will not be profitable and the economy will not be able to cushion the negative terms-of-trade shock.

Starting from the onset of the industrialization process, capitalists and workers recently employed in the industrial sector have incentives to lodge demands for protectionism. As the process advances, the political power of these groups grows and, eventually, their demands may be met. As a consequence, the industrial sector receives a new boost at the expense of the primary and tertiary sectors, and the economy gradually becomes closed to world markets. Moreover, the political coalition supporting protectionism gains power. As a result, anti-trade policies become entrenched and the economy moves closer to autarky. Even if the conditions that gave rise to the endogenous industrialization subside, the economy remains closed, since the alliance of capitalist and workers retains its power.

However, the anti-trade alliance is not unbreakable. Secular trends in labor supply, frictions between workers and capitalists or a strong improvement in the terms of trade can push the economy back into a free trade equilibrium.

Under more general preferences and technology, population growth and higher productivity in the primary sector can shift the factor allocation and lead to increased demands for free trade. In both cases, under some conditions, a greater share of workers will be employed in the service sector. Therefore, more workers will support liberalization.

Similarly, if services gain in importance in the consumption bundle, more workers will be employed in the tertiary sector. As a result, there will be greater support for liberalization. Moreover, even the owners of inputs employed in the secondary sector will have weaker incentives to support protectionism if this shift toward services occurs at the expense of the consumption of the exportable good.

Once the economy is near autarky, capitalists and workers will not be able to use their coalition's political power to pursue further industrialization. Besides, they will be extremely vulnerable to negative shocks in industrial productivity (e.g., an increase in the price of a non-modelled importable input). Under these circumstances, unions may be tempted to use their power against capitalists, thereby weakening their alliance. We have discussed how unions, in their zeal to keep wages from falling in the short run, may introduce distortions that reduce their power in the long run.

Finally, an improvement in the terms of trade or an increase in agricultural productivity increases the incentives for landlords to intervene in the political process. The economy will be able to escape the anti-trade trap if landlords are successful in challenging the coalition of industrial workers and capitalists.

4 Analytical Narrative

Argentina did relatively well when it was integrated with world markets. Why, then, did it remain under autarky for approximately 60 years? We will now use the model outlined in the previous section to articulate an analytical narrative concerning the political economy of autarky during the 20th century in Argentina.

4.1 The Belle Époque

In 1860, Argentina was a fairly empty land. As in the rest of Latin America, the pace and characteristics of Argentine expansion were fundamentally determined by the success with which some of its regions became exporters of primary products (see Cortés-Conde, 1979). The period from 1870 to 1914 was one of free trade and market integration, and during this period the country benefited from its marked comparative advantage in the primary sector due to its vast amount of highly fertile land (O'Rourke and Williamson, 1999). The dramatic decline in transport costs during the late nineteenth century led to a trade boom and commodity price convergence internationally. In Argentina, the scarcity of labor and abundance of land, relative to Europe, induced a high marginal product of labor. The wage differential between Argentina and some European countries attracted a colossal flow of overseas immigrants, who came to constitute the majority of Argentina's labor force. A similar process also triggered a massive flow of capital into the country (see Cortés-Conde, 1979).

During the second half of the 19th century, a large proportion of Argentine land was settled and divided up into latifundia (Adelman, 1994). The sharp increase in the availability of land spurred an expansion in livestock-raising, primarily because it was a non-labor intensive activity that could be launched at a time when labor was a scarce resource.

With the pattern of land ownership determined by political history, and with prices of exports, imports and capital set by international markets, total rents depended on the labor supply. Therefore, immigration policy became the critical policy variable under the control of the government (Díaz-Alejandro, 1984). Not surprisingly, the Argentine elite chose to promote immigration. The expansion of agricultural activities and a pro-immigration policy paved the way for a very substantial increase in the urban population, especially in Buenos Aires. In addition to its administrative functions as the capital of the country, this city developed an increasingly large and sophisticated service sector.

The export-oriented growth made possible by an expanding international market raised per capita income in a sustained and substantial way. Indeed, that growth process was closely related to successive booms in the exports of land-intensive commodities, with land having a very low opportunity cost. The economic usefulness of the *pampas* was not discovered overnight, as an oil deposit might be, but instead arose as the result of the combination of a growing European need for primary goods, technological progress in transport and an increasing interest on the part of Argentine policymakers in promoting exports, foreign investment and immigration. By the beginning of the 20th century, however, the Argentine growth process had become less dependent on the discovery of new resource-based export commodities and on the performance of any one export. It still relied heavily, however, on a steady expansion of exports based on the growth of the world economy and on the completion of the adjustment by which primary production was being transferred from Europe to more recently settled countries (see Díaz-Alejandro, 1970).

The early manufacturing sector was closely linked to the primary sector and supplied the domestic market with products that were naturally protected from external competition, (e.g. wine, meat and flour). There also was a smaller industrial sector that competed with imports (e.g., clothes, cigarettes, perfumes). These industries were granted some degree of protection after the passage of the Customs Act of 1876. However, the level and extent of protectionism were rather limited compared to what was yet to come. First, the main goal of these customs duties was to obtain revenues for the government, which was a widely accepted practice in Latin America at the time (see Brambilla et al. in this volume). Second, the protected activities accounted for a small share of total economic activity and, to a large extent, the policy was geared toward protecting regional products as a means of preserving the federalist model adopted by the country. Thus, this specific departure from free trade can be more accurately interpreted as a means of securing revenues and of sustaining a political order that, on the whole, was pro-export oriented.

Thus, in our view, the period from 1870 to 1914 was one of specialization in production, with the country specializing in the production of primary goods, importing manufactured goods and employing its workers mainly in the primary sector and the services industry. This was therefore a period in which the political views of the majority of economic agents were aligned against protectionist policies.

4.2 Globalization Backlash

It is not clear whether Argentina could have sustained its fast pace of growth under specialization (see Llach in this volume) if the world had remained widely integrated, as it was during the Belle Époque. However, there is no reason why it should not have diversified its production and exports of agricultural and manufactured goods under a policy of free trade. Had the terms of trade remained favorable for Argentina, even if the productivity of the primary sector had not kept increasing rapidly, some manufacturing sectors would have eventually become competitive and taken off. What is more, if the economy had continued to expand, it would have begun to meet an increasing (but previously inexistent) domestic demand for many manufactured goods, thereby encouraging their domestic production, particularly in view of the existence of natural barriers. The same reasoning applies to services (see Galiani et al., 2008a).

Instead, the country's fortune took a sharp turn for the worse in the 1930s. World trade collapsed after the Great Depression. The 1932 Ottawa Conference marked the end of multilateralism in international trade. Great Britain, Argentina's foremost trading partner, shifted its trade to members of the Commonwealth. A protectionist pandemic spread throughout the world. As a consequence, the ratio of world trade (export plus imports) to GDP declined from 22% in 1913 to 9% in the 1930s. Though there was a recovery toward the end of the decade, international trade was again disrupted during the Second World War, when it was geared toward war requirements. Trade opportunities did not start to improve until after the Second World War under the Bretton Woods system and with the signing of the General Agreement on Tariffs and Trade (GATT). Then world trade began to recover and, by 1950, it had surpassed pre-war levels, mostly thanks to the growth of trans-Atlantic and intra-European trade.[9] There is a consensus that, after the Second

[9]After successive rounds of negotiations, substantial tariff reductions were put into practice, mainly for industrial products. Unfortunately for Argentina, distortions in the trade of agriculture products remained relatively high. In the US, subsidies to American farmers date from the Great Depression, whereas, in Europe, protectionism in agriculture

World War, a second globalization era began (see, among others, Baldwin and Martin, 1999; and Williamson, 2002). Nevertheless, the move toward multilateralism was gradual and was not achieved, for all practical purposes, until the 1990s (see Brambilla et al. in this volume for a fuller discussion of these issues).

The breakdown of the economic order was transmitted to Latin America first of all through a sharp change in relative prices: dollar export prices collapsed more steeply than dollar import prices. According to Clemens and Williamson (2002), the magnitude of the decline was around 30% for Asia and the Middle East and 40% for Latin America. This decline in the terms of trade was used as a strong argument in support of the move of the developing world toward autarky in the 1940s and 1950s, within the context of a highly interventionist industrialization strategy.

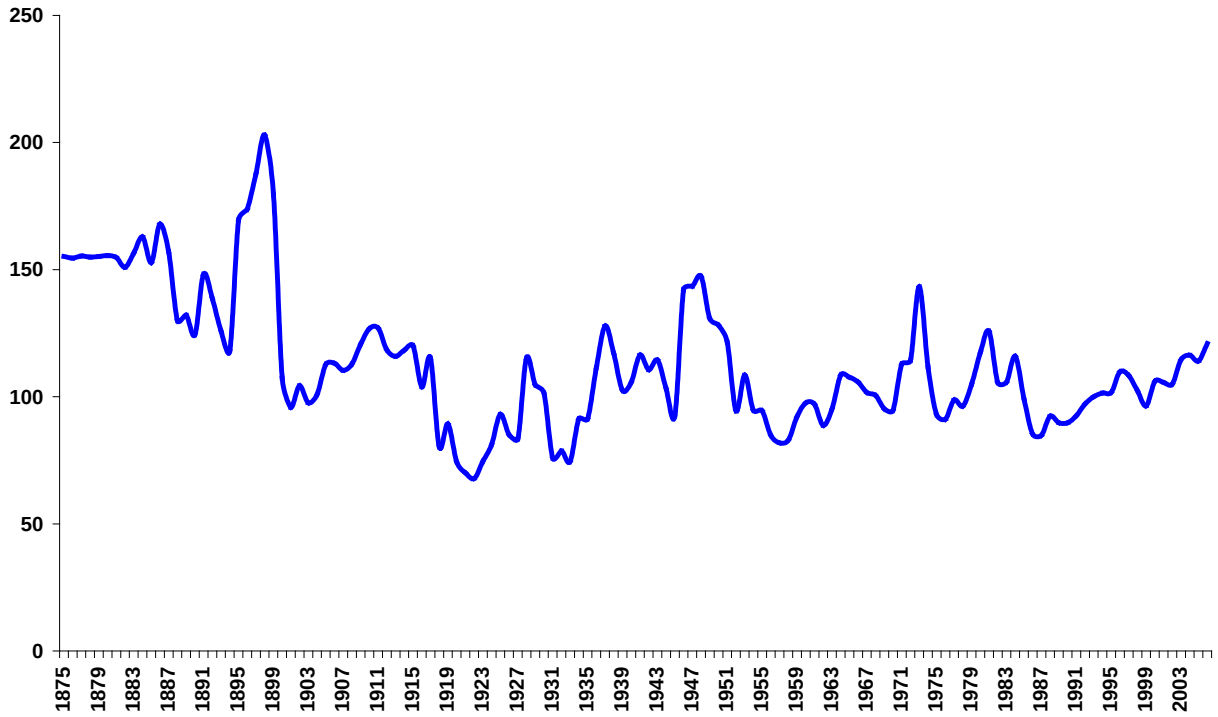

Figure 4: Terms of Trade, 1875-2006 (1993=100). Source: ECLAC Office in Buenos Aires.

In Argentina, the terms of trade deteriorated considerably even before the collapse of the international economic order in the early 1930s (see Figure 4). During the 1920s, on average, the terms of trade were approximately 30% below the pre-First-World-War level of 1913. Such a shock alone merits the label of a reverse of fortune. For a country with a ratio of exports to GNP of one-to-three, a 30% deterioration in the terms of trade represents a loss in real income of about one-tenth, assuming no change in physical output. The 1930s show some recovery in relative prices, which still were, on average, about 16% below their 1913 level. This reversal of fortune, with some pronounced fluctuations, continued throughout the rest of the 20th century. Just to put this into perspective, the average terms of trade for the period 1930-1999 was 20% below the average relative prices for the period 1890-1913. Nevertheless, in recent years the terms of trade

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emerged in response to the food shortages that the continent suffered during the Second World War.

have improved substantially.

The protectionist measures enacted by most countries in the world and the increased risk of sending goods overseas during wartime reduced trade opportunities beyond what would be expected as a result of the terms of trade. To sum up, in the late 19th century, Argentina had highly auspicious opportunities to trade with the rest of the world: favorable terms of trade, peace and the application of free trade policies by its trading partners. The terms of trade did not start to decline until early in the 20th century, and were then followed by war and protectionist policies.

4.2.1 Endogenous Industrialization

The deterioration in the terms of trade during the 1920s severely damaged the economy. At the same time that the profitability of the primary sector was plummeting because of low export prices, opportunities in the secondary sector flourished thanks to the natural protection provided by high import prices. As indicated by the research of Villanueva (1972), the 1920s were a particularly active period in terms of the development of the industrial sector in Argentina. International conditions worsened again in the 1930s, leading to another wave of endogenous industrialization. As the economy began to produce goods that it had imported in the past, it naturally began to close itself off from the world economy.[10]

The decline in the terms of trade harmed both service workers and landowners. However, the situation was less appalling for workers, since capital and labor were shifting to the secondary sector. The flow of workers to the urban secondary sector was primarily composed of people from rural areas. Their welfare began to increase as capital was reallocated to its most productive uses and as new manufacturing activities prospered. In the model presented in the previous section, this is reflected by a shift from specialization in production toward diversification and trade.

The early industrialization process of the inter-war period was accompanied by the consolidation of the labor movement. Argentine unions date back to 1877, but active unionism did not start until the 20th century. Union demands centered on basic improvements in working conditions, some sort of insurance for work-related injuries and the prohibition of child labor. As industry blossomed and wages rose during the 1920s, the unions succeeded in having their demands met (see Galiani and Gerchunoff, 2003). The Great Depression put an end to the workers' bonanza, however. Unions tried, without much success, to prevent wages from falling, but they did succeed in retaining most of their achievements in terms of working conditions. The union movement was seen by employers as a lesser evil that would maintain industrial peace, while workers saw it as a reliable tool for protecting their rights. Unions thus emerged as an institutional device for coping with the conflict of interest between capitalists and workers in the incipient process of industrialization during the inter-war period. The battleground was the shop floor, and the conflicts were mainly about the improvement of working conditions and wage stability.

It is somewhat ironic that the debate about protectionism became a permanent fixture in the national dialogue in the wake of the Roca-Runciman Treaty, which was devised to protect the

[10]Of course, the size of the market played an important role in promoting industrialization. In others words, the same shock, in a much poorer country, although it might promote industrialization for export activities, would not necessarily lead to import substitution.

Argentine primary sector and ensure exports to Great Britain. In exchange, Argentina promised to reduce tariffs on British imports and made other concessions to British companies that operated in the country. Although the treaty was not fully honored by Argentina, it did spur the debate about the role of industry. For the first time, industrialists began to call for economic independence, self-sufficiency and autarky as Argentina's answer to the new international order, and they continued to do so during the uncertain period of the Second World War.

This process of import substitution intensified during the Second World War under the shelter of the trade barriers associated with the war. By the end of the war, the manufacturing sector was playing a significant role in the economy, but manufacturers were arguing that a strong policy of commercial protection and subsidies was needed in order for them to survive, especially if the terms of trade were likely to improve. It was under the leadership of General Perón, in the midst of a major political shift, that these demands were to be fulfilled.

4.3 A New Argentina

The 1930s world economic crisis had profound effects on the economic and political life of Argentina. Certainly, much of the development of Argentine foreign trade seen during the 1930s, 1940s and early 1950s can be seen simply as a consequence of trade agreements and exogenous shocks coming from the rest of the world. The crisis and its immediate consequences were also a shock for the political life of the country. By the same token, the economic changes that were occurring also triggered major changes in the socioeconomic structure which ultimately created conditions conducive to the development of a populist mass movement.

Argentine politics was monopolized by the landowning elite until 1916, when a major political shift occurred thanks to an electoral reform law passed in 1912 which ushered in universal adult male suffrage (though it restricted the right to vote of the large number of unnaturalized immigrants), secret ballots and compulsory voting. Despite its apparently democratic implications, this reform was designed to perpetuate the prevailing oligarchic system by extending the vote to the urban middle-class, whose members had taken part in the economic expansion in the sense that they were working in the service sector, although they had been excluded from the strongholds of power. Not surprisingly, the oligarchic elite that ruled the country believed that middle-class workers were committed to maintaining the existing political and economic structure.

This experiment in limited democracy (the new electoral law gave voting rights to nearly one million adult males, but this was no more than approximately 40% of the adult male population) was interrupted in 1930, when the army carried out a coup and installed itself as the dominant factor in Argentine politics. Over time, the popular base of the democratic system expanded. In 1946, 3.4 million adult males had voting rights (see Cantón, 1968). Thus, the voice of the people in the Argentine political system grew substantially between 1916 and 1946, despite the intervening military coup. By 1946, the economic configuration had changed dramatically. The political alignment between landowners and workers had broken down. Instead, workers --now mainly employed in the secondary sector-- found their perfect ally in the capitalists of the manufacturing sector, because their political preferences were aligned both in the short and in the medium terms (see Section 3.2). Under Peronist policies, more capital and labor shifted to the secondary sector, thereby furthering the process of industrialization and consolidating both this alliance and the

urban-rural conflict.

At that point, distributive conflict between urban factors of production and landowners emerged and paved the way for the possibility of populism as an equilibrium point. Rogowski (1989), among others, argues that backward economies with abundant natural resource endowments in which both labor and capital are relatively scarce are likely to display political cleavages that are protectionist in nature. The urban manufacturing sector will seek to protect itself, by taxing both exports and imports, against rural activities. However, this analysis, which was widely applied to Argentina during the Perón era, is at best incomplete, as our model demonstrates. This prediction holds only for certain configurations of the parameters of the model and certain histories. In particular, we stress that protectionism and protectionist cleavages arise in resource-rich economies after the potentially protected activities are initiated spontaneously in response to changing market conditions (see also Galiani et al. (2009) for a discussion on the role of skilled labor and unskilled labor in the formation of political coalitions in this context).

By 1940, the labor movement had matured; moreover, industrial capitalists had been aspiring to self-sufficiency and economic independence ever since 1930. Conditions were therefore ripe for Perón to build a mass workers movement. He started to engineer this when he was the Labor Secretary, right before he was elected President in 1946. Industry-wide bargaining was instituted; labor courts were set up to enforce the rather progressive new labor laws; social security coverage was greatly expanded; minimum wages were increased; and the system of *aguinaldo* (one month's extra pay at Christmas time) was introduced. Finally, Professional Associations Act was adopted in 1945, which provided for the withholding of union dues by employers, recognition of only one union organization per branch of activity and direct union participation in political activity under state supervision. As a result, the growth of union density during the 1940s was astonishing rapid, rising from 10% in 1936 to 40% in 1948 and to 49% in 1951 (see Galiani and Gerchunoff, 2003).

In this manner, a new national populist coalition was brought to power in 1946 under the leadership of Perón. The Peronist coalition left behind the traditional dispute between radicals and conservatives that had marked the political arena since the electoral reform. This pattern of opposition was replaced by one which had a greater share of class content and was rooted in the expansion of social rights and the political and social integration of the working classes. Indeed, the political history of Argentina in the 20th century is divided into two: before and after the emergence of Peronism (see Torre, 2002).

4.4 The Peronist Era (1946-1955)

By 1950, most of the countries of Latin America had implemented an import-substitution strategy. Although it was a pragmatic endogenous response to the conditions created by the Great Depression of the 1930s and the Second World War, this strategy was not necessarily the optimal response to the new international conditions of the post-war era. To a great extent, the decision as to what sort of strategy would be the best depended on what could be expected of the future evolution of the international economy. By the late 1930s, it was reasonably clear that the laissez-faire approach was finished in international economic relations. In this context, the import-substitution strategy can be seen as a defensive measure against an uncertain future of trading relations.

Clearly, world market conditions were more favorable to Argentina in 1943-1955 than in 1929-1943. After the war, policymakers had an option which they had not had during the Great Depression: to guide economic growth on the basis of expanding exports of both rural and manufactured products (see Díaz-Alejandro, 1970). Indeed, this was explicitly attempted under the economic leadership of Federico Pinedo during the early 1940s. Pinedo's plan was a well thought-out attempt to recover the dynamism of the agricultural sector and to promote export-led industrialization (see Llach, 2002). However, Pinedo's strategy failed to take hold. One of the reasons for this failure is that it was opposed by the new dominant electoral coalition formed by urban capitalists and workers, who stood to benefit from a deepening of the import-substitution strategy (see Section 3.3). This electoral coalition would elect Juan Perón as President of the country in 1946 in what were arguably the first truly free and democratic elections with universal male suffrage.

Perón decided to consolidate the social base of his movement by redistributing income to the working classes. In fact, he saw industrialization as a mean of achieving the goals of his nationalistic and populist policy of increasing the real consumption, employment and economic security of the masses of workers (see Gerchunoff, 1989).

Indeed, as Figure 5 shows, the share of wages on GDP peaked during the Peronist era. It is clear from the figure that the share of wages in GDP is lower when the economy is integrated into the international economy than under autarky when the secondary sector has exhausted its possibilities of import substitution. Notice that this stylized fact is consistent with our model. In the long-run equilibrium workers' share is equal to $(1-\phi_a-\phi_m)+(1-\beta)(Y_m/GDP)$, i.e., the share of services in consumer preferences plus the share of labor in the secondary sector times the share of industrial output in total GDP. Notice that in the long run, and perhaps even in the medium run, workers not necessarily are better off under autarky (see Section 3.3 and Proposition 7).

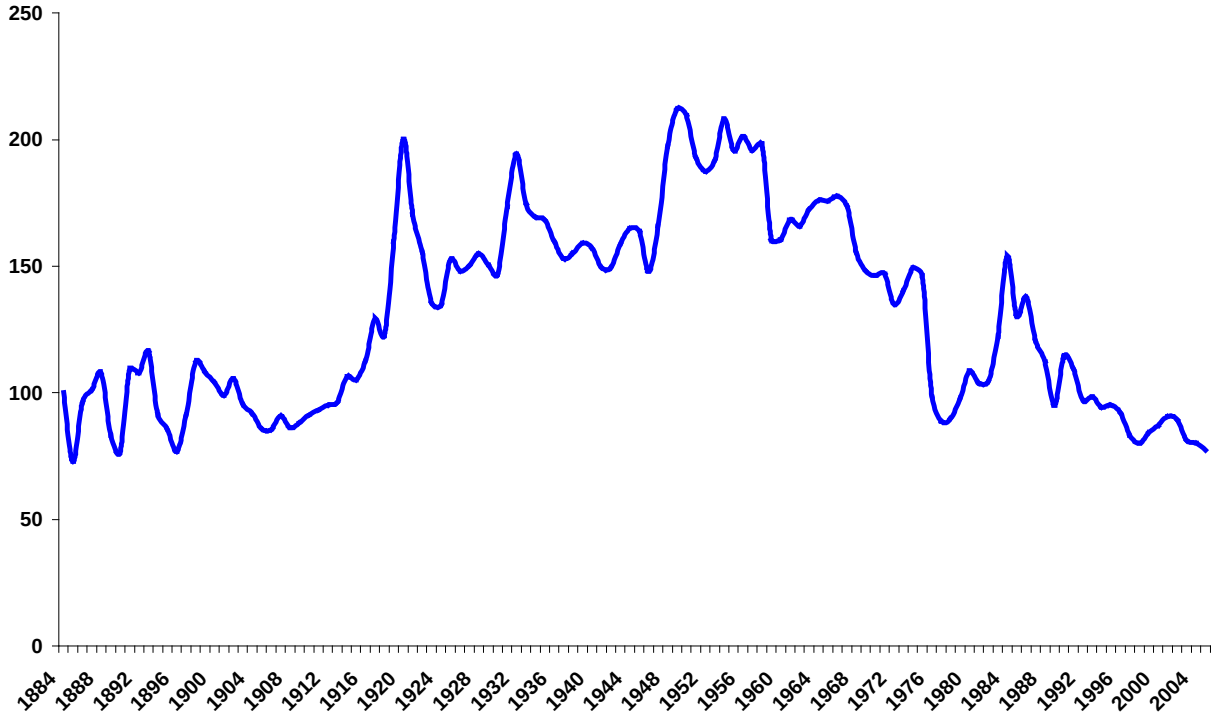

Figure 5: Share of Wages in GDP (index: 1884 = 100). Source: Gerchunoff and Llach (2004).

The Peronist policy of import substitution was not an integrated, well thought plan. Rather, there was a great deal of improvisation in its application as policymakers reacted to short-run economic and political pressures. Clearly, toward the end of the war and during the early post-war years, the government's main concern was to defend the industries that had arisen and expanded prior to and during the war, regardless of their efficiency (Díaz-Alejandro, 1970). The protectionist measures that were used included not only high tariffs on imports of goods that were also produced domestically but also the requirement that farmers sell their crops to a state trading monopoly[11] that would profit from the difference between world prices and the prices paid to producers.

Import substitution gave the Peronist state control over resource allocation in the economy. By deciding which industries to protect and where to channel national credit, the Peronist government was able to discipline industrialists and determine the destination of investment. Either industrialists complied with the demands of the government, or they were forced out and their capital was nationalized. The nationalization of private capital and Perón's military ambitions explain why the government became so deeply involved in the economy. Labor was also kept in line by the Professional Associations Act. Only one union was allowed to operate in each branch of activity; obviously, the government was entitled to decide which one could do so if two or more unions vied for the same branch. Outlawed unions had their bank accounts frozen and their offices closed.

As a result, the Peronist government cemented a closed-economy and import-substitution model

[11]Instituto Argentino de Promoción del Intercambio (IAPI).

for the years to come. The most important government intervention during the period 1945-1975 was the introduction of a relative price system which favored industry (and particularly labor-intensive industry) at the expense of the agricultural sector. As a consequence, internal relative prices diverged from international market prices, thus generating a sharp differential (which put the agricultural sector at a disadvantage) between the internal and external terms of trade (see Díaz-Alejandro, 1970, and Mallon and Sourrouille, 1975). The triumph of the industrialization model under a closed economy, over time, and even after the demise of Perón, led to the adoption of a scheme of industrial integration which consisted of completing every step of the production process, from capital goods and inputs to final goods, inside the country's borders, in evident contradiction with the post-war tendency of developed countries, whose trade was and continues to be mainly intra-industry (see Llach, 2002).

Behind these economic policy decisions, there was an alliance of economic and political interests formed by unions, industrialists and the armed forces. Unions consolidated their power by delivering better wages, working conditions and social protection to their members. Industrialists had achieved a considerable level of protection from competition. Finally, the military took the development of the steel and oil industries under its wing. Although this alliance was evidently born after the Peronist years, it had sufficient resilience to last even through the military governments and the periods of political proscription of Peronism (see, among others, Halperín Donghi, 1994, and Llach, 2002).[12]

Up to now we have been assuming that the economy operated near the efficiency frontier. This is reasonable if we assume that capital allocation and employment decisions were made in a decentralized way by profit-maximizing agents. However, during Peronism and the years that followed until the collapse of the import-substitution model, that assumption is hard to maintain. Capital was allocated on the basis of political rather than economic considerations. Labor allocation was no less distorted: public employment was used as a means of combatting unemployment; moreover, unions regulated quantities and prices in their members' labor markets to the extent that they were politically able to do so.

Not surprisingly, income redistribution and industrial promotion policies rapidly ran up against a formidable constraint: exports stagnated (see Brambilla et al. in this volume). It is true that the stagnation of Argentine exports can be partly attributed to the global closure of markets and to the protectionist policies applied by industrial countries in agriculture that favored self-sufficiency (especially in Europe). However, it is also true that Argentina underperformed even in comparison to other countries that shared the same markets.

Argentina accounted for more than one third of all Latin American exports in 1928, one fourth in 1938 and only one eighth in 1954. It exported mainly primary goods: corn, wheat, linen, wool and meat. The joint share of these five agricultural goods in world trade declined from 8.6% in 1926-1929 to 3.9% in 1960. Nevertheless, the fact that Argentina's market share was halved during that period provides evidence of Argentina's decline relative to other agricultural exporters. Overall, if we consider the world exports of these five primary products, Argentina accounted for 1.8% of those exports in the late 1920s and for only 0.4% in 1960. If we analyze export trends by

[12]This alliance was very effective at maintaining and obtaining new rents from the state (see Mallon and Sourrouille, 1975).

product, we see that, in that same period, Argentina's market share in corn decreased from 57% to 21%, in wheat from 20% to 9%, in linen from 73% to 40% and in meat from 40% to 24%, while its market share in wool remained unchanged at around 6% (see Llach, 2006). The stagnation of Argentine exports placed an inescapable constraint on the country's growth.

In sum, during Peronism Argentina embarked on an ambitious import-substitution industrialization process backed by a coalition of industrial capitalists and workers. In the language of our model, the protectionist policies drove the economy from the diversification and trade area to a near-autarky situation.

4.5 A Nation in Deadlock (1955-1973)

Towards the end of the 1950s it was becoming clear that the world was entering a new free trade era and that the woes of the inter-war mercantilist period were over. However, taking advantage of the new international conditions required a painful period of readjustment. In terms of our model, as capital flows back to the primary sector, industrial capitalist and workers suffer the most, whereas landowners benefit greatly. At the domestic level, it was also clear that the shift toward the consumption frontier for mass-produced, labor-intensive domestic goods had come to an end. Steel, machinery, motor vehicles and petroleum were the activities that were being protected and promoted during this new phase of import substitution in Argentina, and all of these industries were more capital-intensive than those targeted during the initial state of import substitution (see Mallon and Sourrouille, 1975).

Perón himself, after being reelected by a landslide was seeking an economic alternative that would have inevitably entailed major economic and social readjustments. Nonetheless, Perón had taken notice of the political risks of departing from the path that had until that point driven him toward the amplification of redistributive policies and import-substitution strategies. Indeed, Perón was ready to abandon nationalism in order to attract the foreign capital needed to sustain the deepening of the import-substitution model but not to revert the improvement in the distribution of income achieved under that model. Under these conditions, the armed forces abandoned their alliance with the unions and industrialists. High-ranking officers were becoming increasingly worried about the path that Argentina was taking under Perón's rule. They silently plotted against Perón and forced him to withdraw in 1955.

Interestingly enough, all the governments between 1955 and 1973 tried, to the extent of their possibilities, to deepen the import-substitution process, which was still backed by an increasingly weakened coalition of workers and industrialists. The social revolution embodied by Peronism created a new society that took on a life of its own and that, even though it had no way to survive, simply refused to die (Halperín Donghi, 1994).

On average, export incentives were larger during the period 1955-1973 than during the first post-war decade. But the policy tilt toward import substitution and away from exports remained a feature of the Argentine economy during the period 1955-1976. Argentina's effective rates of protectionism remained the highest in Latin America (Díaz-Alejandro, 1984). Protectionism and hostility toward the rural producers of the *pampas* were hardly limited to the Peronist movement. Neither was a strong nationalist stance toward foreign capital. As with export incentives,

governments zigzagged in their policies toward foreign capital during this period. However, foreign corporations were nonetheless used as key instruments in expanding industrial production in consumer durables and in intermediate and capital goods (Díaz-Alejandro, 1984).

These years also saw a steep increase in the consumption of services, many of which were provided by highly educated workers, for whom there was a strong demand in this sector. These educated workers began to break down the rural-urban political cleavage (see Galiani et al., 2008b). As a result, the shift toward the promotion of more capital-intensive industries and the growth of a services sector catering to high-income and upper-middle-income groups gradually eclipsed distributionist protectionism.

Over time, sustained growth required more government intervention. The state had to finance the deficits run by public-sector enterprises, subsidize the substitution of capital-intensive imports and promote non-traditional exports. Yet it became less and less able to do so as trade revenues began to shrink under increasing autarky and as the surplus enjoyed by the social security system created under Perón melted away, turning into a deficit by the mid-1960s. The inflation tax thus became the adjustment variable for an increasingly conflict-ridden and inviable society (see Mallon and Sourrouille, 1975).

The alliance between industrialists and workers begun to grow stale. Labor unions faced a dilemma, since preventing wages from going down required limiting the supply of workers, and they knew all too well that having fewer members implied less power. They also knew, of course, that new investment in unionized activities would allow them to achieve both higher employment and higher wages. In sum, they needed modern and capitalized industries, but their own power kept capitalists away. The solution to the dilemma was direct government intervention and direct investment in industrial activities.

The alliance between workers and industrialists was also unstable. They both wanted high protection for industry, and hence their interests were aligned in this respect. However, their interests conflicted with respect to real wages. Thus, from time to time, when the economy needed to adjust to its consumption possibilities, the alliance would break down for a time (see O'Donnell, 1977).

To complete this dim picture, some workers became increasingly disappointed with their union leaders and found hope in the promises of a "socialist fatherland" made by leftist groups. These groups accused the landowners of serving foreign interests and being unpatriotic. To differing degrees, depending on each group's political orientation, they proposed various strategies, with the most extreme one being the outright expropriation of land and its redistribution among the people by means of revolutionary violence.

To sum up, chronic inflation and recurrent cycles of recession and recovery --associated with substantial changes in income distribution arbitrated by the state (see Mallon and Sourrouille, 1975, and O'Donnell, 1977)-- were salient economic features throughout this period (and even beyond it). At the same time, social and political divisions grew increasingly tense, reaching such a point that violence dominated the political and economic life of the country. As a result, Argentina failed to regain its prosperity and to achieve a consensual political order; instead, it was

stumbling along in a volatile stalemate. The successive administrations proved unable to prevent the progressive institutional decay of the country. Nevertheless, the darkest hour for Argentina was yet to come.

4.6 Crisis and Reforms (1973-2010)

The intervention of the state in the economy increased substantially during the Peronist era and the next twenty years. There is a stark contrast between the industrialization process of the period 1920-1945 and that of 1946-1975. In the former, the private sector reacted to the shortage of foreign manufactured goods and led the way toward endogenous industrialization. In the latter, the state took an active role in deepening the import- substitution process. This led to decisions based on political expediency rather than economic rationality.

The industrialization process was guided by an alternation of administrations with different strategic objectives, so it is not surprising that, overall, we find that it failed to achieve self-sufficiency or even a more rational or coherent industrialization process. This led to an essentially disproportionate development process that promptly ran into binding constraints: (a) the inadequate growth of exports was a very serious obstacle to the industrialization process, which required growing inputs of capital and intermediate goods; and (b) the intensification of the industrialization process, especially the development of heavy industry, required larger subsidies that needed to be financed in some way. The government's inability to accomplish this task with fiscal resources drove inflation up to levels that were inconsistent with a healthy economic performance.

A final populist experiment (under President Perón and then his wife) in the early 1970s ended up in economic and political disorder. On the political side, it failed to curb the spiral of violence that leftist guerrillas had ignited in the late 1960s. On the economic side, the oil crisis exposed the weakness of the import substitution strategy. The increase in the price of imported oil, a vital input of the manufacturing sector, fueled inflation and reduced real wages.[13]

A top-down disciplinarian military administration then took its place. The main economic objective of this government was to reduce inflation. A significant, although gradual and partial, market-oriented financial and trade liberalization program was also implemented. This time, the military government was quite intransigent in its attitude toward the other groups within the weakened industrialist alliance. In disciplining the unions, the military government not only suppressed collective bargaining and other union rights, as it had at other times in the past, but actually used its military might against union leaders, some of whom became victims of kidnappings and forced disappearance at their hands. Nevertheless, the unions were not entirely decimated and, after the return to democracy some years later, they were again a very powerful social force in the country. Industrial businessmen were also disciplined through trade liberalization measures.

The discipline imposed on both labor and capital was not reflected in fiscal austerity. With favorable international conditions for credit, the military-industrial complex was empowered, and

[13]Recall that in our model the oil price hike can be interpreted as a negative productivity shock to the manufacturing sector.

public spending on infrastructure soared. Large business groups were also able to modernize considerably thanks to their easy access to cheap credit. Over time, both inflation inertia and the prevalence of large fiscal deficits made the exchange-rate system of pre-announced gradual devaluations, which had been adopted to control inflation, unsustainable. Between 1979 and 1981 capital flight amounted to around 20% of GDP, leaving the government (which absorbed private-sector external debt) with a hefty external debt that has influenced the country's economic performance ever since.

The country's extraordinary debt rates paved the way for a fiscal and balance-of-payments crisis that dominated the political and economic scene during the 1980s. Throughout the 1980s, the Argentine economy posted the worst performance it had turned in at any time since the end of the Second World War. Investment collapsed. Per capita GDP decreased by approximately 20% between 1980 and 1989. Inflation was above 100% for every year except 1986. Both the external debt and the debt-to-exports ratio rose at an ominous pace. The dollarization of the economy deepened, increasing its financial fragility. Ultimately, in the presence of severe uncertainty at a time when the country was making its first democratic transition in decades, its high inflation gave way to a short but devastating bout of hyperinflation.

It was only after a brutal episode of hyperinflation that a comprehensive reform process was adopted (see, among others, Acuña et al., 2007). In the wake of its trade and financial reforms of the 1970s, Argentina had embarked upon a process of integration into the international economy. This was substantially deepened during the 1990s, when the Peronist administration privatized state enterprises and drastically reduced import tariffs and export duties. Labor unions, which had blocked free trade policies since 1955, were unable to effectively oppose these reforms (see, however, Acuña et al., 2007, for a discussion of how the government seduced union leaders into supporting the reformist agenda).

Although not without large social costs, measured by a substantial increase in inequality (see Alvaredo et al. in this volume), this reform process finally moved the Argentine economy toward a rational form of integration into the world economy. The recovery of the agricultural sector and the growth of exports have been spectacular (see Brambilla et al. in this volume). The surviving industries are realistically competitive and largely oriented toward the manufacturing of the natural resources with which the country is abundantly endowed (see Brambilla et al. in this volume).

The Peronist party (Justicialist Party) continues to dominate the political arena, having held office for 18 years in the period 1990-2010. However, its support base has changed substantially. Now, its supporters can be found not only among unionized workers and public employees, but also among a large number of informal service workers and small rural producers. The challenge of the 21st century for the Peronist party is to build an alliance with landowners and rural producers in the pursuit of an export-led form of growth without losing the support of the vast number of people living in the poverty that resulted from 50 years of economic stagnation and a painful trade liberalization process. In any case, it will be hard to resist the temptation of resorting to outright political clientelism.

In the language of our model, the reform process initiated in the 1990s redirected capital to the

primary sector and labor to the tertiary sector within the area of diversification of production and trade. The balance of power shifted away from the industrialists and toward the coalition of agricultural producers and service providers. During the 2000s, the improvement in the terms of trade has helped them to consolidate their power. The distributional conflict has not disappeared; there are urban sectors that would benefit from an increase in protectionism. However, the pro-agricultural coalition appears to be able to block any meaningful attempts to move in that direction. Indeed, in March 2008 a government attempt to increase export taxes on soybeans and sunflower was met with a nationwide lockout by farming associations. The proposal was finally defeated in Congress after four months of large-scale demonstrations in urban areas and road blocks in rural areas.[14] However, as we learned from the country's experiences in the early 20th century, such coalition between landowners and service workers is viable only under favorable external conditions. Finally, it is very important to notice the following fact: The share of employment in the manufacturing sector remained stagnant up to the mid-1970s, when it started to decrease. Though it reached 30% in 1960, it had fallen to 11% by 2001. This is a fundamental structural change in the economy, since once employment (and capital) are moved away from the industrial sector to the other sectors of the economy, the demands for protectionist policies substantially diminish.

5 Why Argentina?

We have analyzed the economic history of 20th-century Argentina as seen through the prism of a model that is a tractable, yet seemingly adequate, simplification. The model allows us to derive the preferences or attitudes of each socioeconomic group regarding protectionism. Without being explicit about the political process that determines the taxes on international trade, we have been able to support our main claim: the negative external shocks faced by the economy during the first half of the century spurred an endogenous industrialization process that had a profound impact on the political landscape of the second half of the century. Over the first half, capital and labor were reallocated from the primary and tertiary sectors to the secondary sector, and this changed the attitudes of the majority of the population with respect to protectionism. The import-substitution industrialization process was, in part, a response to those attitudes.

The argument presented in our model is similar to the Stolper-Samuelson (1941) result: if labor is assumed to be employed less intensively in the production of the exportable good, then protection should increase its real remuneration. However, once we include the labor-intensive non-tradable sector, this prediction no longer holds; with favorable terms of trade, wages can be higher under free trade (see also Galiani et al., 2009).[15] In this case, path dependence is introduced by assuming that physical capital adjusts slowly and that impatient workers are the pivotal group in the political process. The attitude of labor toward protectionism depends on the allocation of capital that is assumed to be fixed in the medium run. This is also very relevant because it helps to explain the entire economic history of Argentina between 1870 and the present within a unified framework. In contrast, in the previous literature, the widely used Stolper-Samuelson theorem only helps to

[14] In appendix B we exploit this natural experiment to provide evidence that: (a) trade policies are still a key component of electoral competition; and (b) the coalitions vote as suggested by our model.

[15] With capital mobility, wages are a U-shaped function of the terms of trade. Wages are high either under specialization and trade with favorable terms of trade, or under autarky or reversal of the terms of trade. The lowest wages are at the frontier between specialization and diversification.

understand the rise of the urban-rural political cleavage that appeared following the Second World War, but it cannot account for the periods of integration into world trade seen in the late 19th century and after the fall of the Berlin wall.

At first sight, it seems that this type of path-dependent anti-trade trap could have appeared in any economy; however, we claim that this is not the case. It is true that endogenous protectionism can arise in almost any economy if we assume some adjustment costs and persistent external volatility in the terms of trade. However, if the underlying distributional conflict is not too intense, the economy can gradually steer itself toward a more efficient pattern of trade. It is the intensity of the distributional conflict --determined mainly by technology and factor endowments- and the inability to resolve it by institutional means that places Argentina in a special situation.

Our model has three features that generate both path dependence and intense distributional conflict. First, the production of the exportable good does not use the pivot input --labor-- intensively. Otherwise, the pivot group would tend to support free-trade policies in the short and medium run. Second, the exportable good is an important component of the consumption bundle. Otherwise, it is possible to show that, in the medium run, workers would prefer a tariff level that decreases with the terms of trade; in that case, workers would prefer gradual liberalization as the terms of trade improve. Third, at the point in time when the terms of trade worsen, the economy has to have enough capital to start the endogenous industrialization process. Poor economies that have not accumulated enough capital yet are less prone to the severe distributional conflict described here. These three conditions fit fairly well for Argentina and point to what other economies we should look at in an effort to discern protectionist traps. We focus on land-rich newly settled countries, particularly Australia, since there is a long tradition of comparing Argentina with Australia in the literature (see, among others, Díaz-Alejandro, 1984, and Gerchunoff and Fajelbaum, 2006).

5.1 Argentina and Australia

There are a number of similarities between these two economies that make this exercise of comparative history worthwhile. First, their initial endowments, that is, the relative scarcity of labor relative to land, determined their position as exporters of agricultural goods. Second, there is the natural emergence of manufacturing sectors in response to the natural protection provided by exogenous international conditions and the distance of main industrial centers. Third, there is the demand for protectionism by urban manufacturing interests. As a result, both countries relied heavily on tariffs and quantitative restrictions to trade to provide protection for their manufacturing sectors. These policies were blamed for the relative poor performance of these economies and were eventually abandoned by the end of the twentieth century, although not without opposition from vested interest groups.

K. Anderson (2002) states that "seven decades of import-substituting industrialization cost Australia dearly in terms of its comparative standard of living. In 1900, Australia was arguably the highest-income country in the world on a per capita basis. But by 1950 its rank had slipped to third; by 1970 it was eighth; and by the 1990s Australia was not even in the top twenty" and that "Australia's comparatively poor growth performance for most of the twentieth century contrasts with that of the final decade, when Australia out-performed all other advanced economies other

than Ireland and Norway." The author claims that part of that success is attributable to the "belated opening of the Australian economy to the rest of the world".

The differences between these two cases start to appear when we focus on the intensity of the distributional conflict and the institutional settings where this conflict needed to be resolved. We claim that the Argentine distributional conflict was more intense and that its institutions were weaker. As a result, while Australia was able to overcome its conflict, Argentina was overwhelmed by it. Moreover, international and geopolitical conditions helped to ease the Australian anti-trade trap but not the Argentine one. In what follows, we stress some key differences between these two economies and show how they contribute to our argument.

5.1.1 From Endowments to Institutions

Since its creation in 1901, the Australian Federation adopted protectionist trade policies that were strenghtened during the course of the 20th century up until 1973, when the country entered into a gradual but steady process of liberalization (see, among others, Anderson 1998, 2002; Anderson and Garnaut 1987; Corden 1996; Garnaut 2002).

The Australian gold rushes of the late 19th century sparked an early influx of immigrants who helped to consolidate a mining export sector. The mining sector had powerful forward and backward industrial linkages that generated interest in scientific and technical research, as well as giving rise to a unionized labor force across the economy. The trade unions and entrepreneurs involved with mining coalesced into political groups that opposed the creation of a ruling land-owning elite.

In 1901, the Labor Party joined the Protectionist Party to form the first government of the Australian Federation. Two key issues on the political agenda were the level of protectionism and immigration policy. The government successfully passed the Immigration Restriction Act of 1901, which formed the basis for the White Australia Policy. However, the government had to reach a compromise with the Free Trade Party in order to set import tariffs in 1902.

Australian immigration policies have been substantially different from those of Argentina. As mentioned before, the Argentine elite chose to promote immigration. Argentina's population went from 1.35 million in 1861 to 11.28 million in 1928, while, in Australia, it went from 1.2 to 6.22 million. In Argentina, this decreased wages and increased the return on land. Indeed, Taylor (1997) calibrates a general equilibrium model to estimate the impact on wages of the massive flow of immigration to Argentina up to the First World War. His calibration suggests that the flow of immigration reduced real wages in Argentina by approximately 20% from what wage levels would have been if immigration had not taken place.

What is more, and in spite of similar factor endowments, land was more concentrated in Argentina than in Australia, where family-operated, medium-sized farms were relatively more common. As a consequence, landowners in Australia did not constitute an oligarchy as they did in Argentina; they were a broad social group and were not a ruling class. Landlords in Australia never controlled the governmental machinery as they did in Argentina (see Hirst, 1979).

To sum up, by the beginning of the 20th century, the Australian labor movement was already mature and consolidated, had an active role in the policymaking process and had successfully demanded protection and restrictions on the flow of immigrants. However, it was not a hegemonic party; it had to make compromises with the Free Trade Party, which represented the interests of the agricultural sector. In Argentina, the ruling elite had vested interests in the agricultural sector and did not need to compromise with antagonistic interest groups. Even before the 1930s crisis, Australia was already experiencing a distributional conflict similar to the one described in our model, and it found institutional ways to deal with it. In practice, Australia had a democratic government, while Argentina had an autocratic government ruled by the oligarchic landlord class.

Australia's stronger institutions also translated into better policymaking. In 1921 the Australian government moved to protect the industries that had expanded during the war; however, recognizing that vested interest groups would attempt to influence the policymaking process, it established the Tariff Board, an advisory body composed of "disinterested experts" to provide technical advice to both the Parliament and the Minister for Trade and Customs. This development had two direct benefits that would facilitate the process of liberalization. First, as noted, it reduced the direct influence of interest groups. Second, it created a bureaucracy with technical expertise on the matter.

The Australian factor endowment also helped to reduce the intensity of the distributional conflict. While Argentine exports were mainly agricultural goods--an important component of the consumption bundle--, a large share of Australian exports were mineral products that do not enter directly into the consumption bundle. Free trade policies were more harmful to Argentine workers.

5.1.2 Liberalization

By the late 1960s there was consensus among Australian economists on the benefits of import liberalization. These views came to be adopted first by the members of the Tariff Board and then by politicians. However, public opinion continued to show support for protectionism. Interestingly, the first move toward liberalization was in 1973 under a government led by the Labor Party, whose constituents tended to be stronger supporters of protection. From then on, Australia embarked on a gradual but steady path toward free trade. This process was facilitated by favorable external and internal conditions that reduced the intensity of the distributional conflict and by properly functioning institutions that made intertemporal bargaining possible.

The rise of Eastern Asia as a potential trading partner that was interested not only in Australian raw materials but also manufactures shifted the Labor Party's views on protectionism. Closer integration into the regional economy through trade liberalization would increase the demand for exports of manufactures that were more labor- intensive than traditional exports (see Díaz-Alejandro, 1984, and Gerchunoff and Fajelbaum, 2006).

Not only Labor Party leaders but also the Australian Council of Trade Unions (labor) and the Business Council (mining and service industries) advocated free trade. Recognizing the effects of protection on export performance, both farming and mining groups joined the public debate. At a federal level, the exporting states also supported liberalization. The textiles, clothing and footwear, and automobile industries, which enjoyed ample protection, invested heavily in political activity

aimed at maintaining protectionism. However, these industries were already declining by the mid-1970s and they were further weakened by successive tariff reductions from then on (see Garnaut, 2002).

These external and internal developments changed the nature of the distributional conflict associated with trade policy. Only capitalists and workers employed in import-competing activities would oppose liberalization in the short run. However, as part of a gradual, steady and predictable process of liberalization, new capital investments were redirected toward activities that were not dependent on protection while, at the same time, vested interests were not harmed. The role played by the institutions and the political leadership that took part in this task is remarkable. The political system was able to set long-term policy goals to guide economic activity without imposing large adjustment costs in terms of output or employment.

In contrast, during the early 1970s Argentina was immersed in what was tantamount to a civil war in which leftist groups were trying to create a socialist country that would expropriate the holdings of the oligarchic landlords and transfer the land to poor rural workers. Even when the economy was opened to trade during the second part of the 1970s, this was not done by consensus. Instead, it was the result of a unilateral decision made by a military government aligned with landlords and the capitalists that could survive integration with the world economy and that were threatened by the fierce distributive conflict that arose during the last Peronist government. The second attempt to integrate the country with the world was made during the 1990s, after a devastating episode of hyperinflation, by a government that campaigned on a populist agenda. Both these attempts were abrupt and were conducted as shock policies by political groups that had political power but did not represent a consensus view on the part of the population. Thus, trade reform was abrupt and did not provide any way to smooth out losses. Even today, when serious attempts to restrict trade are being made by the current government, a large segment of the population sees the two episodes of trade liberalization as disastrous.

To sum up, the distributional conflict in Australia was mitigated both by a differential initial factor endowment that led to the appearance of different organizations and institutions in society and, later, by the rise of East Asia as a trading partner. Moreover, Australian institutions were well-suited to pursue a gradual process of adjustment to minimize the losses of those who had sunk investments in protected industries, while Argentine institutions and organizations did not display those capabilities. In a context of policy path dependence, all these differences ended up making a substantial difference in the outcomes.

6 Concluding Remarks

Up to the 1930s, Argentina was well-integrated into the world economy and, though some protectionism naturally developed after the Great Depression of the 1930s, it was only after the Second World War that the country closed itself off from world markets. It then remained in a situation close to autarky until the mid-1970s. And it was only after a long period of absolute economic decline and a devastating bout of hyperinflation that a comprehensive program of reform and integration into the world economy was adopted.

We use a model with two tradable goods and one non-tradable good. We assume that Argentina

has a comparative advantage in the production of agricultural goods. Thus, it might or might not produce manufactured goods. It also produces services. We assume that the agricultural good is produced in the primary sector using land and capital, while the manufactured good is produced in the secondary sector using labor and capital. Services are produced using labor only. We also assume that capital moves between the primary and secondary sectors more slowly than labor moves between the secondary and tertiary sectors. This gives rise to three different time horizons: the short run (no factor reallocation), the medium run (only labor adjusts) and the long run (full reallocation).

We show that import-substitution policies exhibit path dependence. Indeed, this is a very important insight in understanding the economic history of Argentina. We also use our model to characterize the demands for protectionist policies of the different groups in the economy. In the short run, landowners, capitalists who have invested in the primary sector and workers employed in the tertiary sector support free-trade policies. On the other hand, capitalists and workers in the secondary sector support protectionist policies. In the medium run, workers behave as a group and will support protectionist policies if the industrial sector is sufficiently developed (i.e., the secondary sector employs enough labor and capital). In the long run, workers will support free trade if the terms of trade are favorable enough.

Using the insights derived from our model, we then argue that much of the distributional conflict that arose was among owners of different production inputs and that trade policies were widely used to shift income across groups. At the beginning of the century, factor allocation resembled what we call "specialization and trade." During the inter-war period, trade opportunities and the terms of trade worsened, which led to an incipient industrialization process. Argentina started the second half of the century with a very different economic configuration, as industrialization had come a long way in terms of what we refer to as diversification and trade. These new economic conditions also changed the political equilibrium. Urban workers employed in the manufacturing sector and industrialists were now major social actors who demanded that the industrialization process be deepened, which hurt trade and took the economy close to autarky. The years that followed the Second World War witnessed an extraordinary expansion of trade in which Argentina was not an active participant. We contend that one important reason behind this outcome was the set of protectionist policies that were enacted in the years following that war and that the main supporters of these policies were the new political forces that emerged from the industrialization process in the inter-war period.

The second half of the century was characterized by a strong distributional conflict centered on trade policy. Traditional sectors composed of owners of factors employed in the primary sector supported free-trade policies, whereas the newer political forces supported protectionism and import substitution. Argentina embarked on an ambitious process of import substitution that aimed at achieving self-sufficiency, especially in activities deemed strategic, such as oil and steel. As domestically produced goods were substituted for labor-intensive imported manufactures, the industrial sector grew and drew inputs from other sectors. The substitution of capital-intensive activities was more problematic. Some of these activities were not profitable even though they had a captive internal market. With little regard for economic rationality, the government took an active role in developing these activities through public enterprises that became a chronic source of deficits.

Instead of delivering a steady path of inward-oriented growth, the import-substitution strategy resulted in bumpy cycles of economic expansion followed by sharp recession. Liberalization promised a return to export-led growth; however, in the case of agents with vested interests in protected activities, it would cost them dearly. The protectionist coalition, industrial capitalists and unionized workers, had enough political power to keep liberalization off the policy agenda.

The accomplishment of gradual liberalization process that mitigated the losses of those with vested interests and the definition of clear and sound long-term policy goals required a set of political institutions capable of enforcing intertemporal agreements between political groups. Sadly, Argentina lacked such institutions. Instead, the dismantlement of the import-substitution strategy came only after the protectionist coalition had become sufficiently weakened. The steps taken toward liberalization were abrupt and were conducted as shock policies by political groups that had political power but did not represent a consensus view among the population. Moreover, it did not provide any way to smooth out the losses. As a result, Argentina's integration into world markets was extremely costly in terms of inequality.

Argentina had to wait to reap the benefits of liberalization until the first decade of the 21st century, when favorable commodity prices in world markets fueled rapid economic growth. As the primary sector gained in productivity and received large capital inflows and as employment in the tertiary sector soared, the demand for protectionism was muted. It seems that the new political equilibrium favors a strategy of export-led growth; however, the distributional conflict centered on trade policy survived the turn of the century and remains latent.

7 Appendix A

In this appendix we solve for the long-run equilibrium of the model presented in Section 3. We also derive the effect of export taxes on real factor remuneration in the short, medium and long terms.

7.1 The Long-Run Equilibrium

Let Υ denote the degree of comparative advantage of the secondary sector and π denote the international price of the agricultural good relative to the manufacturing good, i.e., the terms of trade:

$$\Upsilon = \frac{M}{A}\frac{L^{1-\beta}K^{\beta-\alpha}}{T^{1-\alpha}}$$

$$\pi = \frac{p_a}{p_m}$$

Moreover, let:

$$\lambda = \frac{L_m}{L}$$

$$\kappa = \frac{K_m}{K}$$

That is, λ is the share of workers employed in the manufacturing sector and κ is the share of units of capital employed in that sector. We seek to characterize the steady-state ratios κ and λ as functions of the technological and preference parameters, factor endowments and exogenous variables: terms of trade π and the ad-valorem tax rate on exports τ.

Since land is used only in the primary sector, its outside opportunity cost is zero. Given our technological assumptions, the marginal product of the first infinitesimal unit of capital employed in the primary sector is infinite; therefore $\kappa < 1$, i.e., the primary sector always employs some capital.

The demand for capital in the primary sector solves the following first-order condition for profit optimization of the representative firm in the sector:

$$\alpha\left(\frac{1}{1-\kappa}\right)^{1-\alpha} p_a^d = \frac{r_a K}{K^\alpha T^{1-\alpha} A} \tag{1}$$

where p_a^d is the domestic price of the agricultural good and r_a is the return to capital in the primary sector. Similarly, the demand for land in the primary sector, given the land rental rate, q, is given by:

$$(1-\alpha)(1-\kappa)^\alpha p_a^d = \frac{qT}{K^\alpha T^{1-\alpha} A} \tag{2}$$

If some capital is also employed in the secondary sector, then the demand for capital in the secondary sector satisfies:

$$\beta\left(\frac{\lambda}{\kappa}\right)^{1-\beta} \Upsilon p_m^d = \frac{r_m K}{K^\alpha T^{1-\alpha} A} \tag{3}$$

where p_m^d is the domestic price of the manufactured good and r_m is the return to capital in the secondary sector. The demand for labor in the sector is given by:

$$(1-\beta)\left(\frac{\kappa}{\lambda}\right)^{\beta} \Upsilon p_m^d = \frac{Lw}{K^\alpha T^{1-\alpha} A} \tag{4}$$

where w is the wage rate.

The Cobb-Douglas utility function that we use to represent the preferences of consumers implies that the share of each good in total expenditure is constant. Let ϕ_a, ϕ_m be the shares of the agricultural and manufactured goods, respectively. Naturally, $1-\phi_a-\phi_m$ is the share of the service good. The aggregate demand for each good (c_a, c_m and c_s) satisfies the following maximizing condition:

$$\frac{c_m p_m^d}{\phi_m} = \frac{c_a p_a^d}{\phi_a} = \frac{(1-\lambda)Lw}{1-\phi_a-\phi_m} \tag{5}$$

where we have already imposed the market equilibrium condition in the non-tradable sector:

$$c_s = (1-\lambda)Lw \tag{6}$$

In an open economy without international capital markets, trade is balanced in each period. Therefore,

$$\kappa^{\beta}\lambda^{1-\beta}\Upsilon + \pi(1-\kappa)^{\alpha} = \frac{c_m + \pi c_a}{K^{\alpha}T^{1-\alpha}A} \tag{7}$$

If the country is trading internationally, the domestic price of the agricultural good is: $p_a^d = (1-\tau)p_a$. Due to the Lerner symmetry theorem, we assume that the import tax is zero. Therefore, we have: $p_m^d = p_m$.

The following sub-sections solve the different types of steady-state equilibria that might exist. First, we study the autarky equilibrium. We derive the shares λ_{aut} and κ_{aut} and the autarky relative domestic price p_{aut}. This price has to be such that $\pi(1-\tau) \le p_{aut} \le \pi$: it is not profitable to export or import goods. Second, we study the equilibrium under specialization in the production of primary goods. We derive the input prices w and r and then obtain the marginal cost of producing the manufactured good. This marginal cost has to be higher than the international price of the manufactured good. Third, we study the equilibrium under diversification and trade. We derive the shares λ and κ and the exports of primary goods. All of these three variables have to be positive in equilibrium. Finally, we derive the equilibrium under reversal of the pattern of trade. We proceed in the same way as in the case of diversification and trade, but now we set $\tau = 0$ and we require the exports of the manufactured good to be positive.

7.1.1 Autarky Equilibrium

We now solve the model for autarky by imposing that the consumed quantities equal the produced quantities for each of the three goods:

$$\frac{c_m}{K^{\alpha}T^{1-\alpha}A} = \kappa^{\beta}\lambda^{1-\beta}\Upsilon \tag{8}$$

$$\frac{c_a}{K^{\alpha}T^{1-\alpha}A} = (1-\kappa)^{\alpha}$$

Using 1,2,4,5,6 and 8, we derive the following values for λ_{aut} , κ_{aut} and the autarky relative domestic price p_{aut}:

$$\kappa_{aut} = \frac{\phi_m \beta}{\phi_m \beta + \phi_a \alpha} \tag{9}$$

$$\lambda_{aut} = \frac{\phi_m (1-\beta)}{\phi_m (1-\beta) + (1-\phi_a - \phi_m)}$$

$$p_{aut} = \frac{\beta^{\beta}}{\alpha^{\alpha}} (\phi_m \beta + \phi_a \alpha)^{\alpha-\beta} \phi_a^{1-\alpha} \left(\frac{(1-\beta)}{((1-\phi_a - \beta\phi_m))} \right)^{1-\beta} \Upsilon$$

For autarky to be a steady-state equilibrium, p_{aut} has to satisfy:

$$\pi(1-\tau) \leq p_{aut} \leq \pi$$

Otherwise, there are arbitrage opportunities for exporting and importing goods.

7.1.2 Equilibrium under Specialization

A specialized economy imports the secondary good and produces and exports the agricultural good. The economy is specialized in the primary sector if there is no capital or labor employed in the secondary sector; therefore: $\kappa = \lambda = 0$. For this to be an equilibrium, the wages and capital rental rate paid in the other sectors of the economy must be greater than what can be profitably paid by the secondary sector.

$$mc_m = \left[\left[\frac{1-\beta}{\beta} \right]^{\beta} + \left[\frac{\beta}{1-\beta} \right]^{1-\beta} \right] r^{\beta} w^{1-\beta} M^{-1} \geq p_m^d \tag{10}$$

Using 1,5, 7 and 10, setting $\lambda = \kappa = 0$, $p_m^d = p_m$ and $p_a^d = (1-\tau)p_a$, we obtain that specialization is an equilibrium if:

$$\Upsilon \leq \left[\left[\frac{1-\beta}{\beta} \right]^{\beta} + \left[\frac{\beta}{1-\beta} \right]^{1-\beta} \right] \alpha^{\beta} \left[\frac{(1-\phi_a - \phi_m)}{(\phi_m(1-\tau) + \phi_a)} \right]^{1-\beta} (1-\tau)\pi$$

Otherwise, there will be diversification. Naturally, ceteris paribus, for favorable enough terms of trade, the economy will specialize in the production of primary goods.

7.1.3 Diversification and Trade

Using 1,2, 4,5, 7 and imposing $p_m^d = p_m$ and $p_a^d = (1-\tau)p_a$, we solve for the endogenous variables κ and λ.

From the conditions 1 and 2 we obtain λ as an increasing function of κ:

$$\lambda = \left[\frac{\alpha}{\beta}\left(\frac{1}{1-\kappa}\right)^{1-\alpha}(1-\tau)\frac{\pi}{\Upsilon}\right]^{\frac{1}{1-\beta}}\kappa$$

While from 4,5 and 7 we deduce:

$$\frac{\lambda}{(1-\lambda)}+\left(\frac{\pi}{\Upsilon}\right)^{\frac{\beta}{1-\beta}}\frac{(1-\kappa)^{\frac{\alpha-\beta}{1-\beta}}}{(1-\lambda)}\left[\frac{\alpha}{\beta}(1-\tau)\right]^{\frac{\beta}{1-\beta}} = \frac{\phi_m+\frac{\phi_a}{(1-\tau)}}{1-\phi_a-\phi_m}(1-\beta) \qquad (11)$$

If $\beta > \alpha$, then the left-hand side of the former expression is increasing in κ whereas the right-hand side is constant. Thus, there is at most one value of κ that satisfies this expression; λ^* and κ^* denote the shares that satisfy equation 11

Proposition 1 *In the diversification and trade equilibrium, an improvement in the terms of trade or a reduction in the export tax will lead to lower values of* λ^* *and* κ^*.

The solution is a steady-state equilibrium if the country exports the primary good and, at the same time, produces a positive amount of the manufactured good. The conditions for diversification were explained in Section 7.1.2.

Positive exports of the agricultural good implies:

$$\frac{c_a}{K^{\alpha}T^{1-\alpha}A} \le (1-\kappa)^{\alpha}$$

In terms of the exogenous variables this condition becomes:

$$\frac{\phi_a(1-\beta)}{(1-\phi_a-\phi_m)(1-\tau)}\frac{\Upsilon}{\pi} \le \frac{(1-\kappa^*)^{\alpha}}{(1-\lambda^*)}\left(\frac{\lambda^*}{\kappa^*}\right)^{\beta}$$

7.1.4 Reversal of the Pattern of Trade

Using the same approach as in Section 7.1.3 but setting $\tau = 0$, we solve for the endogenous variables. In this case, the solution is a steady-state equilibrium if the exports of the manufacturing good are positive, i.e., if $c_a\left(K^{\alpha}T^{1-\alpha}A\right)^{-1} > (1-\kappa)^{\alpha}$. In terms of the exogenous variables, this condition becomes:

$$\frac{\phi_a(1-\beta)}{(1-\phi_a-\phi_m)}\frac{\Upsilon}{\pi} > \frac{(1-\kappa^*)^{\alpha}}{(1-\lambda^*)}\left(\frac{\lambda^*}{\kappa^*}\right)^{\beta}$$

7.1.5 Graphical Representation

Given a set of parameters $\Upsilon, \phi_a, \phi_m, \alpha$ and β with $\beta > \alpha, 0 < \phi_a, 0 < \phi_m$ and $\phi_m + \phi_a < 1$, we can map each pair (π, τ) to one of the steady states above. Assuming $\beta > \alpha$, Figure 1 in Section 3.1 shows the different regions in the (π, τ) space. The frontier between the reversal of trade and autarky regions is given by the autarky price equation:

$$p_{aut} = \frac{\beta^{\beta}}{\alpha^{\alpha}} \left(\phi_m \beta + \phi_a \alpha\right)^{\alpha-\beta} \phi_a^{1-\alpha} \left(\frac{(1-\beta)}{\left((1-\phi_a - \beta\phi_m)\right)} \right)^{1-\beta} \Upsilon$$

The autarky region and the diversification and trade region are delimited by the level of τ that makes exports equal to zero:

$$\tau = 1 - \frac{p_{aut}}{\pi}$$

The specialization and diversification regions are separated by the points at which the marginal firm is indifferent to producing the first unit of the manufactured good or not:

$$\pi = \frac{\left[\frac{\left(\phi_m (1-\tau) + \phi_a\right)}{\left(1-\phi_a - \phi_m\right)} \right]^{1-\beta} \Upsilon}{\left[\left[\frac{1-\beta}{\beta} \right]^{\beta} + \left[\frac{\beta}{1-\beta} \right]^{1-\beta} \right] \alpha^{\beta}} \frac{1}{(1-\tau)}$$

7.2 The Political Economy of Protectionism

The tax rate τ affects the prices and resource allocation of the economy. As we show below, the real remuneration of some factors of production increases with τ, while the real remuneration of other factors decreases. Therefore, unless all economic agents are equally endowed, changes in the level of protectionism could have major distributional consequences. In this section, we derive the preferences of the different economic groups with regard to the policy variable τ under the main assumption that each economic agent has only one source of income. In our analysis, we consider three time horizons: the short, medium and long terms. In the short run, no reallocation of factors takes place. In the medium run, only labor is allowed to move between the secondary and the tertiary sector. In the long run, all mobile factors can be reallocated and the economy can fully adjust to its new equilibrium. Although we may assume that inputs are fixed within a sector, they are mobile across different firms within that sector. Thus, competition among different firms within a sector drives input prices to equalize the value of their marginal product.

While we do not set up a formal model of political competition that determines the evolution of the policy variable τ, we do stress the political tensions that this model generates. We use these results to articulate our discussion on the rise and fall of protectionism in Argentina and the underlying distributional conflict.

Under autarky, or when the patterns of trade are such that the country exports manufactured goods, the tax on exports of primary goods has no effect whatsoever. We might think that the government could also tax the exports of manufactured goods. However, we do not delve into those issues simply because we do not think that they will shed any light on the main topic of this paper. So we assume that the economy is always in one of the two other possible scenarios in which τ matters: either close to a steady state in which the economy specializes in the production of primary goods, or close to a steady state in which there is diversification of production and the country exports primary goods.

7.2.1 The Demand for Protectionism

In this section we derive the effects of protectionism and changes in the terms of trade on the real remunerations of the factors of production. We log-linearize the model to derive the effect of protectionism in the short and medium run. The log-linearization is around an initial allocation. This initial allocation might be a steady-state equilibrium, in which case it is determined by π and τ; however, the argument follows through for any initial allocation determined also by κ and λ.

The zero profit condition in the primary sector implies:

$$a_a = (1-\alpha)t + \alpha k_a$$

where $a_a = dp_a^d/p_a^d$ is the percentage variation in the domestic price of the agricultural good, $t = dq/q$ denotes the percentage variation in the rent of the land and $k_a = dr_a/r_a$ is the percentage variation in the return to capital in the primary sector. Since, in the short and medium run, capital is not mobile between sectors, it will be useful to employ different notations for the capital invested in the primary and secondary sectors. Finally, α is the share of capital in the total cost of production in the primary sector. Homotheticity of the production function implies that α is a function only of input prices. Moreover, under the assumption of a Cobb-Douglas technology, α is invariant. Similarly, in the manufacturing sector, we have:

$$m_m = l_m(1-\beta) + k_m\beta$$

where $m_m = dp_m^d/p_m^d$ is the percentage variation in the domestic price of the manufactured good, $l_m = dw_m/w_m$ denotes the percentage variation in wages and $k_m = dr_m/r_m$ is the percentage variation in the return to capital in the secondary sector. As before, β is the share of capital in the total cost of production. We continue to assume that $\beta \geq \alpha$; that is, we assume that capital is used more intensively in the secondary sector. Though this last assumption is not crucial, it will help us to solve some ambiguities later on. Finally, for the service sector, we have:

$$n = l_n$$

where n and $l_n = dw_n/w_n$ are the respective percentage variations in the prices of the service good and the wages paid in that sector.

Cobb-Douglas preferences ensure that the percentage increase in expenditures of the three goods are the same: $a_a + c_a = m_m + c_m = c_n + n$, where c_i denotes the percentage variation in the

consumption of good i. For any agent, the indirect utility function is given by:

$$\ln w - \sum_{i=1}^{3} \phi_i \ln p_i^d$$

where w denotes the income of the individual. Notice that we can construct an exact "price index" to account for the effect of price changes in total utility. We use this price index to deflate all the nominal variables of the economy.

$$p = a_c \phi_a + m_c \phi_m + n_n (1 - \phi_a - \phi_m)$$

In our model, the government changes domestic relative prices by taxing trade. The domestic price of the agricultural good is then given by $p_a^d = p_a(1-\tau)$. Taking logs and denoting $t_a = d\tau_a/(1-\tau_a)$, we obtain:

$$a_a = a_i - t_a$$

For the manufactured good, its domestic price is given by $m_m = m_i$.

The economy budget constraint is: $p_m Y_m + p_a Y_a = p_m C_m + p_a C_a$. Log-linearizing this equation around the initial values, we have:

$$(m_i + y_m)(1-\chi_a) + (a_i + y_a)\chi_a = (c_m + m_i)(1-\gamma_a) + (a_i + c_a)\gamma_a$$

where $y_i = dY_i/Y_i$ and γ_a is the share of the agricultural good in total expenditure on tradable goods, evaluated at international prices. The parameter χ_a is the share of the production of the agricultural good in the total value of the domestic production of tradable goods at international prices. If the country exports the primary good, then $\chi_a > \gamma_a$.

The variable γ_a can be re-written in terms of parameters of the model:

$$\gamma_a = \frac{p_a C_a}{p_m C_m + p_a C_a}$$

$$= \frac{\phi_a}{(1-\tau)\phi_m + \phi_a}$$

Similarly, for χ_a,

$$\chi_a = \frac{1}{1 + \frac{\lambda^{1-\beta}\kappa^{\beta}}{\pi(1-\kappa)^{\alpha}}\Upsilon}$$

We now consider the adjustment of the economy to changes in international prices and taxes, assuming different speeds of adjustment for the mobile factors of production.

Short Run

In the short run, all factors of production are reallocated only within the sector where they were previously employed. Given the Cobb-Douglas production function and the zero profit condition, we know that the flow of earnings accruing to landlords is equal to a fraction of the value of the total production of the primary sector. Given that land is not reallocated, the percentage increase in the rental rate for land is equal to:

$$t = a_a + y_a$$

Since, in the short run, the allocation of capital in the primary sector does not change, the following capital rent equation holds:

$$k_a = a_a + y_a$$

Similarly, in the manufacturing sector, the following capital rent and wage equations hold:

$$k_m = m_m + y_m$$

$$l_m = m_m + y_m$$

Finally, total expenditure on services has to equal the total wages paid in the sector. Noting that the production of services has to equal consumption, we find that:

$$l_n = c_n + n_n$$

Let us now consider the effects of an increase in the international price of the primary good. Given that there is no factor reallocation, the output of the three goods remains constant. Without government intervention, the domestic price of the primary good and the return to the factors employed in the primary sector increase in proportion to the increase in the terms of trade. Since the agents owning those resources are wealthier, they increase their demand for services, which drives up wages in the tertiary sector. Workers in the service sector enjoy an increase in their nominal wages that is proportional to the economy's degree of specialization: χ_a. Finally, the factors employed in the manufacturing sector do not receive any increase in their remunerations. The consumer price index rises, since the prices of both the primary and the tertiary goods increase. Proposition 2 summarizes these results.

Proposition 2 *In the short run, an increase in the international price of the agricultural good (i.e., an improvement in the terms of trade) raises the real remuneration received by landowners, capitalists in the primary sector and service workers. However, it reduces the real remuneration of workers and capitalists in the manufacturing sector.*

Notice that the real effects of an increase in the international price of the agricultural good are identical to those of a decrease in the international price of the manufactured good. Agents may demand policies that will protect them from changes in international prices. Proposition 3 deals with the effects of taxes on exports.

Proposition 3 *In the short run, protectionist policies reduce the real remuneration of landowners, capitalists in the primary sector and service workers. If* $\phi_a > 0$*, protectionist policies will raise the real remuneration of workers and capitalists in the secondary sector.*

Medium run

In the medium run, labor is allowed to move across industries, so wages equalize across sectors. Log-linearizing the market clearing condition for labor, we have:

$$\lambda(m_m + y_m) + (1-\lambda)(n_n + y_n) = l$$

This equation and the condition that $l_m = l_n = l$ replace the two equations of wage determination obtained for the case of the short-run equilibrium. Now, the short-run effects of an improvement in the terms of trade include an increase in the production of services and a decrease in the total production of manufactures. Since there is no factor adjustment in the primary sector, the remuneration of capital and land increase by the same proportion as the terms of trade. This generates an upward shift in the demand for services which is met both by an increase in its equilibrium price and by a displacement of labor from the secondary to the tertiary sector. The manufacturing sector uses less labor, and the return to capital in this sector therefore falls. Overall, consumption of the primary good decreases, and consumption of the manufactured and service goods increases.

Proposition 4 *In the medium run, an improvement in the terms of trade increases the real remuneration received by landowners and capitalists in the primary sector. It harms capitalists in the manufacturing sector. The real wage increases if and only if:*

$$\chi_a(1-\lambda) > \frac{\phi_a}{(\phi_m\beta + \alpha_a)}$$

Higher demand for services increases wages in that sector and attracts workers from the manufacturing sector, raising wages across the economy. However, the equilibrium increase in wages may fall short of compensating the negative welfare effect of the increase in the price of the agricultural good. The more specialized in the primary and tertiary sector the economy is (i.e., a higher χ_a and a lower λ), the more likely it is that real wages will increase in the medium run. This is because, in such cases, the upward shift in demand for labor in the service sector is stronger. Thus, notice that, if the economy is already industrialized, an increase in the terms of trade may harm workers even in the medium run.

Proposition 5 *In the medium run, protectionist policies reduce the real remuneration of landowners and capitalists in the primary sector. If* $\phi_a > 0$*, protectionist policies increase the real remuneration of capitalists in the manufacturing sector. If* $\phi_a > 0$*, workers' welfare increases if and only if:*

$$(1-\lambda)\left[(1-\beta)\chi_a + \beta\frac{\phi_a+\phi_m}{\phi_a+(1-\tau)\phi_m}\right] \leq 1$$

Workers' welfare increases with protectionism if the economy is beyond a given level of industrialization. In this case, workers may ally with capitalists in the secondary sector to demand protectionist policies. If $\tau = 0$, this condition is satisfied as soon as the economy starts producing in the secondary sector. A higher tax rate implies that the condition will be met for higher λ and lower χ_a. In Figure 3, we find the pairs (π,τ), such that workers are indifferent to whether there is more or less protection, since movement in either direction will improve workers' welfare in the medium run.

Moreover, we expect that, the more industrialized the economy is, the larger the share of workers who will be employed in the secondary sector and, hence, by virtue of Proposition 2, the larger the share of workers who will also benefit from protectionist policies in the short run.

Long Run

In the long run, the economy will tend toward a new steady state. Therefore, it is useful to analyze the effects of protectionism based on the results obtained in Section 7.1.

A full analysis of the long-run solution for this economy is fairly complicated. Nevertheless, the two propositions set out below suffice for our purposes in this paper. We focus only on the preferences for protectionism of landlords and workers, since we assume that capitalists are concerned only with policies in the short and medium run, when their capital is sunk in one particular activity. We assume that the economy is initially in the specialization and trade or in the diversification and trade regions (i.e., it exports the primary good). Otherwise, changes in the export tax rate would not have any effect.

Proposition 6 *In the long run, landlords benefit from an improvement in the terms of trade and from a reduction in export taxes.*

Proposition 7 *If the economy is specialized, then, in the long run, workers benefit from an improvement in the terms of trade and from a reduction in export taxes. There is always a* π^* *high enough so that workers are better off at* $\tau = 0$.

7.3 Constant-Elasticity-of-Substitution (CES) Preferences and Technology in Autarky

In this appendix, we derive a log-linearization around the autarky equilibrium for a CES economy. The results of this section are referred to in Section 3.4.

The production functions of the agricultural and manufactured goods are, respectively:

$$A\left(\xi_T T^{\rho_1} + \xi_{K,a} K_A^{\rho_1}\right)^{1/\rho_1}$$

$$M\left(\xi_L L_M^{\rho_2} + \xi_{K,m} K_M^{\rho_2}\right)^{1/\rho_2}$$

where A and M are productivity parameters, $\xi_i^{'} s$ are share parameters and $(1-\rho_i)^{-1}$ for $i \in \{1,2\}$ are the elasticity of substitution. Notice that:

ρ_i	Case	Elasticity of Substitution
$-\infty$	Leontieff: Perfect complements	0
0	Cobb-Douglas	1
1	Perfect substitutes	∞

The production function for services is still: $Y_N = NL_N$, where N is a productivity parameter.

Consumer's preferences are represented by:

$$\left(\phi_1 c_A^{\rho_d} + \phi_2 c_M^{\rho_d} + (1-\phi_1-\phi_2) c_N^{\rho_d}\right)^{1/\rho_d}$$

We are interested in the effect of the exogenous variables ($\hat{T}$, $\hat{K}$, $\hat{L}$, $\hat{A}$, $\hat{M}$, $\hat{N}$, where $\hat{T} = dT/T$) on the capital and labor employment share: $\hat{\lambda}$ and $\hat{\kappa}$. The following table shows the sign of these effects as a function of the elasticity of substitutions ρ_1, ρ_2 and ρ_d. For instance, the first row shows that the effect of an increase in the amount of land, $\hat{T}$, on κ (i.e., $d\hat{\kappa}/d\hat{T}$) has the same sign as $\rho_1 - \rho_d$, whereas the effect on λ (i.e. $d\hat{\lambda}/d\hat{T}$) has the same sign as $-(\rho_2 - \rho_d)(\rho_1 - \rho_d)$. The next rows show the sign of the effect for the other 5 exogenous variables.

	$d\hat{\kappa}$	$d\hat{\lambda}$
$d\hat{T}$	$\rho_1 - \rho_d$	$-(\rho_2 - \rho_d)(\rho_1 - \rho_d)$
$d\hat{K}$	(footnote)	$\rho_d - \rho_2$
$d\hat{L}$	$\rho_d - \rho_2$	$\rho_2 - \rho_d$
$d\hat{A}$	$-\rho_d$	$(\rho_2 - \rho_d)\rho_d$
$d\hat{M}$	ρ_d	ρ_d
$d\hat{N}$	$(\rho_2 - \rho_d)\rho_d$	$-\rho_d$

(footnote table) The sign of the effect of the endowment of capital on the share of capital employed in the manufacturing sector is the same as a quadratic function of ρ_1, ρ_2 and ρ_d that depends on parameters α, β and λ.

In Section 3.4.1, we analyze the effect of $\hat{L}$ and $\hat{A}$ (population growth and productivity growth in agriculture) on $\hat{\kappa}$ and $\hat{\lambda}$.

We notice that $d\hat{\lambda}/d\hat{L}$ has the same sign as $\rho_2 - \rho_d$, i.e., population growth L will decrease λ if the elasticity of substitution in consumption is greater than in the production of manufactures ($\rho_d > \rho_2$). We also state that the effect on κ will be the opposite: $d\hat{\kappa}/d\hat{L}$ has the same sign as $\rho_d - \rho_2$.

Similarly, in the table we read that $d\hat{\lambda}/d\hat{A}$ has the same sign as $(\rho_2 - \rho_d)\rho_d$, which corresponds with what was stated in Section 3.4.1: Higher productivity in the agricultural sector will decrease λ if the elasticity of substitution in consumption is greater than 1 and than that in the production of manufactures (i.e., $\rho_d > 0$, $\rho_d > \rho_2$). Similarly, $d\hat{\kappa}/d\hat{A}$ will have the same sign as $-\rho_d$: the share of capital, κ, will decrease if the elasticity of substitution in consumption is greater than 1.

8 Appendix B

In this appendix we provide evidence supporting our argument that trade policies are still a key component of electoral competition and that the coalitions vote as suggested by our model. We look at the developments of 2008, when the government's attempt to increase export duties was met with a nationwide lockout by farming associations and mass demonstrations in urban centers. We also use the results of the 2007 presidential election and the 2009 legislative elections to compare how the incumbent party --Frente para la Victoria (FPV), a political coalition including the Justicialist Party-- fared before and after it publicly confronted the pro-agriculture coalition.

Export duties were almost non-existent during the 1990s, but were raised after the devaluation in 2002 to capture windfall profits from exporting firms. Over time, they became a reliable source of revenue for the federal government and a handy mechanism for keeping domestic food prices in check. For example, the tax rate on oilseeds exports was raised from 0.5% in 2001 to 17.5% in 2002.

The FPV is an electoral alliance that was founded in 2003 within the Justicialist (Peronist) Party by Néstor Kirchner, who ran for President the same year. The party won the election with an unimpressive 22% of the vote. However, in the legislative election of 2005, the FPV secured a majority in both houses of Congress, and in the presidential election of 2007, it obtained 45% of the vote --22% more than its nearest rival. In 2007 the FPV candidate was Mrs. Cristina Fernández de Kirchner, the incumbent president's wife.

Up to 2008, the FPV government had increased export duties substantially. Export duties for oilseeds reached 32% during 2007. However, the government also kept the local currency undervalued, which benefitted exporting sectors.

In March 2008, the international price of oilseeds reached record levels. The government attempted to introduce a new sliding-scale taxation system for soybean and sunflower exports that would raise duties to 44% of the prices of that time. The announcement was met by a nationwide lockout by farming firms. Government officials and government-affiliated labor unionists denounced the lockout as being staged by big farming companies and having no popular support. However, the pro-agriculture movement drew support from a large share of the middle-class population that gathered in urban centers to oppose the new tax scheme. After four months of political struggles that eroded the government's approval ratings and fractured the cohesion among FPV members of Congress, the proposal was defeated in the Senate, despite the fact that the FPV had a majority in both houses of Congress. The legislative elections of 2009 mirrored the major setback suffered by the government the previous year. The FPV obtained 30% of the vote, 15% less than in the previous election, and lost its majority in both houses.

During the events of 2008, the FPV took a clear stance in the distributional conflict and appealed to the protectionist sentiment of its constituents. These appeals, which had been so effective during the second half of the 20th century, resulted in a sharp reduction in approval ratings and votes.

Under the predictions of our model, agents with vested interests in the primary sector would be less likely to vote for the FPV after the party revealed its position concerning the distributional conflict. If agents voted according to their interests and trade policy was an important component of electoral competition, we should observe a sharper fall in FPV votes in districts where the majority of voters derive their income from the primary or the tertiary sector. We test that prediction by comparing the percentages of votes that the FPV received in 2007 and 2009 in different districts, or *Partidos*, of the Province of Buenos Aires.

For each of the 134 districts of Buenos Aires, we obtain a measure of the ratio of the population that should support free trade. Using 2001 census data, all individuals that derive their income from activities in the primary sector and all other individuals with some secondary schooling who are not employed in the manufacturing sector are classified as "free traders". All individuals who derive their income from the manufacturing sector and those individuals who do not have at least some secondary schooling and are not employed in the primary sector are classified as "protectionists".

In our model, we have abstracted from skill heterogeneity among workers. However, if skilled workers are employed more intensively in the tertiary sector, then we might expect them to support free trade. Similarly, if unskilled workers are employed intensively in the secondary sector, they should support protectionism (see Galiani, et al., 2008b). The inclusion of educational attainment in the classification captures such heterogeneity to some extent.

Suppose that, in district d, free traders and protectionists voted for FPV with probabilities $\pi_{d,f}$ and $\pi_{d,p}$, respectively. Then, if the proportion of free traders in district d is f_d, the total share

of votes of FPV is: $v_d \equiv \pi_{d,p} + (\pi_{d,f} - \pi_{d,p}) f_d$. This identity holds for any classification of free traders. Now, we model $\pi_{d,f} = \pi(\beta_f, \varepsilon_d)$, i.e., the probability $\pi_{d,f}$ is equal to a monotonic function of a parameter β_f and a disturbance ε_d that is common to $\pi_{d,f}$ and $\pi_{d,p}$. If we assume that $\pi(\beta, \varepsilon) = \beta + \varepsilon$ and that $E(\varepsilon \mid f) = 0$, we can estimate β_f and β_p consistently by OLS, since $v_d = \beta_p + (\beta_f - \beta_p) f_d + \varepsilon_d$. The parameters β_i can be interpreted as the expected probability that an agent of type i votes for the FPV, where the expectation is taken across districts. The estimation results are shown below:

	2007 Presidential Election				2009 Legislative Election			
	Coef.	S.E.	95% CI		Coef.	S.E.	95% CI	
Free Traders	0.205	0.042	0.122	0.288	-0.086	0.041	-0.167	-0.005
Protectionists	0.858	0.058	0.742	0.974	0.774	0.057	0.660	0.888

Notice that both protectionists and free traders were less likely to vote for the FPV in 2009 than they were in 2007. However, the drop in the probability for free traders is more pronounced. To test the null hypothesis of an identical drop for both groups, we regress the difference in FPV votes between 2009 and 2007 on the share of free traders. Notice that:

$$v_{d,09} - v_{d,07} = (\beta_{p,09} - \beta_{p,07}) + (\beta_{f,09} - \beta_{f,07} - \beta_{p,09} + \beta_{p,07}) f_d + \varepsilon_d$$

We find some evidence against the hypothesis of an identical drop in probabilities: p-value 0.067.

The negative coefficient for free traders in 2009 suggests that our linear specification of $\pi(\beta, \varepsilon)$ may be incorrect. Therefore, we try a different specification: $\pi(\beta, \sigma, \varepsilon) = \Phi(\beta + \sigma\varepsilon)$, where Φ is the cumulative density function of a standard normal and σ is a parameter to be estimated. If we assume that ε is normally distributed, we can estimate β_f, β_p and σ by maximum likelihood. $\Phi(\beta_i)$ can be interpreted as the median probability that an agent of type i will vote for the FPV, where the median is taken over the distribution of probabilities $\pi_{d,i}$ across districts. The estimation results are shown below:

	2007 Presidential Election			2009 Legislative Election		
	Coef β_i	S.E.	$\Phi(\beta_i)$	Coef β_i	S.E.	$\Phi(\beta_i)$
Free Traders	-1.030	0.142	0.152	-2.567	0.336	0.005
Protectionists	1.437	0.288	0.925	0.385	0.051	0.650
Sigma	0.344	0.209		0.438	0.099	

Now, we obtain that free traders voted for the FPV with positive probability. Moreover, it is still true that the probability of voting for the FPV drops more in the case of free traders.

The estimated probabilities seem too extreme, i.e., our classification seems to imply a strong

negative correlation between the proportion of " free-traders" and FPV votes by district. It may be the case that, irrespective of their classification, individuals in more agricultural districts are less likely to vote for the FPV, independently of their source of income. In that case, f_d and ε_d are negatively correlated and our results would be unable to distinguish between individual and district-level political attitudes. However, even if that is the case, the fact that the aggregate source of income affects political attitudes at the district level is also consistent with the predictions of our model: service workers will support policies that increase the aggregate income of their district and boost the demand for their services.

One might suspect that these differences in political attitudes are driven exclusively by the heterogeneity in educational attainment across districts. However, if we classify individuals solely on the basis of their educational attainment, we obtain strikingly different results. The estimated probability for unskilled individuals (no secondary education) falls drastically, while the probability for skilled workers remains almost constant. Unskilled individuals employed in the primary sector were less likely to vote for the FPV in 2009, while skilled individuals employed in the secondary sector partially compensated for the loss of votes from skilled individuals employed in the tertiary sector.

	2007 Presidential Election				2009 Legislative Election			
	Coef.	S.E.	95% CI.		Coef.	S.E.	95% CI.	
Skilled	0.318	0.031	0.257	0.379	0.288	0.037	0.215	0.360
Unskilled	0.662	0.036	0.590	0.733	0.253	0.043	0.169	0.337

For comparison purposes, we present the maximum likelihood results for the specification: $\Phi(\beta + \sigma\varepsilon)$. Notice how similar the estimated probabilities are in the two specifications.

	2007 Presidential Election			2009 Legislative Election		
	Coef β_i	S.E.	$\Phi(\beta_i)$	Coef β_i	S.E.	$\Phi(\beta_i)$
Skilled	-0.491	0.087	0.312	-0.569	0.110	0.285
Unskilled	0.435	0.099	0.668	-0.698	0.138	0.243
Sigma	0.207	0.073		0.262	0.062	

This provides support for our claim that the source of income is a key determinant of individuals' political attitudes. In particular, individuals with vested interests in the primary sector and skilled individuals in the tertiary sector support free-trade policies. Individuals whose source of income is linked to the manufacturing sector support protectionist policies. Moreover, this exercise also suggests that individuals took into account the ideological and political stance of the FPV with respect to protectionism. Those who opposed protectionism were less likely to vote for the FPV in 2009 than in 2007.

Transition Remarks

The previous essay described a political process which locks a country into protectionism, with high tariffs and a manufacturing sector which supports protection. Yet Argentina did eventually break the self-perpetuating cycle and open its economy starting in the mid 1970s. As the previous article discusses, a military regime that was relatively willing to ignore political pressure from the trade unions and part of the business sector started opening Argentina's economy. As the size of the agricultural and service sectors increased, and with lower prices of imports, there was growing support for a more open economy. Gradually this led to a flow of resources away from manufacturing and a new political equilibrium. One of the main messages of the paper is that trade policies can have a large distributional impact in a country like Argentina and that policies that support a particular sector can create long-lasting effects by increasing the economic size of that sector.

But there are other ways in which political regimes can endure. Perhaps, most notably, a regime can have a long-lasting impact if it is able to change the very beliefs people have. Political regimes have long tried to indoctrinate the citizens in a mindset that is supportive of their policies. European kings attempted to persuade their subjects that their authority sprang from divine right and that to oppose them was to oppose the divine will. During the 19th century, traditional governments taught young students that they could earn success by working hard within the system and not causing trouble. Marxist ideology was ladled incessantly into the ears of young Russians during the 20th century, and German children during the 1930s received their fill of Nazi ideology.

Lenin famously said "Give me four years to teach the children and the seed I have sown will never be uprooted," which gives some sense of the power that he thought could come from using education to build beliefs. As it turns out, the power of Marxist indoctrination was limited and certainly did not seem to enjoy widespread acceptance even within the Soviet Union at the end of the 20th century. But there is no doubt that leaders have long tried to indoctrinate and persuade and certainly this persuasion has often had some effect. In Argentina, the worldview associated with Juan Perón, "Peronism," appears to be an enduring legacy of that leader that continues to shape Argentinian politics today.

The next essay begins by detailing the key ideas in the speeches of Juan Perón between 1943 and 1955. During this period, he had a powerful role in Argentinian politics and his speeches were widely heard throughout the country. Perón's speeches did not transmit standard forms of information, but rather offered an interpretation of Argentinian history. He explained Argentina's troubles in a way that flattered his listeners and lent support for his proposed policies.

In particular, Perón argued that there was a conspiracy between a corrupt state and malevolent businessmen to harm the Argentinian workers. Some of the bad businessmen were locals, but many were foreign as well. This cabal was responsible for Argentina's woes and strong Peronist

policies would, supposedly, eviscerate their power. By vilifying a set of capitalists, he could justify the expropriation of their resources, which could then, supposedly, be used to benefit the people. By vilifying foreigners, he could also justify closing the economy to outsiders.

Perón's form of populism is not unique, but it does seem to have had particularly long-lasting effects. The essay documents Argentinian beliefs during the 1990s and differentiates the beliefs of Peronists from other Argentinians. While the Peronists are typically seen as being similar to the Democrats within the American political spectrum, or the Labour Party in the U.K., in some dimensions like income or education, their beliefs are closer to those held by the more conservative parties.

The essay documents that Peronists and non-Peronists are both more likely to believe that poverty comes from an unfair society than laziness and that the country is run by a few big interests. In Argentina, as in many developing countries, the whole electorate is tilted to the left. But the Peronists actually look more Republican than their opponents. It seems that core Peronist beliefs are even more common among non-Peronists. As such, Argentina is split between the Peronists and the leftists, who have even less faith in the system (and in capitalism) than the Peronists. That is somewhat surprising given that the non-Peronists are somewhat wealthier than the Peronists.

The paper ends with a short model explaining the political value of Peronist sentiments. A tendency to feel anger at exploitation encourages the voters to support policies that are particularly harmful for business. Peronist beliefs then encourage this anger. Perhaps the essay's core message is that not only Peronist policies have generated their own dynamics, as emphasized by Galiani and Somaini, but also Peronist beliefs continue to influence Argentina and may help to perpetuate policies that limit economic growth.

CHAPTER SIX

Peronist Beliefs and Interventionist Policies

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Abstract

We study the logic of Peronist interventionist polices and the beliefs that support them. Instead of a comprehensive approach, we focus on three elements. First, we study beliefs and values about the economic system present in Peron's speeches during the period 1943-55. Second, we study survey data for the 1990's on the beliefs of Peronist and Non Peronist voters in Argentina and Democrat and Republican voters in the US. While income and education suggest that Peronists (in relative terms) look like the American Democrats, their beliefs and values suggest that Peronists are the Argentine equivalent of the Republicans. Third, given that these beliefs are non-standard (for economists) we present a model formalizing some of their key aspects (for example, the idea that there is something more than a material exchange in labor relations).

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I. Introduction

In a seminal study, Diaz Alejandro (1970) blamed Argentina's relative decline to the low rates of capital accumulation which followed the replacement of the export-oriented, market friendly policies by populist, interventionist policies around the time of the great depression (see also Taylor, 1994). In this account, broadly, Argentina's relative decline during the 20th century can be attributed to the prevalence of populist policies supplied by leaders who often exploit a mass of uneducated, poor voters. Peron and his followers play a prominent role in such narratives of Argentina's exceptional underperformance. There are interesting variations in this basic account. For example, it is often claimed that policymaking, even during relatively centrist administrations, was complicated enormously by the presence of a populist party demanding government intervention. And that political instability arising from attempts at suppressing the Peronists, particularly since the 1960's and until the 1980's, has been responsible for the low levels of private investment and weak overall economic performance of the country. In other words, in this account the problem has been Argentina's populist tradition which has fueled bad policies and political instability.

A troubling aspect of this account, however, is that it does not explain why voters find populist policies appealing. As stated, this narrative soon has to conclude that democracy is not a reasonable way to elect the country's leaders. Paradoxically, it should somehow also question the benefits that can be expected from free markets because the judgment of market participants cannot really be trusted. Indeed, humans in this account must have some type of dual type of rationality: on the one hand they are able to make reasonable use of information so that markets are in fact quite efficient, but on the other hand they are unable to see that the leaders they elect are bad for them. Rationality in this account of democratic capitalism is a bit like the Cheshire cat of Alice in Wonderland: now you see it, now you don't. In brief, while it is clear that populist policies play a big role in Argentine exceptionalism by interfering with capital accumulation, it is less clear in this narrative what the logic of populist policies is and what explains their popularity. Our study is concerned with these questions.

Economists have not made significant progress in understanding Latin American populism because they tend to find the interest group theory of policy quite compelling. In the standard account, bad policies are put in place by special interests and voters would get rid of them if only they cared to vote or were able to organize. Interestingly, however, voters do vote in large numbers (by and large, voting is compulsory in Latin America), so the empirical appeal of the interest group theory of policy formation, at least in its simplest form, is low. A more promising approach accepts that populist policies are in fact appealing to (at least some group of) voters and tries to explain this appeal within a rational model (by which we mean a model where agents try to do the best they possibly can, given their objectives –which may be broader than material payoffs). That is, broadly, the strategy we adopt here. The demand for populism is central to the political and economic legacy of Peronism which has marked the period going from Peron's

ascent to the secretary of Labor in 1943 until the present. Indeed, part of the political instability that characterizes Argentina after 1943 originates in the intense appeal of Peronist policies to a large group of voters and the difficulty in generating consensus around a set of basic policies that would have allowed the country to avoid macroeconomic instability.

Our analysis has three main parts, which follow a brief section on the historical and political background of Peronist policies (section II). In the first substantive part (section III), we use qualitative data from Peron's early speeches (1944-55) to provide some evidence on Peron's beliefs (i.e., positive descriptions of how the world works) and preferences (i.e., normative values describing how the world should work). These speeches suggest to us three simple but important points. First, Peron's policies were known to his voters (in contrast to later Peronist presidents, such as Carlos Menem in the 1990's, who was elected on a platform but changed it upon being elected). Second, what Peron is doing in the speeches, at least in part, is providing "meaning" by interpreting the evidence available in the light of (what we would call) a coherent model of the world. Although such "interpretation" is unusual in economic models, it is often discussed by scholars who study beliefs (and in "discourse analysis"). The third and final element in his speeches that we think is worth emphasizing is that he gives a prominent role to the forces that determine income. In contrast to what the literature on varieties of capitalism has emphasized in terms of the origins of income (distinguishing between effort versus luck), Peron emphasizes the role of others in determining (reducing) our income through exploitation. This emphasis results in a focus on actors (foreign countries and rich local elites, who would rather be living in Europe than in Argentina).[1] And in a focus on distinguishing the components of welfare: there are utility losses from being "exploited", which go beyond the material losses (losing one's dignity).

In the second part (section IV), we study Peronist beliefs after Peron's death and place them in comparative perspective by looking at data from the World Values Survey in the 1990's. Respondents that declare an intention to vote for Peronism are also those that have relatively low income and education. This is consistent with our analysis of Peron's speeches of the 1944-55 period, which appear to be on the left side of the political spectrum, and with specific events of that period (the burning of the Jockey Club, the anti-American slogans, etc). Indeed, a small literature on the subject has claimed that Peronism is the local version of the American Democrats or the British Labour Party. However, we can investigate the beliefs of these Peronist voters with respect to the origins of income (e.g., luck vs effort) and compare them with those of American voters. Our results suggest that Peronist beliefs tend to be more on the right of the political spectrum than the opposition (although all Argentine voters are quite lefty). In relative

[1] One of the Spanish words for "traitor" is "vendepatrias" (literally "seller of the motherland"). Acario Cotapos, a Chilean artist, once commented on the possibility of selling the motherland, adding "yes, and let's buy something smaller, but closer to Paris". Betrayal by the oligarchy during the decade prior to Peron's first government is emphasized for example, in Torres, (1973) and Hernandez Arregui (1973).

terms, Peronist beliefs in the 1990's appear to be similar to Republican beliefs. In other words, the opposition to Peron seems to have come from the conservatives while the opposition to the Peronists in the 1990's seems to have come from the ideological left (although in both periods the opposition seems to have been on higher income than the Peronists).

In the third and final section (Section V) we develop a model to explain this low "demand for capitalism". If voters maximize something else than just their material payoff, then even with correct beliefs about how the world works, they may demand bad policies (from the narrow point of view of maximizing income). A voter concerned with the fairness of outcomes is a case in point. Specifically, we assume that voters demand that firms behave kindly (and this must be true in some scenarios). When they do not, voters experience anger which decreases when such firms are punished. In Argentina firms are more likely to misbehave than in rich countries (perhaps because of low competition or because of low productivity) so the State must intervene ("regulate to humanize Capital"). Section VI concludes.

II. Peron, Interventionist Policies and Argentine Politics: Background

Beyond the obvious interest in a better understanding of the demand for populism, work on Peronism is important because of the crucial role of political instability in Argentina's relative decline. In 1930, as the World economic crisis affected Argentina, a military coup by a group with neo-fascist inclinations resulted in the first military government of the country. The succession of non-democratic governments (seven) which followed included episodes of serious violence, and ended in the presidency of Juan Peron in 1946. Since 1930, and until the Menem administration of the 1990's, no democratic president was able to complete its term, with the exception of the first Peron government. This coincided with Argentina's economic woes. Indeed, Argentina's comparative economic performance (see Figure 1 in Llach, 2010) reveals two periods where divergence appears to be present: the 1930's, when the series appears to begin to fall (with the exception of the Peron administration), and the 1970's, another period of heavy political instability, when the decline appears to accelerate.

This suggests, at least at this broad level of generality, that there is some merit in the hypothesis that political instability and relative economic decline are positively correlated. Interestingly, the rate of investment during 1930-40 (the "infamous decade") appears low (9.1%), particularly when compared with that of the XXth century (14.4%), or with the rate of investment prevailing during the decade prior to the start of the First World War (19.3%), one of the periods where the government was in the hands of "elitist" governments and the economy was relatively open to international trade. Figure 1 reveals that investment over GDP rises with Peronism, with an increasingly larger role taken by public investment (whereas in the early years it is mainly

private investment) until the fiscal crisis of the early 1980's.[2] A simple hypothesis suggested by the data is that political instability causes lower private investment, and that this is the main cause for Argentina's relative decline. This is a natural complement to theories of Argentina's relative decline emphasizing investment. Diaz Alejandro (1970, 1988), for example, has emphasized the difficulties in maintaining high levels of investment once the export-oriented, market friendly regime was replaced by the more interventionist regimes that follow the great depression. Taylor (1994) also emphasizes the role of the extremely high rates of capital accumulation pre 1913, explaining that subsequent protectionist policies resulted in a high relative price of imported capital goods and that this contributed to retard capital accumulation (for evidence on the role of machinery investment in growth, see De Long and Summers, 1991). A natural extension of this line of research is that political instability plays a similar role interfering with private investment and contributing to Argentina's decline. Of course then, a key is why do these interventionist policies get implemented and why does political instability persist.

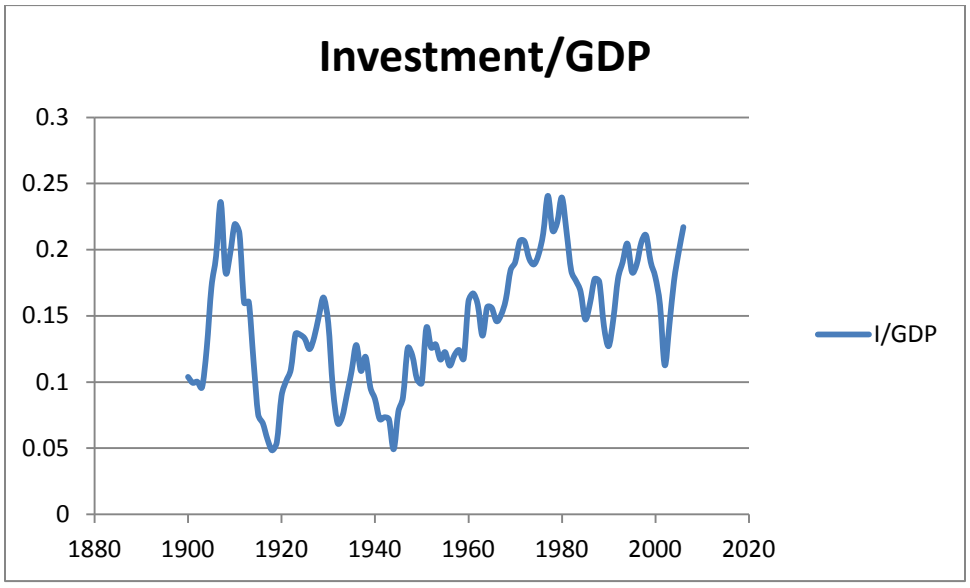


Figure 1: Total Investment over GDP. Source Gerchunoff and Llach (1998).

[2] For an alternative view of the investment performance, see Taylor (1998).

Several authors have emphasized the role of Peronism in Argentina's development.[3] Since General Peron's ascent to the Labor Secretariat in 1943 (with the Military Government of General Ramirez) he was the preeminent political figure of Argentina. Even after his death policies have been defined with relation to the Peronist political legacy (see, for example, O'Donnell, 1977 and Portantiero, 1973). Several hypotheses have been advanced to explain the causes of Peronist support. Germani (1962), for example, has emphasized the emotional fragility of internal migrants (from the provinces) and the charismatic, paternal nature of Peron's leadership. He provides an estimate of 83,000 migrants per year to the greater Buenos Aires area for the period 1936-47, increasing thereafter. By 1957, Germani estimates a doubling of the population in the Buenos Aires metropolitan area (form 3.4 to 6.3 million). Thus, labor became a central economic and political force in the country. During this period, the share of output accounted for by industry increased, so that the Peronist pro-labor policies go a long way in explaining its popular support, even if voters only had material concerns. Some authors estimate the increase in the real wage of unskilled labor in the Buenos Aires area at 17%.[4] It is unclear how much of this increase was sustainable, although there were presumably some economies of scale as the internal market expanded and higher profits from the continuing program of import substitution (see Galiani and Somaini, 2010). It is worth pointing out that anti-export policies also contributed to the increase in real wages through lower prices of food (see Brambilla, Galiani and Porto, 2010). Besides policies that directly supported labor, a variety of social programs in different areas were put in place, ranging from increased access to the free health care, to the creation of a comprehensive housing program to the establishment of a generous system of social security (for a good description see, for example, Gaggero and Garro, 2009). There was also the public-private partnership symbolized by the Eva Peron Foundation, a private entity run by Peron's wife, funded through contributions from the private and public entities and which distributed considerable amounts of social assistance (see, Stawski, 2005).

At the same time, institutional weaknesses played an increasing role in limiting the ability to generate political answers to the country's economic problems. Some have argued that specific aspects played a key role, such as electoral institutions giving preeminence to the party in the decision to re-elect politicians (see Jones, Saiegh, Spiller and Tommasi, 2000). Others have pointed out that there have been many political institutions, particularly since 1946, that directly led to unexpected changes in economic policy (see, for example, Spiller and Tommasi, 2004),

[3] There is, of course, a large literature on Argentina's economic performance and on the role played by Peronism which is in no way summarized or reviewed in the short paragraphs offered here as context for the relatively narrow set of points we try to emphasize. For a description of economic policies under the 1946-55 Peron government, see Gerchunoff (1989). See also Diaz Alejandro (1970), Cortes Conde (1998), Waisman (1987), Halperin Donghi (1994), Llach and Gerchunoff (1989), *inter alia*.

[4] See Murmis and Portantiero (1971). On the role of the support of socialist trade unions, see Torre (1989). See also Horowitz (1990), Di Tella (2003) and Torre (1990), as well as O'Donnell (1977), and the contributions collected in Brennan (1998) and Miguens and Turner (1988).

although electoral fraud preceded Peron and may have lent some legitimacy to some of the abuses of the Peronist regime (see, for example, Alston and Gallo, 2009). Naturally, the ability to protect the rights to property under weak institutions was limited and there is the possibility that this is what led to weaker investment performance (see, for example, Adelman, 1999, Cortes Conde, 1998 and Alston and Gallo, 2009). [5] It is worth noting that there was less access to external capital after the great depression (see Taylor, 1994). Foreign direct investment fell somewhat in importance, albeit from very high levels (Diaz Alejandro, 1970 reports that foreigner's share of the stock of capital in 1927 was 34%, down from 48% prior to the First World War).

A somewhat different picture emerges from the period leading to the Peronist administration of the 1970's. The relatively closed economy of the 1960's experienced difficulties adjusting to economic expansions as increased imports often led to periodic balance of payments crises and inflation. Against this background, and with the political proscription of Peronism, attempts at using wage and income policies to stabilize the economy were unsuccessful. More often the military governments focused on reducing wage pressure, typically by restricting trade unions (for example the Ongania government imposed a wage freeze, attempted to increase working hours, limited labour strikes and suspended the legal status of several trade unions). Tensions soon fuelled the presence of left wing elements, and fighting communism became a serious government concern. As riots erupted in Cordoba, left wing terrorism became a political force, with some legitimacy (given the lack of democracy) and a claim to centrality in the Peronist "movement". There is some evidence that Peron himself encouraged this identification with the left.[6] During the 1970's kidnappings and assassinations reached their peak, as the terrorist organizations (the Marxist People's Revolutionary Army and the Montoneros -of Peronist extraction) clashed with the police and armed forces (see the data on the assassination of policemen in the province of Buenos Aires in Boruchowicz and Wagner, 2010). Eventually, in the 1970's, with the terrorist organizations still active after his return to the country's presidency, Peron broke with them in a dramatic speech, ejecting them from the Plaza de Mayo. Thus, in contrast to the early years, when Peronism arrived and launched a true workers movement opposed to the Conservatives, during the 1970's the opposition to Peron seems to have come from the left. The survey data reported later is consistent with this description.

In brief, it seems clear that Peron's arrival on the political scene in the 1940's coincided with the increased importance of labor in Argentina's economy, and a reduced importance of openness to

[5] Saiegh (2007) emphasizes that, even during the early market-friendly phase following the passing of the liberal constitution in 1853/60, the security of some rights to property (for example on public debt) depended on political considerations such as the extent of partisan control over the legislature.

[6] For example, while in exile in Madrid, Peron appears to have designated John William Cooke, a man who argued for "armed struggle" based on the Cuban model, as his main representative in the country. There is ample evidence of the armed group's identification with Peron (see Baschetti, 2004).

foreign capital and trade as the global economy was affected by the war and the Great Depression. Accordingly, Peron's ideology reflected a degree of nationalism and faith in government intervention that would persist over time. The opposition, however, seems to have evolved from a traditional conservative position to a position that is much more on the left of the political spectrum.

III. Peron in his own words

There is some difficulty in defining exactly what Peron's political legacy is. Some have argued that because he was a fascist sympathizer, his ideological legacy must simply be fascism. This would answer the question of how bad policies come to be implemented: Peron's authoritarian rule imposed such polices. For our purposes, the biggest problem is that such policies appear to be popular with the electorate and they continued to be so even after Peron was deposed and the most egregious aspects of his authoritarian rule (such as indoctrination) were no longer active.[7] Furthermore, Peronism seems to involve opinions about economic independence that are central and easily compatible with less authoritarian political forms. It is of some significance that Peron's political ideology was developing in the immediate aftermath of the First World War. Born in 1895, he was 28 years old as the Weimar republic was struggling with the war reparations, which became a convenient scapegoat, together with bankers, Jews and foreign speculators, so it is perhaps unsurprising that attribution (particularly to external forces) plays a big role in his speeches. And he was 35 as the Great Depression affected the world economy and rich countries were starting to cope through public works programs and government spending (in part linked to rearmament). Perhaps even more significant, in 1935 one of the first actions of the newly created central bank was a bailout of the banking system at a large social cost (della Paolera and Taylor, 2002). Thus, it must have been clear to him that large shocks could disrupt the macroeconomy to a very large extent, making individual effort often irrelevant in the determination of income.

The Peronist regime of the 1940's and 50's accompanied the economic changes that were implemented, first from the Labor Secretariat and then from the Presidency, with a powerful new rhetoric that gave workers a preeminent role in the formation of policy. Keynesian ideas were

[7] One difference with fascism, for example, is that trade union leaders were closer (more loyal) to members of the union than to the government (perhaps in spite of Peron's wishes). Also, there were attempts at constructing "Peronism without Peron" and instances of trade union leaders who were perceived to be quite independent of Peron (leading to the extreme view that Peron himself was involved in the killing of trade union leader Vandor). And, most importantly, large increases in the Labor share of GDP took place under Peronist administrations (for historical evidence and a comparison with Australia, see Gerchunoff and Fajgelbaum, 2006). However much weight one gives to these considerations, it seems the distance between fascism and Peronism, at least in their authoritarian styles and rhetoric, is not large. See Germani (1962) and Lewis (1980), for interesting discussions.

becoming known, at least through Roosevelt's actions and some of the main ideas were making their way to Argentina.[8] Rhetoric, of course, was only one element in a broad attempt to create support for the social and political changes that would sustain the redistribution of income at the core of Peronist policies. Other elements included a set of political rituals linked to mass mobilization, the emotional appeal of Evita and a clear attempt to influence people's perceptions and beliefs through propaganda. Although we study Peron's speeches, we note that this might be a relatively narrow focus, particularly given the discussion of these elements appearing for example in Plotkin (2003). Of course a potentially important determinant of beliefs is the education system and the Peronist regime heavily intervened in the design of the national curriculum and the public schools system (see, for example, Bernetti and Puiggros, 1993, Bianchi, 1992, and Escude, 1990).

There is important previous work in the field of discourse analysis focused on Peron's speeches by Sigal and Veron (2003).[9] They analyze several aspects of his speeches and put special emphasis on their political dimension. For example, Sigal and Veron put forward the interesting hypothesis that Peron actively constructs the notion that he "arrives" to the State from the "outside" (a life dedicated to the military) to provide unity/harmony to a divided country (during 1973-4, the main focus of their analysis), which is significant given some of the electoral decisions made at the time. In contrast we focus on the economic dimension of his speeches. The material we studied was contained in 62 speeches, delivered between October 15th 1944 and May 1st, 1953. They include a few speeches during rallies (as reported in the media), some speeches during particular celebrations, as well as messages to congress and other legislative bodies.

Peron's Speeches

The first striking point (to an economist) of his speeches is their low informational content. In contrast to what might be expected, they are not of the form: "I am informing the people of Argentina that we are facing a shock with the following characteristics, and here is what we are going to do about it." In other words, they are not predominantly exercises in the transmission of information. Rather, they are heavily interpreted narratives of what has happened in the past, and how the conclusions that we draw from looking at history can help us shape policy in the present. In brief, a key element of the speeches is that they are primarily centered on the reinterpretation

[8] Federico Pinedo and Luis Duhau, together with Raul Prebisch, put in place the Plan de Acción Económica Nacional in 1933. They were influential in affecting foreign trade and in the creation of the Argentine Central Bank in 1935. Della Paolera and Taylor (1999) describe heterodox monetary policy after 1929, the change in beliefs and expectations following the shift in monetary regime and the relatively mild economic depression.

[9] There are several interesting cultural aspects of Peronism that we do not discuss, including the focus on one date (October 17th), when Peronism "starts". For a discussion and several of the key details of the mass mobilization that took place during October 17th, 1945, see James (1988).

of already available information. Also, scholars working on analysis of discourse would say he is engaged in the "production of meaning". In particular, such research is concerned with establishing the "source's relationship to the content" (related in this case to the source's status). Under the assumption that minds and memory are malleable in this way, an economist would have no problem modeling it as a (self-interested) activity of the politician. An example is Glaeser (2004), where politicians supply stories and voters fail to investigate their accuracy. Finally, the speeches can also be interpreted as trying to influence the system of values of the population. In this regard, Rokeach (1973) is an influential study of value systems and their impact on behavior (also focusing, in part, on the writings of major political figures). See also Converse (1964) and for a recent review, Kinder (1998).

The second, and perhaps key part of this "interpretation exercise" is that Peron assumes the role of a heroic whistleblower, denouncing a corrupt state of affairs where politicians are bought by one particular group in society (the economic and cultural elite, who are seduced by all things foreign) in order to enact policies against workers and the poor. It is a variation of the theme of Peron's "arrival" as an external player (as emphasized by Sigal and Veron but with special significance for the beliefs about the generation of income). One example is:

> It can be seen that, not knowledgeable of the art of pretending, I have exposed the anguishing situations that burdened my feelings as I absorbed the Daedalus of laws and decrees (…) which in a large number of cases restricted the rights of workers, or, if they recognized them, it would be to kill the last trace of the hope of justice. May 1st 1945

> I have been accused of having agitated the conscience of the country's workers. Of having created a social problem where none existed before … instead of silencing the inequalities and social injustices, I have uncovered them so that we all could know where evil was and we could find the more convenient medicines. ... The previous tactic consisted in faking a social welfare … with the exclusive aim of not disturbing the good digestion of the golden Bourgeoisie. May 1st 1945.

Another characteristic of his speeches is the continuous attempt to reassure supporters that he has a coherent view of the world. Examples take place in several speeches, but the one on May 24th, 1950 is centered on explaining Peron's theories. He begins by reacting to accusations that his is not a coherent economic plan stating,

> It has been said that … the Justicialista movement lacks an economic theory. Nothing more untrue. We have a perfect economic theory. What happens is that we have not yet spelled it out because we did not want that the oligarchs, or the capitalist consortia that exploited the country through conscienceless and avaricious bosses, could, knowing our plan, stop our action … When we have been able to dominate these international monopolies or the forces of the anti-motherland, then we will explain our theory to the world. May 24th, 1950.

And he explains (in the same speech) some details

> … old economic theory … was based on a principle called "hedonic". … what does it represent? The capitalist says "my capital is the basis of the economy because I am the one who promotes, pays and makes. As a consequence I produce 10, and don't produce less or more as in both cases I lose." But me, the sociologist, I tell him: "Yes sir, you produce 10, but here this man has to eat and he tells me that 10 is not enough, he needs 20". Then the capitalist replies to me "Ah, let him explode, let him eat with 10 because if I produce more of that I lose money."… That is when the hedonic principle stops being so naturally rational, least of all from the point of view of welfare, which is the basis of all organized communities. … we do not want an economy subordinated to capital, we want capital subordinated to the economy … If, after that, the capitalist is able to fill its coffer with gold, let him do it; we don't care; even better if he does. But we can't do that until the people is satisfied and happy and has the purchasing power needed to achieve a minimum of happiness, without which life is not worth living. May 24th, 1950.

We now turn to three aspects of Peron's speeches that lay the foundations for our model in section V: a description of the types of businesspeople, elaborations on the idea that "others" determine our income, and finally some ideas on what constitutes appropriate Government policy.

Types of Businesspeople

The "conspiracy" that Peron comes to uncover is relevant to workers because it identifies an influence on their income. This representation requires that capitalists, at least until Peron's "arrival", were unkind (inconsiderate or who made their money through corrupt means). The speeches include constant references to such "bad types" amongst businesspeople.

> People have been faced with the idea that a fateful lodge of demagogues was the ruling class of the country, its elite, and as such was made up by wise, rich and kind people. It has to be pointed out that the wise have rarely been rich and the rich have rarely been kind. October 15th, 1944.

> In other words, those privileged by the capitalist regime are finished; those that had everything, that took the cow in the ship when they went to Europe to have coffee with milk. No, let's have them have coffee with milk, but with powder milk. It is not that bad for them. May 12th, 1950.

> It used to be easy for capitalists: when there was a strike workers were put in jail, they were processed and they didn't rise again. … Remember Vasena. … Workers confronted the situation but the result was several thousand men dead. The oligarchs were all home doing the "five o' clock tea". … It used to happen that a capitalist who was almost bankrupt was made to earn, with just a signature, two or three million pesos without him

having the need to do more than wake up in the morning and ask over the phone if the matter was ready. In this way favors were being granted upon someone who perhaps was a shameless one. August 9th, 1950.

"Others" determine our income

With "bad types" amongst the capitalists, it was easier for Peron to press forward with the idea that the process where income was generated was under their influence. This matches well with the widespread belief that Argentina is a rich country and one has to find an explanation for why there is want amidst plenty (for a discussion of belief formation when natural resources are important, see Di Tella, Dubra and MacCulloch, 2010). Indeed, one part of his speeches can be reduced to arguments in support of the idea that instead of individual effort (internal to the individual) or luck (external but without intention), the relevant influence on income is an external force with human intention. It is "others" who are actively taking actions which lower Argentinian's income. It is not a question of making a bigger effort at the individual level; nor a question of taking a collective stand to reduce the influence of natural elements (through insurance or a better selection of activities and crops). It is a question of actively opposing other actors that try to exploit Argentines (on the role of corruption perceptions in explaining the appeal of capitalism, see Di Tella and MacCulloch, 2009).

There are numerous examples of this conception of the income generating process, and the support of the State in enforcing it, in Peron's speeches. One example is

> The economic destiny of workers was exclusively in the hands of the bosses ... and if workers organized a protest movement or adopted an attitude defensive of their rights, they were left out of the law and exposed to the bosses' response and the police repression. … A group of capitalists, characterized the most by its continued, bloody opposition to workers' vindications, has plotted an unthinkable maneuver to neutralize the steps that had been adopted to stop the rise in the cost of living … and counteract the effects of inflation. May 1st 1945
>
> … we need arms, brains, capital. But capital that is humanized in its function, which puts the public's welfare before a greedy interest in individual profit. I express my strongest rejection to the God of unproductive and static gold, to the cold and calculating supercapitalism that harbors in its metallic gutters Shylock's infamous sentiments. May 1st, 1947.
>
> In the year 1943 our economy was in the hands of foreign capitalist consortia because, until 1943, those consortia were those that paid a vile price to producers, gathered,

> exported, transported and sold to foreign consumers the produce of Argentine work. It cannot be doubted that in such intermediation went most of the profits. March 5th, 1950
>
> There might remain some former exploiter of human labor, who cannot conceive an Argentine nation socially fair, … or some old lawyer of foreign companies who might yearn for the times of the Bembergs, when treason was also profitable… May 1st, 1950.
>
> 300 families, in our country for example, put together their capital and enslaved 17 million Argentines. August 9th, 1950.
>
> We are in favor that a man might enrich himself working, but we oppose that he might do so defrauding or taking advantage of other people's weaknesses. We want (…) that each Argentine has prosperity and good fortune within reach, but we do not accept that in order to obtain them he would commit crimes against other Argentines or against the community that we all are a part of. March 5th, 1952.

On some occasions, as in the reference to Bemberg above, Peron names specific members of the elite, although less than one might imagine if he was stirring up hatred against the rich. In one case they are described as guilty of exploiting capitalists themselves. One example is

> The monopoly, be it called … Bunge y Born, Dreyfus, etc. … was the one doing the gathering … the poor producer received six pesos and this intermediary octopus received thirty or forty for what somebody else had produced … When this is organized properly, the small farmer will produce, transport, gather, sell; and the product will go exclusively to him and not for the "smart one", who constitute a tumor that was placed in the middle. August 9th, 1950

Yet in some of these same speeches he distinguishes between local and foreign capitalists and justifies the behavior of the former. This is often mentioned in the context of speeches with a strong nationalist component.

> When I have said that there was excessive exploitation, I have not blamed our bosses, because I know full well that our bosses were themselves exploited from the other side (…) That is why we have bought the railroads and everything else concerning public services (…) May 12th, 1950

Appropriate Government Policy

These descriptions of the state of affairs in Argentina at the time naturally lead to the justification of a set of interventionist policies adopted to address the main problems. Interestingly, in these portions of his speeches, the announced policies are not only linked to the solution of the set of economic problems uncovered, but also to the type of people

Argentines (who implement these policies) are. There is a connection to identity in that there are (apparently discreet) categories of people that take certain actions, so that when these actions change, identity also changes, which appears inherently desirable (for a model of identity, see Akerlof and Kranton, 2003). It is as if people who are able to defy their exploiters and stand up for their rights and cannot be fooled into accepting compromise solutions are true Argentines.

The speeches provide several examples of the interventionist policies that match the needs created by Peron's description of the main problems faced by Argentina. These include,

> We implement, in a loyal and sincere fashion, a social policy designed to give workers a human place in society, we treat him as a brother and as an Argentine. October 15th, 1944.

> No man should earn less than what he needs to live. … We said that there is a line for life determined by the minimum essential wage, and those below that line were the submerged; and that in our country there could not be "submerged"; everyone had to be "emerged". October 21st, 1946.

> If we have intervened in some (enterprises) it has been because we had to somehow (avoid) the constant outflow of national wealth. (…) not only we respect private activity, but we also help and protect it. The only thing we don't want is a return to the old age of monopolistic consortia of exploitation. We want that men work (…) as they see fit but we do not want that it takes place at the expense of the consumer or the producer. We want that he who produces wealth may place it without pressure or exploitation of any type. February 7th, 1950.

> The Estatuto del Peón, might not be to the liking of some exploiters-without-conscience, (…) who have been upset at the possibility that I might defend with more enthusiasm the perfecting of the human race than that of Argentine bulls or dogs. March 5th, 1950.

> One of the barriers to national unity was undoubtedly the injustices committed by the capitalist oligarchy exploiting workers with the complicity of the authorities … in charge of distributive justice. ... A people with an immense majority of slaves cannot be free, just as a free people can never be subjugated. … I am not exaggerating when I say that in 1943 there were slaves in the Argentine Republic. May 1st, 1950.

> Today, May 1st, the La Prensa newspaper … will be handed over to the workers … This newspaper, which exploited its workers and the poor during years, which was a refined instrument of all foreign and national exploitation, which represented the crudest form of treason to the motherland, will have to purge its sins serving the working people. May 1st, 1951.

> The government is committed to enforcing price controls, even if that means hanging them all. … They have a right to earn, but they don't have a right to steal. May 1st, 1952.

This simple overview of Peron's speeches suggests to us that a key component of Peronist beliefs is the idea that welfare can be affected by others. This suggests two changes to the standard formulation in economics, where agents are assumed to derive income from individual effort or from luck (which is beyond anyone's control). The first is that other players can affect an individual's income (local elites, foreign countries). The second is that labor relations have a non-monetary dimension, which we interpret as an influence of fairness in people's welfare (and not just income). Given these beliefs, there is a role for government in ensuring that workers are treated with dignity ("humanize capital"), which we interpret as some reassurance that firms are behaving with some reasonable amount of concern for workers' well-being.

IV. Peronism and the American Democrats: Differences in Survey data on Beliefs and Values

Given Peron's continued influence on political and economic events even after the 1955 coup, it is of interest to provide at least some evidence on the later evolution of Peronist beliefs and values and to place them in comparative perspective (for example, by comparing them to American beliefs as a benchmark). The approach we follow is to focus in a snapshot of the public's interpretation of Peronism at a later date. Unfortunately, continued survey data from different periods is unavailable. However, we have data on beliefs and voting pertaining to the 1990's from a comparative survey that contains data for the US and Argentina (and other countries). Of course, the 1990's was a period where both the US and Argentina are ruled by two politicians, Menem and Clinton, that are elected on a platform that is on the left of the political spectrum but who end up implementing reforms that are more consistent with centrist/conservative values. In the case of the US this happens only after there are mid-term electoral losses and mainly involve welfare reforms and the dropping of some of the less popular initiatives such as healthcare reform, whereas in the case of Menem they were larger and made from the start of the term, and they involved a complex relationship with the labour movement which was an important supporter (see Murillo, 2001, Levitsky, 2003 and Etchemendy and Palermo, 1998, for discussions; on policy reversals in Latin America during this period, see Stokes, 2001).

Our interest in comparisons with the US comes from a hypothesis "explaining" Peronism, namely that it is the Argentine version of the American Democrats (given that they are supported by similar demographic and socio-economic groups). A similar point is also made with respect to Peronism's association with the British Labour Party. Cross-country survey data on people's

opinion about elements of capitalism is available from the World Values Survey. Coordinated by Ronald Inglehart, the 1995-97 wave asks adults (older than 18) in over 50 countries several questions of interest. In the US, the data is obtained from a representative sample of individuals age 18 and older through face to face interviews. In Argentina, sampling was limited to the urbanized central portion of the country, where about 70 per cent of the population is concentrated.[10]

Importantly for our purposes, the survey contains data on (self-reported) voting, allowing us to derive measures of vote intention, or at least sympathy, towards the main parties in the country, including Peronists. Thus, we first divide the sample in Argentina in two groups: between those that declare to vote for Peronists and those that declare to want to vote for other groups. The precise question asked is: "If there were a national election tomorrow, for which party on this list would you vote? Just call out the number on this card." Then a card with "1. Partido Justicialista, 2. Union Civica Radical, 3. Frepaso, 4. Modin and 7. Blank ballot" is shown. Peronists are those answering 1, while Non Peronists are those answering 2, 3 and 4. In the US, a similar procedure allows us to determine two subsamples: Republicans and Democrats.

We then used a measure of income to divide the sample into two categories (rich and poor). The question asked was "Here is a scale of incomes. We would like to know in what group your household is, counting all wages, salaries, pensions and other incomes that come in. Just give the letter of the group your household falls into, before taxes and other deductions." Then a scale with 10 groups, corresponding to the income deciles in the country is shown (this scale is different in each country). We classify as poor those in the lowest 5 categories. Table I shows that 69 percent of Peronists, whereas 59 percent on Non Peronists, report incomes that are in the lowest 5 categories. In the US, within those admitting a preference for voting a particular group, we note that within those that prefer the Democrats, 42 percent declare to be in the lowest 5 deciles while only 29 percent of Republicans. This broadly corresponds to the idea that Peronists and Democrats share a similar base of support (at least in the limited sense that they have more support amongst the poor than the opposition). Table I, also shows results using educational attainment and reaches a similar conclusion.[11] These results echo the conclusion of a Peronist politician who declared upon looking at an electoral map, "progress complicates us, education kills us". In auxiliary tests (not reported) we tried self-reported social class and reached similar

[10] Within this region, 200 sampling points were selected, with approximately five individuals being interviewed in each sampling point through multi-stage probability sampling. Regions include the nation's capital, the greater Buenos Aires area, Cordoba, Rosario, Mendoza and Tucuman.

[11] The question asks "What is the highest educational level that you have attained?" and it provides as possible answers the (functional equivalent for each society) of "1. No formal education, 2. Incomplete primary school, 3. Complete primary school, 4. Incomplete secondary school: technical/vocational type, 5. Complete secondary school: technical/vocational type, 6. Incomplete secondary: university-preparatory type, 7. Complete secondary: university-preparatory type, 8. Some university-level education, without degree, 9. University-level education, with degree".

results: Peronists and Democrats seem to represent similar groups in their societies (the poor and those with low educational attainment).[12]

Given our interest in the role of beliefs, it is relevant to see if these similarities extend to beliefs about the role of luck and other economic issues. The classic belief concerns the role of luck (versus effort) in the generation of income. The question usually used to capture this belief is "Why, in your opinion, are there people in this country who live in need? Here are two opinions: Which comes closest to your view? 1. They are poor because of laziness and lack of will power, 2. They are poor because society treats them unfairly". The results are summarized in Table II. The main pattern is that the whole electorate in Argentina seems to be on the left of the political spectrum, as most people seem to believe that poverty is the result of luck (or that society treats them unfairly) rather than laziness. However, in relative terms the Peronists seem to exhibit a pattern closer to the one of the Republicans instead of the Democrats. Indeed, the biggest proportion of believers in laziness as a source of poverty takes place amongst Peronists and the Republicans. The Peronist ratio of believers in Laziness (39%) to believers in an unfair society (61%) is 0.64, whereas amongst Non-Peronists it is 20% to 80%, for a ratio of 0.25. On the other hand the percentage of believers in laziness (unfair society) amongst the Democrats is 49% (51% respectively), whereas amongst the Republicans is much higher 75% to 25%. Focusing on the ratios of laziness to unfairness, the Democrats have a ratio of 0.96, whereas that for the Republicans is 3.

As another illustration, Table II considers the question "Generally speaking, would you say that this country is run by a few big interests looking out for themselves, or that it is run for the benefit of all the people?" with answers "1. Run by a few big interests, and 2. Run for all the people". Again we find that the two groups in Argentina (Peronists and Non Peronists) tend to give the answer that is presumably on the left of the political spectrum (Run by a few big Interests), but the relative position of Peronists in Argentina is more like the relative position of Republicans than of Democrats.

Table III considers several beliefs that are relevant to understanding Peronists beliefs and values. They all point out in a similar direction in relative terms: the Peronists (relative to the opposition) tend to look like the republicans (relative to the Democrats). In all cases the ratio in Argentina and in the US are on the same side of 1. Take for example the idea that workers should follow instructions at work. We split answers into two groups, those answering "they should" on the one hand and those that answer either "it depends" or "they should be convinced first". The majority of republican voters (77% of them, or in a proportion 3.35 to 1), perhaps not surprisingly, tend to answer that workers should follow instructions. Democrats have a similar position but less

[12] The question used reads "People sometimes describe themselves as belonging to the working class, the middle class, or the upper or lower class. Would you describe yourself as belonging to the: 1. Upper class, 2. Upper middle class, 3. Lower middle class, 4. Working class, 5. Lower class"

intense (the proportion is under 1.4 to 1). So, in relative terms, Republicans are somewhat more likely to agree with this statement. In Argentina we have the opposite absolute tendency: most people disagree with this statement, as reflected by both Peronists and Non-Peronists having ratios that are lower than one. However, the ratio for Peronists is somewhat higher than that for Non Peronists, suggesting that in relative terms, Peronists are more likely to agree with the idea that workers should follow orders than Non Peronists, which is surprising given Peronist's affinity with labor causes, at least as detected in Peron's speeches.

The rest of Table III investigates a number of other beliefs and values appearing in Peron's speeches. For example, he discusses competition on his speech of March 5, 1952 "Progress and individual prosperity cannot be based rationally in the harming of others because that unleashes an egoist and merciless struggle, which cancels all cooperation, destroys solidarity and ends in dissociation". The beliefs covered in the Table include those related to the role of luck versus effort in the determination of income and the role of others in affecting individual fates (already discussed), as well as those related to feminism (Jobs for Men), authoritarian views (Respect for Authority), materialism (Less Emphasis on Money), honesty (Acceptable to Cheat), competition (Competition is Harmful) and economic organization (Ownership of Business). In all cases, the answers given by Peronist voters (relative to those given by the opposition) are similar to the answers given by Republicans (relative to the Democrats).

In brief, the evidence from the 1990's suggests that the opposition to Peronism is on the ideological left, even though they are on higher income and educational achievement than the Peronists. If it is true that the opposition to Peron came from the conservatives, then it is plausible to conclude that Peronism has experienced less ideological change than the rest of the country.

V. A Model of Labor Market Exploitation based on Altruistic Preferences

The previous sections highlight the role of several elements that are non-standard in economic models. Two that are of particular interest to us are the idea that there is something more to market transactions in the labor market than just the exchange of work for money. There is also the possibility of exploitation, connected to firms owners who do not care about the welfare of their workers. The speech of August 9, 1950 is typical. Note that the part where Peron states "Workers confronted the situation but the result was several thousand men dead. The oligarchs were all home doing the 'five o' clock tea'." he says "five o'clock tea" in English, which serves to stress the contrast between the fate of workers whose life is in danger with that of employers who are oblivious to their predicament and more preoccupied with engaging in a social practice that is the norm in England. Accordingly, the model we develop is one where there is the

possibility of worker exploitation by “unkind” elites, and Peron’s punishment of these elites provides increases in worker total utility through an emotional (non-material) channel.

The model in this section is an adaptation of the model in Di Tella and Dubra (2009) to labor markets. It stresses the idea that a policy that may not be optimal under “standard” models (that ignore emotions), may become optimal if workers experience anger when they are exploited, and the government knows it. In order to make our point, we introduce emotions in the form of worker anger at perceptions of insufficient firm altruism (as in Levine, 1998 and Rotemberg, 2008) in the textbook version of Salop (1979).

There are *n* workers, each characterized by a parameter *x* interpreted, as either a

1) "preferred variety; preferred workplace" this can represent
    a. A taste for working in one industry over another
    b. A cost of reconverting the workers’ human capital to another industry.
2) ”location parameter; how far away do I live from my workplace".

For each worker, his location is drawn from a uniform distribution on the circle of circumference 1. There are *m* evenly distributed firms along the circle (there are m firms, but we use b=1/m as the relevant parameter measuring concentration); firms are of one of two types, altruistic or selfish. Workers can supply either one unit of labor, or 0; this binary choice is a simplification, which is in line with the indivisibilities postulated in Hansen (1985). Individuals’ gross utility of not working is *s*; when they work, if they have to travel a distance *x* (or they are *x* away from their preferred job) and they receive a pay of *w*, their net surplus is *w-tx-s* (i.e. they have a transport cost of t per unit of distance traveled).

In addition to these material costs, the worker may become angry with the firm for which he works. There are several reasons why incorporating emotions in this setup makes sense. First, simple introspection tells us that we don’t always do what is best from a narrowly defined “economic” perspective. Second, a large body of literature has shown in the laboratory that individuals don’t always maximize the amount of money they receive (even when the choices don’t involve effort), and that emotions play a significant role. This reaction has been modeled as a preference for fair outcomes (see, for example, Fehr and Schmidt, 1999), or in the above cited papers by Levine (1998) and Rotemberg (2008) who show how the introduction of a reciprocal altruism term in the utility function can explain quite well the seemingly paradoxical evidence from ultimatum games. Finally, a third motivation to include emotions in our model of the labor market is that Peron’s speeches contain several direct references to the effect of Peronist policies on emotions. For example, he states:

> What is the social economy? It is a change in the old system of exploitation, not like the communists want, but in a gentler form. The capitalist regime is an abuse of property. The communist solution is the suppression of property. We believe the solution is not the suppression of property but rather the suppression of the abuse of property. … We are not

involved in social ordering that will take the country into a fight but rather to calmness. June 24th, 1948.

If a worker is angry, we must subtract to his utility, a term $\lambda(\pi+p-w)$ where p is the productivity of the worker in the firm and π is the profit the firm obtains from the other workers. This term is just a "spite" term: when angry, the worker dislikes the firms making a profit, and he is angrier when he contributes to those profits. What triggers anger is that the individual rejects the hypothesis that the firm is altruistic.

In this market, firms choose wage levels (i.e. it is not a competitive market) w and get in exchange a product of p per worker, so when total employment is E its profits are $(p-w)E$. If the firm is not altruistic, that is all there is in the firms' utility (utility = profits). If the firm is altruistic, its utility is profits plus a term that depends on the utility of the worker. The altruistic firm has a cost of α if worker utility is lower than a certain level (this level is exogenous for this model, but can come from learning, adaptation, history, etc). We call the threshold τ; we will set it to be the utility the worker would obtain in a "fairly competitive" labor market (see below).

In what follows, and without loss of generality, we normalize $t = 1$ and all other parameters are just "normalized by t". This normalization is completely general. We also assume (without loss of generality) that the number of workers is n=1.

Equilibrium

We will analyze a signaling game, in which firms, when choosing a wage level, signal their type. An equilibrium in this setting is a triplet [$e(w,x;\mu),w(\theta);\mu(w)$] where:

- $e(\cdot)$ is an "employment" decision strategy (the same for all workers; we are looking at symmetric equilibria) as a function of wage, tastes x (or distance) and beliefs μ (of whether the firm is altruistic or not) into {0,1}, where a=1 means "work" and a=0 means "don't work";
- $w(\cdot)$ is a function that maps types into wages (one wage for each type; the same function for all firms);
- $\mu(\cdot)$ is a function that maps wages into [0,1], such that $\mu(w)$ is a number that represents the probability that the worker assigns to the firm being altruistic.
- e is optimal given x,w and μ; w is optimal given e (and other firms playing w); μ is consistent (it is derived from Bayes' rule whenever possible).

We will focus on equilibria where beliefs are of the sort "I reject the firm is altruistic iff its wage w is such that $w < w^*$ " for some w^* (it may be a target wage). We are ruling out (for example) equilibria in which the worker rejects that the firm is altruistic if the firm pays a wage $w > w^*$ (i.e. the worker comes to believe the firm is selfish even if it is paying a wage above the "target"

wage; which would be of course unnatural); in standard signaling models, beliefs like these may still be part of an equilibrium, because in equilibrium one does not observe wages $w > w^*$ and so the consistency condition (that beliefs be derived from Bayes rule) places no constraint on beliefs.

Oligopoly

In this section we characterize the pooling equilibria in an oligopoly. Of course, there may be separating equilibria too. But we focus the analysis of pooling equilibria for four reasons.

1.The first is "analytic": we want to know whether the set of parameters for which there exists a pooling equilibrium shrinks as the number of firms decreases; since there is no anger in pooling equilibria, this would establish that the "chances" of anger appearing are larger when there is less competition.
2. The second reason for focusing on pooling equilibria is “historic”: in Peron’s speeches there is a reference to the possibility that capitalism works well in some circumstances (for example, there is a reference to this “calmness” in the speech of May 1st 1945). This “benchmark” case, form which the local elites have departed, is represented as a pooling equilibrium.
3. The third is to avoid making choices that would need to be made, and that however we resolved them, would leave some readers unsatisfied. Take for example the following. In a separating equilibrium, workers are angry at some firms; when they are, the optimal wage by the firms is higher (than if they are not); this leads to a larger material utility for workers. This leaves us with the conundrum that selfish firms are giving to their employees a higher material utility, and yet they are angry. This begs the question: are workers (in reality, not in the model) angry because the firm is selfish, or because the firm acts in ways that harms its employees? Put differently, would you be angry at somebody you know is nasty, but is temporarily pretending to be nice (not because he is trying to change, but just to avoid some punishment)? Psychological research has not answered this question in a satisfactory manner yet.
4. The final reason is tractability: in a separating equilibrium when there are many firms the patterns of combinations of firms becomes complicated (a selfish firm surrounded by two selfish firms, or by one selfish and one altruistic, or by two altruistic, etc; similarly for an altruistic firm and its neighbors). In ex-ante terms, though, each firm does not know whether its neighbors will be of one kind or the other.

Pooling Equilibria

Our first step is to find necessary conditions under which a wage w^o is part of a pooling equilibrium in which workers attain their target level of utility. Consider a firm who maximizes profits in a deviation from a pooling equilibrium with wage w^o (we are not including a utility

cost of the deviating firm, since we assume for the time being that the equilibrium is such that workers attain their target utility level τ). If the firm increases its wage, workers won't be angry. In that case, labor supply is given by the sum of all (unit) supplies of workers who are closer to the deviating firm than the two types of worker (one to each side) who are indifferent between working for the firm we are analyzing and working for its neighbor:

$$w\text{-}s\text{-}x = w^o\text{ -}s\text{-}(b\text{-}x) \Leftrightarrow S=2x=b+w\text{-}\ w^o$$

Profits are then

$$(p\text{-}w)(b+w\text{-}\ w^o).$$

When the firm maximizes this expression, we obtain an optimal wage of

$$w = \frac{p + w^o - b}{2}$$

For the firm not to want to deviate from w^o, it must be the case that this optimal wage is lower than w^o, or equivalently

$$w = \frac{p + w^o - b}{2} \le w^o \Leftrightarrow\ p - b \le w^o. \tag{1}$$

In words, if the oligopoly wage is too low, the firms are better off increasing their wage, and workers will not punish them (by getting angry). If the firm lowers its wage, consumers become angry, and labor supply is given by the condition that

$$w - s - x - \lambda\left(p - w\right) = w^o - s - \left(b - x\right) \Leftrightarrow S = b + \left(1 + \lambda\right)w - \lambda p - w^o.$$

In that case, profits are

$$(p\text{-}w)(b+(1+\lambda)w\text{-}\lambda p\text{-}\ w^o).$$

For the firm not to want to deviate and offer the optimal wage in this deviation,

$$w = \frac{w^o - b + p\left(1 + 2\lambda\right)}{2\left(1 + \lambda\right)} \Rightarrow \pi = \frac{\left(b - w^o + p\right)^2}{4\left(1 + \lambda\right)}$$

it must be the case that profits in the equilibrium are larger than these deviation profits. Formally,

$$\left(p - w^o\right)b \ge \frac{\left(b - w^o + p\right)^2}{4\left(1 + \lambda\right)} \Rightarrow w^o \le p - b\left[1 + 2\lambda - 2\sqrt{\lambda\left(1 + \lambda\right)}\right] \tag{2}$$

Notice that when λ= 0 (the standard Salop case), we obtain from (1) and (2)

$$w^o = p - b$$

Equations (1) and (2) provide two constraints to the equilibrium wage w^o. The third and final restriction is that for a given τ, as we decrease the number of firms the wage must also increase to achieve the target utility. Worker utility (in a pooling equilibrium with wage w^o) is the number of firms, 1/b, times the total utility of workers hired by each firm:

$$\frac{2}{b}\int_0^{\frac{b}{2}}\left(w^o - s - x\right)dx = w^o - s - \frac{b}{4}$$

This utility is larger than τ if and only if

$$w^o - s - \frac{b}{4} \geq \tau \Leftrightarrow w^o \geq \tau + s + \frac{b}{4} \qquad (3)$$

We now present one important result: as competition decreases (enough), anger is more likely. The following proposition shows that as competition decreases, a pooling equilibrium is less likely. But since pooling equilibria have no anger, and separating equilibria do (in expected terms there will be some selfish firms), when pooling equilibria disappear, anger appears.

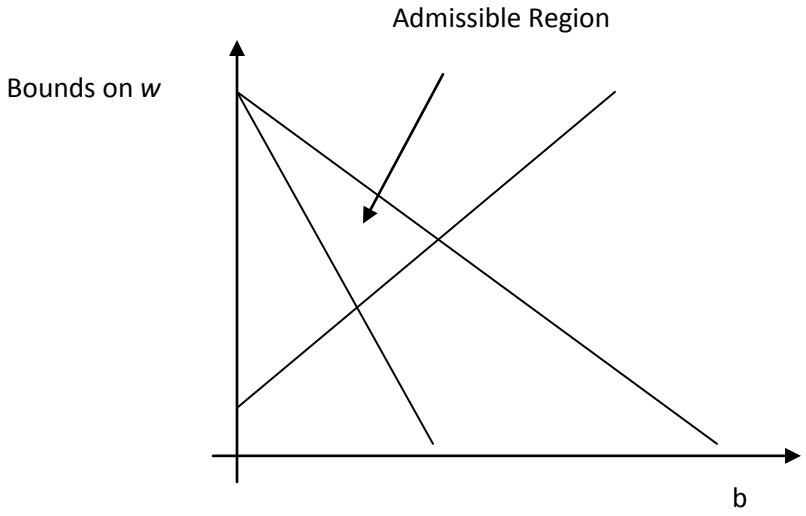
Proposition 1. There is a critical n^* such that for all $n' > n \geq n^*$, the set of pooling wages is smaller when there are n firms than when there are n'. That is, as competition decreases, anger is more likely.

Proof. Define b^* so that equations (3) and (1) hold with equality and are equated:

$$\tau + s + \frac{b^*}{4} = p - b^* \Leftrightarrow b^* = \frac{4}{5}\left(p - s - \tau\right)$$

Let $n^*=1/b^*$. For $b^* > b$ the set of equilibrium wages is increasing in b (decreasing in n) because: equation (3) is not binding; the slope of (2) is smaller (in absolute value), than the slope of (1). QED

The plot below illustrates the three constraints on w^o imposed by equations 1-3. The wage w^o must lie between the two loci with negative slopes (the flatter one is equation 2 and the steeper, 1) which arise from the firms' incentives not to deviate. The wage must also lie above the positively sloped constraint (equation 3 that arises from the condition that fewer firms imply higher wages if workers are to obtain their target utilities).



Next we present another relevant result, connecting the productivity of firms, the rise in anger, and the possible subsequent regulation. This result provides a potential explanation for why people in less developed countries don't like capitalism. If productivity is lower and more volatile in LDCs, that would explain why capitalists and capitalism are not popular.

Proposition 2. When productivity decreases, or when it becomes more volatile, anger is more likely.

Proof. When productivity decreases, the two loci of equations (2) and (1) move downwards by the amount of the decrease in productivity. Since equation (3) is unchanged, the set of pooling equilibrium wages shrinks.

A larger volatility in productivities makes it more likely that a low (pooling breaking) cost will happen, and then the selfish firms will reveal themselves as such and anger will arise. QED

An interesting point to note is that higher variability in productivity in LDCs could be the consequence of higher regulations to begin with: firms in sectors with a comparative advantage could have higher worker productivities while firms in protected sectors, lower productivities (even considering government regulations to protect them). In a sense, then, Peronism by introducing distortions generates anger towards capitalists, and perpetuates the beliefs that Peronism fostered.

The next result illustrates another obvious feature of the rise in anger: when for some exogenous reason workers become “captive” of one particular firm, anger is more likely. The mechanism is as one would expect: when worker's labor elasticity of supply decreases, local monopolies have

an incentive to lower wages. The temptation may be large enough that an anger-triggering wage decrease may be profitable. In countries with concentrated industries, like Argentina, and with little inter-industry mobility, workers do not have mobility and so elasticity of supply is lower.

We model this increase in captivity by changing the cost of reconverting to another industry, while keeping rival's wages fixed. The reason for this assumption is simple: if it is suddenly harder for workers employed in firm i to work in firm i-1 or i+1, those firms will keep their wages fixed: if they didn't wish to attract the marginal worker before the change in re-conversion costs, they don't want to after, so there is no incentive to raise wages; if firm i-1 didn't want to lower its wage before the change in costs, they don't want to do so after, since the incentives of the marginal worker working for them haven't changed. As will become transparent in the proof, an equivalent way of modeling this is assuming that the two neighbors of the firm being analyzed move farther away, as if there had been a decrease in the number of firms.

Proposition 3. Assume that for a given parameter configuration, there is a pooling equilibrium with a wage of w^o. If the cost of re-converting to firms *i-1* or *i+1* increases from 1 to $t > 1$, but the cost to firm i remains constant, the firm's incentives to decrease its wage increase. There is a threshold t^* such that if $t \geq t^*$ firm i lowers its wage and workers become angry.

Proof. When the cost of converting to firms i-1 and i+1 increases to t, the supply faced by firm i (after an anger triggering decrease in wage) and its profits, are

$$S = 2\frac{w - w^o + (w - p)\lambda + bt}{t+1} \Rightarrow \pi = (p - w)2\frac{w - w^o + (w - p)\lambda + bt}{t+1}$$

and the optimal wage and profit are

$$w = \frac{p + w + 2p\lambda - bt}{2(\lambda + 1)} \Rightarrow \pi = \frac{(p - w^o + bt)^2}{2(\lambda + 1)(t+1)}$$

Notice that in the equation for the optimal wage, an increase in t is equivalent to an increase in b: a fall in the number of firms. For large enough t, these profits exceed the oligopoly profit, and the firm lowers its wage, causing anger. QED

In the above proposition we have assumed that workers continue to make inferences based on the equilibrium prior to the shock. Although one could argue that a new equilibrium (one with fewer firms, or with higher t) should be the benchmark, we believe that keeping the old equilibrium beliefs is also plausible. In addition, the case of fewer firms also leads to more anger, as established by Proposition 1.

The previous proposition may be particularly relevant for the rise of Peronism and Peronist beliefs. In a time of rising speed of technological change, the cost of re-converting to other industries also rises. Hence, we may view the ascent of Peron as a consequence of the increasing exploitation by firms that had gained more power over their workers.

Any wage w^o in the range determined by equations (2) and (1) can be part of a pooling equilibrium if we choose τ or α appropriately. Note that if the firm is altruistic and it lowers its wage enough, there could be a utility cost of providing workers with a very low level of utility. Since we found necessary conditions, we focused only on the incentives of the selfish firm. When we want to build an equilibrium with a wage w^o within the range we have just identified, we need to take into account this utility cost for the altruistic firm. But choosing τ or α low enough, any one of these wages is part of an equilibrium. We do not elaborate, because the construction is simple.

A brief discussion of policies in this model.

The model above describes a pooling equilibrium in an oligopoly without anger. Although consumers are not angry, anger can arise if for whatever reason the pooling equilibrium is broken. In particular, the scenario we have in mind is that the arrival of Peron coincided with the rise in anger that led to a separating equilibrium, and the rise in anger.[13]

In this model there are three channels through which regulation (setting minimum wages and making a transfer to the firm) affects welfare. First, there is the standard channel: a minimum wage larger than market wages, but still below productivity increases total welfare by attracting workers to the firm (to produce something worth p at a cost in terms of lost leisure and transportation cost of less than p). A second, quite direct and simple, channel is through the reduction in anger: since an increase in wages lowers firms' profits, and total anger depends on the size of profits, a rise in wages reduces anger and increases welfare. Finally, any channel that reduces anger (whether it increases wages or not) induces workers to start working, and that further increases welfare. The second channel does not depend on individuals changing behavior; this third channel arises because workers re-optimize. Imagine for example a policy that keeps wages at their pre-policy levels, but "expropriates" the profits from the firm (through a fine for example). In that case, in the standard model, welfare would be unchanged. In the current model welfare increases for two reasons: first, each worker who was employed is happier, but some who were not working will now enter the workforce and become available at the fined firm.

[13] We refer the interested reader to Di Tella and Dubra (2009) for an analysis of the separating equilibria. Under certain parameter conditions (for example when skills are not easily transferred in going from one firm to another), the oligopoly results in a series of local monopsonies. The discussion of policies in this section refers to such a situation.

Intuition and some simple calculations show that in this model the appeal of fines to the firms and other "populist" policies increases relative to their appeal in a setting where anger plays no role (that is $\lambda = 0$). To illustrate, imagine that a policy with wage w and transfer $T > 0$ to the firm is slightly better in terms of total welfare (in a standard model with no anger) to the policy (w, $T = 0$). In the model with anger, when consumers are angry, the second policy that "beats on the firm" is preferred, since it reduces the amount of anger. This is an example of a policy that looks bad in a standard model (a bad "populist" policy), but that is potentially welfare enhancing when emotions are taken into account. Although we don't claim that all of the bad Argentine policies are driven by attention to emotions, we believe that there is at least some truth to the idea that policies that are bad for long run material growth may be optimal when workers (or consumers more generally) are angry at certain business sectors.

VI. Conclusions

A central observation in Argentina's relative decline is that it was accompanied by a strong reduction in private investment: from the formidable rates of capital accumulation pre-1913 financed primarily by foreigners to the dismal later performance. Diaz Alejandro (1970) and Taylor (1994) have emphasized the low savings rate and the high relative price of capital goods pre 1960. In this study we have focused on the possibility that the decline in investment is connected to the country's populist tradition, which helped spread interventionist policies and fueled political instability. In particular, we have tried to answer what is the nature of Peronist policies that made them so attractive, even if there was a clear associated material cost.

Argentina's relative decline is visible in the 1930's and appears to accelerate in the 1970's. These two periods coincide with political instability: 1930 is the year of the first of several military coups and marks the beginning of the "infamous" decade that would set the stage for the first Peron administration; while the 1970's is marked by the armed conflict involving left wing guerrillas and the military (and paramilitary) forces which led to the military coup of 1976. Indeed, following Peron's ascent to the labor secretary in 1943, Peronism has been the preeminent political force in the country, leading many to assume that no government could succeed without its explicit support. One reason for its enduring legacy is that Peron's more interventionist policies where in tune with the times: after the 1930's, the increased presence of the State the economy was the norm, both in Argentina and in other countries. But there are other factors that have made Peronist policies attractive to voters for such a long period of time, even if they have contributed to its relative material decline. In this paper we focus on three elements that help us throw light on the nature of Peronist policies and their enduring significance.

First, we study beliefs and values about the economic system present in Peron's speeches during the period 1943-55. We emphasize that Peron is concerned with the income generating process,

and note that Peron insists on the role of "others" and the possibility of exploitation. Indeed, whereas economists have emphasized the role of luck versus individual effort in the determination of income and how beliefs about their relative impact can affect the economic system (see for example, Piketty, 1995), it seems that Peron is focused on the influence of actors (elites, foreigners) and how they can willfully change the income of Argentines (as in Di Tella and MacCulloch, 2009). This provides one possible explanation why the process of policymaking might be less a rational learning process, such as the one described in Buera, *et al* (2010), but instead an attempt to reveal intentions (which by their very nature are hard to verify) and a search for culprits. There are also a large number of references to the idea that labor relations can have non-monetary dimensions and the speeches connect exploitation to this "non-material" dimension. This (trivially) explains why markets that are interpreted (and regulated) in this way may perform poorly (from a material standpoint).

Second, we study survey data for the 1990's on the beliefs of Peronist and Non Peronist voters in Argentina and Democrat and Republican voters in the US. While Peronists have low income and education relative to the opposition (so that they look like the US Democrats), their beliefs and values suggest that Peronists are the Argentine equivalent of the Republicans. For example, whereas all respondents in Argentina tend to believe that the poor are unlucky rather than lazy, Peronists (just like Republicans in the US) are somewhat more inclined than the opposition (e.g., Non-Peronists) to believe that the poor are Lazy. In other words, while the opposition to Peron during 1943-55 came from the conservatives, the opposition to Peronism in the 1990's comes from the left of the ideological spectrum. It is worth reiterating that in both periods, the Peronists seem to have lower income and educational achievement than the opposition. This suggests, at the very least, that the Peronists are changing less in terms of political ideology than the opposition.

Finally, given that the meaning and beliefs conveyed by Peron in his speeches are non-standard (for economists), we present a model formalizing the possibility that they are sub-optimal from a narrow material perspective, but that they may be associated with improved well-being (for example, they reduce anger at aspects of economic organization). In particular, we present a formal model of "exploitation" in the labor market where agents derive pleasure from treating well (badly) those that have behaved well (badly) towards them. Firms are of two types: one is a standard firm which might "exploit" the worker by paying him/her the minimum possible wage whereas the other type "cares" for the worker. Even with few "altruistic" firms, the equilibrium might involve no exploitation, as long as there is sufficient amount of competition. With monopsony power, the "good" equilibria break down and there is scope for regulation that generates first order welfare gains (beyond Harberger triangles). We note that a firm might be exploiting workers even if it is paying the same wage as other firms, as long as workers believe this firm is doing it out of "unkindness" (formalized as reciprocal altruism).

Appendix 1: Peron's Speeches quoted in the text

"Cuidaremos el factor brazo y haremos una Argentina de hombres libres", 15 de octubre de 1944. *Buenos Aires, 1944, Secretaría de Trabajo y Previsión, Difusión y Propaganda.*

"Las reivindicaciones logradas por los trabajadores argentinos no podrán ser destruidas", 1 de Mayo de 1945. *Buenos Aires, 1945, sin datos de imprenta.*

Discurso pronunciado en el Congreso de la Nación, 21 de Octubre de 1946, *Habla Perón, Subsecretaría de Informes, Buenos Aires.*

Discurso pronunciado en el Congreso de la Nación, al declarar inaugurado el período de sesiones, 1 de Mayo de 1947, *Los Mensajes de Perón, Serie Azul y Blanca, Mundo Peronista Ed., Buenos Aires, 1952.*

Manifestaciones del general Perón ante los representantes patronales de la Producción, Industria y Comercio de la Nación, 24 de Junio de 1948, *Habla Perón, Subsecretaría de Informes, Buenos Aires.*

"Perón, leal amigo de los trabajadores del campo", 5 de Marzo de 1950, *Subsecretaría de Informaciones de la Presidencia de la Nación.*

Discurso pronunciado en el Congreso de la Nación, al declarar inaugurado el período de sesiones, 1 de Mayo de 1950, *Los Mensajes de Perón, Serie Azul y Blanca, Mundo Peronista Ed., Buenos Aires, 1952.*

"Economía y sindicalismo justicialista", 24 de Mayo de 1950, *sin datos de fecha de publicación ni de imprenta.*

"La CGT escucha a Perón", 9 de Agosto de 1950*, sin datos ni de fecha ni de imprenta.*

"Una etapa más en la ejecución de la doctrina peronista en el orden económico", 7 de Febrero de 1950, *Subsecretaría de informes de la presidencia de la Nación.*

"Perón habla sobre la organización económica del país", 12 de Mayo de 1950, *sin datos ni de fecha ni de imprenta.*

"Perón y Eva hablan en el Día de los Trabajadores", 1 de Mayo de 1951, *Presidencia de la Nación, Subsecretaría de Informaciones.*

Discurso pronunciado el 5 de marzo de 1952, *sin datos de imprenta ni de fecha.*

Discurso pronunciado en el Congreso de la Nación, al declarar inaugurado el período de sesiones, 1 de Mayo de 1952, *Los Mensajes de Perón, Serie Azul y Blanca, Mundo Peronista Ed., Buenos Aires, 1952.*

Appendix 2: Definitions of Variables used (form the World Values Survey)

Poor are Lazy refers to the question: “Why, in your opinion, are there people in this country who live in need? Here are two opinions: Which comes closest to your view? 1. They are poor because of laziness and lack of will power, 2. They are poor because society treats them unfairly”. Group 1 is that answering option 1, while Group 2 is that answering option 2.

Run by a few big Interests refers to the question: “Generally speaking, would you say that this country is run by a few big interests looking out for themselves, or that it is run for the benefit of all the people? 1. Run by a few big interests, 2. Run for all the people”. Group 1 is that answering option 1, while Group 2 is that answering option 2.

Workers Should Follow Instructions refers to the question: “People have different ideas about following instructions at work. Some say that one should follow one's superior's instructions even when one does not fully agree with them. Others say that one should follow one's superior's instructions only when one is convinced that they are right. With which of these two opinions do you agree? 1. Should follow instructions, 2. Depends, 3. Must be convinced first.” Group 1 is that answering option 1, while Group 2 is that answering options 2 and 3.

Jobs for Men refers to the question “Do you agree or disagree with the following statements? When jobs are scarce, men should have more right to a job than women. 1. Agree, Neither Agree nor Disagree, 3. Disagree”. Group 1 is that answering option 1, while Group 2 is that answering option 3.

More Respect for Authority refers to the question: “I'm going to read out a list of various changes in our way of life that might take place in the near future. Please tell me for each one, if it were to happen, whether you think it would be a good thing, a bad thing, or don't you mind? Greater respect for authority. 1. Good, 2. Don’t mind, 3. Bad”. Group 1 is that answering option 1, while Group 2 is that answering option 3.

Less Emphasis on Money refers to the question: “I'm going to read out a list of various changes in our way of life that might take place in the near future. Please tell me for each one, if it were to happen, whether you think it would be a good thing, a bad thing, or don't you mind? Less emphasis on money. 1. Good, 2. Don’t mind, 3. Bad”. Group 1 is that answering option 1, while Group 2 is that answering option 3.

Acceptable to Cheat refers to the question: “Please tell me for each of the following statements whether you think it can always be justified, never be justified, or something in between, using this card. Cheating on taxes if you have a chance (scale 1 to 10 is shown with Never Justifiable below 1 and Always Justifiable below 10)”. Group 1 is that answering options 1 and 2, while Group 2 is those answering options 3, 4, 5, 6, 7, 8, 9 10.

Competition Good refers to the question: Now I'd like you to tell me your views on various issues. How would you place your views on this scale? 1 means you agree completely with the statement on the left; 10 means you agree completely with the statement on the right; and if your views fall somewhere in between, you can choose any number in between. A scale is shown with a 1 to 10 scale with the words “Competition is good. It stimulates people to work hard and develop new ideas” below 1 and “Competition is harmful. It brings out the worst in people” below 10.

Table I: The Education and Income of Peronists and Democrats

	Peronists	**Non Peronists**		**Democrats**	**Republicans**
Percentage of group answering Family income is in Lowest 5 of 10 categories	69	59		42	29
Percentage of group answering education is in Lowest 6 of 9 categories	88	69		56	47

Note: Peronist (Non-Peronist) is the sub-sample of Argentines that declare an intention to vote for the Peronist Party (Any party that is not the Peronist Party). Democrats (Republicans) is the sub-sample of Americans declaring an intention to vote for the Democrat (Republican) Party. Family Income is the respondent's answer to a question about total family income. Education is the respondent's educational achievement.

Table II: The Beliefs of Peronists and Democrats: Luck vs Effort

	Peronists	**Non Peronists**		**Democrats**	**Republicans**
Laziness	39	20		49	75
Unfair Society	61	80		51	25
Ratio	0.64	0.25		0.96	3
	Peronists	**Non Peronists**		**Democrats**	**Republicans**
Run by a few big Interests	71	95		76	68
Run for all	29	5		24	32
Ratio	2.4	19		3.2	2.1

Note: (1) Peronist (Non-Peronist) is the sub-sample of Argentines that declare an intention to vote for the Peronist Party (Any party that is not the Peronist Party). Democrats (Republicans) is the sub-sample of Americans declaring an intention to vote for the Democrat (Republican) Party. (2) “Laziness” is the fraction of these groups answering “They are poor because of laziness and lack of willpower” to the question “Why in your opinion are there people in this country who live in need?”, whereas “Unfair Society” is the group answering “They are poor because society treats them unfairly”. (3) “Run by a few big interests” is the group giving that answer to the question “Generally speaking, would you say that this country is run by a few big interests looking out for themselves, or that it is run for the benefit of all the people?”

Table III: Beliefs in Argentina and the US: Peronists look like Republicans

	Argentina **Ratio** (Peronist/Non-Peronist)	United States **Ratio** (Republican/Democrat)
Poor are Lazy	**2.6**=0.64/0.25 0.64=39/61; 0.25=20/80	**3.1**=3/0.96 3=75/25;0.96=49/51
Workers should follow instructions	**1.6** =0.81/0.51; 45/55;34/66	**2.4** =3.35/1.4, 77/23;58/42
Run by few big interests	**0.1** =2.4/19; 71/29;95/5	**0.7** =2.1/3.2, 68/32;76/24
Jobs for Men instead of women	**2.1** =0.59/0.28, 34/58;20/71	**1.3** =0.37/0.3, 23/63;21/71
More respect for authority	**4.4** =15/3.4, 75/5;54/16	**2.2** =28/12, 84/3;75/6
More importance of money	**0.5** =3.3/6.5; 66/20;72/11	**0.8** =9.6/11, 67/7;70/6
Acceptable to cheat	**1.9** =4.9/2.6, 83/17;72/28	**1.2** =6.1/4.9, 86/14;83/17
Competition good	**1.2** =1.2/1, 55/45;50/50	**2.1** =2.7/1.3, 73/27;57/43

Note: Note: (1) Peronist (Non-Peronist) is the sub-sample of Argentines that declare an intention to vote for the Peronist Party (Any party that is not the Peronist Party). Democrats (Republicans) is the sub-sample of Americans declaring an intention to vote for the Democrat (Republican) Party. (2) Definitions of beliefs in the appendix.

Transition Remarks

The previous chapter described the beliefs of Juan Perón and Peronism, many of which are related to the income distribution. In particular, Perón himself attacked the inequalities of income within Argentina, which he claimed came from an unfair economic and political system that was rigged against poorer Argentines. His supporters, and Argentinians more generally, today continue to believe that poverty is caused by an "unfair system" and that Argentina is run for the good of the few rather than the many.

The next paper moves from beliefs about Argentina's income distribution to the realities of that distribution over the course of the 20th century. The authors have heroically put together tax data in Argentina for about eighty years. These data enables us to move beyond average income, and observe the broader evolution of Argentine incomes. Their data begins in 1932 when Argentina has the most unequal societies that they have examined. The share of income going to the richest one-tenth of one percent of the Argentine population is greater than the equivalent share for the U.S. or France or seven other countries. The U.S. in the 1920s does appear to have been slightly more unequal than Argentina in 1932 (they lack Argentine data for the 1920s) and American inequality briefly surpasses Argentine inequality in 1933.

But America becomes significantly more equal during the 1930s and 1940s, while Argentine inequality only becomes more extreme. Other countries enact social welfare programs during the 1930s, Argentina's economic model seems to generate ever more inequality through the early years after World War II. At its peak, in the early 1940s, Argentina's richest one percent is earning more than a quarter of the country's income. Presumably that unequal income distribution created fertile soil for Peronist beliefs.

After 1946, during the Perón years, income inequality declines substantially. By 1952, all of the post 1932 increases in income inequality have been erased, and the top one percent's share of total income is down to 15 percent. During the 1960s, inequality declines even further and the top one percent's share of income is below 10 percent of national income by 1971, which is in line with other countries. These middle decades may have been lost years for the Argentinian economy, but they were a period when the country became a substantially more equal place.

Unfortunately, the paper has to rely on household surveys rather than income tax data after 1973, and that data is only sporadically available. The surveys do appear to show a recent increase in inequality, mirroring the rise in inequality seen within the United States. The move to a more open economy seems to have been associated with income divergence within Argentina. In the most recent data, Argentina appears to displace the United States for the distinction of being the most unequal country in their sample.

One message of this paper is that periods of overall economic success have also been periods of high inequality and periods of stagnation have been periods of greater equality. There appears to be a profound tradeoff between efficiency and equity in Argentine history. A challenge going

forward is to find policies that manage to combine robust economic growth with the increased equality that Argentine voters appears to desire.

CHAPTER SEVEN

A Short Episodic History of Income Distribution in Argentina

Facundo Alvaredo
Guillermo Cruces
Leonardo Gasparini

1. Introduction

The previous chapter emphasized the role that different sectors, and the capitalists in those sectors, played in determining trade policies and the resulting income distribution in Argentina. In this discussion and in the political economy literature, inequality appears both as a precursor for political change and as a reflection of that change. This chapter studies the evolution of the distribution of income in Argentina over a period of seventy-five years. Its starting point is the decade of 1930, when the country displayed a rather high level of inequality – above other advanced economies. This high inequality set the stage for the policies of Peron and others, which were justified – in part – as attempts to make Argentina a less unequal nation.

This chapter deals with the international conditions, the policies and the macroeconomic performance behind these inequality trends in Argentina over the 20th century. However, any explanation of the dynamics of inequality and growth in Argentina faces strong limitations in terms of (i) economic theory, (ii) the multitude of simultaneous confounding factors and (iii) the quality of the statistical evidence available. Moreover, these limitations are reinforced by the peculiarly complex history of the country. We have adopted here a historical perspective.

The evolution of income and wealth inequality during the process of development has attracted enormous attention in the economics literature.[1] From a historical perspective, this focus was initially concerned with the functional distribution of income between factors of production. The classical view saw workers, capitalists and

[1] There is a longstanding literature on the political economy of inequality along the development process – see Hirschmann (1973) for a classic analysis, and Robinson (2010) for a recent discussion of redistributive policies in the Latin American context.

landlords as separate classes, receiving wages, profits and rent, respectively. Workers were assumed to be at the bottom of the hierarchy, and a fall in their share increased inequality. In logic there was no necessary reason. Later the analysis has turned to the concept of personal distribution. Nevertheless, as pointed out in Atkinson (1997), many of the links between income distribution and the functioning of the economy are still missing in the theory: we do not know much about the precise connections between inequality and the macroeconomic variables and the inter-relationships between economic performance and distribution. Economic theory offers a series of valuable insights, but it is not able today to provide a comprehensive explanation of the observed dynamics of individuals' income, taking simultaneously into consideration supply and demand forces, social norms, public choice issues and government actions. This is certainly not an easy task. Atkinson, Piketty and Saez (2010) recognize that building a link between theory and empirical specification is not straightforward. The Kuznets inverse-U curve is one of the best examples: its popularity far exceeds its empirical support. As indicated by Piketty (2001, 2003) and Alvaredo and Piketty (2009), Kuznets stressed in his 1955 article the key role played by wars, inflation, recessions, and the rise of progressive taxation, though this is not the part of the explanation that most economists chose to remember. It was only at the end of his presidential address to the 1954 annual meeting of the American Economic Association that he suggested that an additional process (based on the well-known two-sector model) might also have played a role. As he himself put it quite directly, what was at the stake in the 1950s was nothing but "the future prospect of the underdeveloped countries within the orbit of the free world." To a large extent, the optimistic theory of the inverse-U curve is the product of the cold war.

Increasingly, multi-sector models have dominated the literature on the analysis of income distribution and growth in Argentina – see for instance the discussion and the model proposed by Galiani and Somaini in the previous chapter in this volume. While not able to satisfy Atkinson, Piketty and Saez's demanding criteria, these simplistic theoretical models try to highlight the salience of Argentina's starting conditions in terms of its comparative advantages in land and agriculture, and the complex political economy implied by the development of a relatively well-educated workforce in this context. These particular conditions set out a complicated political economy environment whereby distributional conflict drives the alternation between outward and inward-oriented development strategies, with fundamental consequences for long run growth and for inequality itself, both as a determinant and a result of economic policy.

The consequences of this process can be appreciated in the evolution of income and its distribution over time for Argentina. Figure 1 displays the share of the top 1% of

the income distribution between 1932 and 2004. The plot is eloquent of Argentina's distributive performance, with subsequent periods of raising and declining inequality. Figure 2 in turn illustrates the relative stagnation of real income over the long run, which grew by less than two thirds over the same period. The combination of both graphs indicates that the interaction between changes in aggregate income levels and in their distribution is a salient feature of Argentina in the 20th century. It should be clear, however, that it is misleading to talk of "trends" when describing the evolution of income inequality. Instead, and along with Atkinson (1997), we follow a much more compelling episodic history of inequality changes in Argentina. The country experienced strong shocks and policy changes that affected the income distribution in different ways. Since the logic behind the inequality changes is different in each episode, a long-term perspective would miss much of the action, and would probably be unhelpful for thinking about the future. Like any other modeling exercise, however, this episodic history tries to highlight the main aspects from a very complex stream of phenomena. Our description and conclusions are, therefore, based on our reading of the events. In some way, the historical narrative is part of the evidence. As Atkinson, Piketty and Saez (2010) point out about such narratives, "in combining disparate sets of information, the authors are not carrying out a mechanical operation, but exercising judgement about the strengths and weaknesses of different sources. These narratives are of course subjective, reflecting the standpoints of the authors, and there will no doubt be disagreement about the interpretation of history. But equally they cannot be dismissed."

It is nearly impossible to account for all the complex interactions and phenomena underlying the long period of time covered by this short chapter. The economic history of income distribution changes has also other shortcomings. Firstly, we do not analyse in depth almost any of the phenomena mentioned as affecting the distribution of income. Secondly, and perhaps most importantly, this review mentions only briefly the complex political and social forces underlying the trends described here. Hopefully, by concentrating on the evolution of the income distribution over time, this chapter complements the efforts regarding these other topics presented in this volume.

As described by Della Paolera and Taylor (2001), Taylor and Llach in this volume, and many other researchers, Argentina was once a relatively rich country that has consistently diverged from the industrial economies in the last fifty years; today it is indistinguishably a middle income emerging economy. The deterioration of the country's relative position is often referred to as one the puzzling cases in the economics of development. It was not a smooth process. The wealth-creating export-based growth model initiated in the second half of the 19th century had its own

limitations: high dependency rates, the need on external funding, a large but finite land stock.[2] Nevertheless, the circumstances helped create an atmosphere of unlimited growth possibilities, which was mutually shared by the ruling class, the people and the immigrants. In contrast, the last fifty years are much more difficult to summarize. While Western countries (including Australia and New Zealand, but also Mexico and Brazil) experienced significant growth after the Second World War, Argentina stagnated and later declined. Political turmoil, institutional instability, macroeconomic volatility, income stagnation, high inflation and two hyperinflations dominated the scenario. Cycles of poor economic performance and continuous political upheavals were associated with the conflict of interests between the landed gentry and the industrialist elite, and with the integration and final acceptance of the working classes into the social and political system. Between 1956 and 2004 real per capita GDP only grew at an annual rate of less than 1%; if we consider the figures in the aftermath of the 2001 macroeconomic crisis, the average income did not virtually grew in the thirty years following 1973. By the end of 2002 the unemployment rate was well above 20%; GDP sunk by 20% and poverty rates skyrocketed, but recovery resumed rapidly, and the economy grew at annual rates of 7%-9% until 2007.

The academic and non-academic statements about Argentina's performance regarding income distribution, growth and institutions are usually (always?) tainted by ideological preconceptions. We will not offer here a definitive view, but expect to provide the reader with some facts to judge those statements critically, as they need to be qualified. Robinson (2010) sensibly argues that "it is not possible to talk about the market distribution of income as if that were somehow free of politics. It is the political system, after all, that determines the nature of property rights and how free the market is." There is the view that high inequality in the first decades of the twentieth century led to redistributive policies that made the country far more equal but also hurt its economic performance; this view sometimes sees a negative correlation between inequality and growth or, more frequently, it implies that the specific Peronist social policies were fundamentally flawed. There are several steps in the argument, and it is unlikely that they will be one day uncontroversially settled. It is important to note here that the structural decline of capital concentration that took place between 1914 and 1945 in the developed countries does not seem to have had a negative impact on growth; on the contrary, per capita growth rates were substantially higher in the postwar period (years of the expansion of the welfare state) than in the nineteenth century: high levels of concentration were not a prerequisite for growth.

The remainder of this chapter attempts to make sense of these trends in long run income and its distribution by means of an analytical narrative that draws on original

[2] For an analysis of these limitations, see Taylor (1992).

empirical evidence and on existing studies of the economic and political factors behind these trends. Section 2 covers the 1932-1973 period and is based mainly on income tax information, while section 3 covers the years 1974-2007 based on household survey data. While the availability of the latter allows for a more detailed analysis at the micro level, the narratives rely on the same implicit models, which highlight the salience of trade and comparative advantages, the population's level of education and the ensuing distributional conflict and its related redistributive policies. The discussions, thus, cover a series of issues such as trade policy, terms of trade, taxation, technical change, macroeconomic performance, labor regulations, the power of unions and structural reforms.

The chapter is organized as follows. Section 2 focuses on the dynamics of top incomes in Argentina since 1932 based on income tax statistics. Section 3 discusses the evolution of income inequality over the last thirty years based on survey data. Section 4 is devoted to the conclusions.

2. An Episodic History of Income Concentration in Argentina 1932-1973: Evidence from Tax Statistics[3]

This section summarizes the dynamics of the concentration of income between 1932 and 1973 based on income tax statistics.[4] Due to the fact that only a small fraction of the population was subject to the income tax, we can only analyze the very top of the distribution, as depicted in Figure 1 for the share of the top 1% since 1932. Nevertheless, this source of information is useful for the study of distributive trends, covered in sections 2.1 to 2.3, and also allows for international comparisons, which are described in section 2.4 below.

2.1. The years 1932-1945

[3]The results presented in this section are taken from Alvaredo (2010).

[4]Our starting point is determined by the source of information: the first personal income tax was established in Argentina in 1932. Income tax data suffer from some serious drawbacks. The definitions of taxable income and tax unit tend to change through time according to the tax laws. While there is a predisposition to under-reporting certain types of income, taxpayers also undertake a variety of avoidance responses, including planning, renaming and retiming of activities to legally reduce the tax liability. Capital incomes and capital gains are taxed at different degrees across time. These elements, which are common to all countries, become critical in developing economies. However, alternative sources such as household surveys are not free of problems regarding under-reporting, differential non-responses, unit design and information at the top of the distribution. Therefore, even if results based on income tax statistics must be read with caution, especially in the case of countries with important levels of tax evasion, they can still be informative and remain a unique source to study the dynamics of income concentration during the first half of the twentieth century.

In 1929, the Argentine economy – and especially its elite – was suddenly shocked by the Great Depression and the dramatic downturn of conditions in the international sphere. The democratic government could not cope with the crisis, and was deposed by the first coup d'état that ended sixty-eight years of constitutional rule. The inability of the elite to understand and adapt to the new situation within constitutional principles, the fear of anarchism and socialism and the necessity to regain political control shaped the following thirteen years, 1930-1943, known as the Conservative Restoration and the Infamous Decade. It was a period of electoral fraud, union conflicts and the increasing importance of the army in political affairs. Economic recovery began in 1933 after several years of negative growth. By 1935, GDP had regained the level of 1928. The positive slope displayed by top income shares between 1933 and 1943 (Figure 1) seems consistent with an increase in concentration during the marked recuperation of the economy after the Great Depression. The share of the top percentile rose by 50% from 1933 to 1943.

Great Britain, the principal destination for exports, abandoned free trade practices and made preferential agreements with the ex-colonies during the Imperial Economic Conference celebrated in Ottawa in 1932 to promote trade within the limits of the empire. Argentina was set aside. The rich landowners pressured for a rapid accord with London to secure the exports to the United Kingdom. The result was the Roca-Runciman agreement, which guaranteed Argentina a fixed share in the British meat market and eliminated tariffs on Argentine cereals. In return, Argentina agreed to restrictions with regard to trade and currency exchange, and preserved Britain's commercial interests in the country. From the macroeconomic point of view, the nature and consequences of this agreement and the true impact on the economic performance are still the topic of academic controversy. There are those who see the treaty as a sell-out to Britain, while others stress that the United Kingdom, by according privileges not given to any other country outside the empire, helped counter the recessionary situation. From the microeconomic side, it may be regarded as a successful mechanism to preserve the elite's (but also the state's) sources of revenue. It must be said, however, that exports more than doubled between 1932 and 1937 almost everywhere in Latin America; Argentina was additionally favored by rising export prices because of droughts in many agricultural competitors. In any case, the Roca-Runciman agreement remains a historical landmark, and the dynamics of top incomes reinforces the idea of the elite's favourable situation during the second half of the decade of 1930.

While top shares started a sustained decrease by the beginning of the Second World War in the developed world (Atkinson and Piketty, 2007, 2010), they kept growing in Argentina, favored by the export demand from Europe and the evolution of the price

of commodities. The country was officially neutral during most of the war for several reasons. On the one hand, a relevant sector of the army showed a clear preference for the Axis. On the other, the British interests in Argentina encouraged neutrality, as it ensured the continuation of normal trade with Europe and mainly with the United Kingdom. Great Britain opposed all US proposals of economic sanctions against Argentina, based on the fact that Argentina's neutrality was crucial for ensuring the safe arrival of shipments to British ports. In any case, the elite had been successful again: during the war, 40% of the British meat and grain markets were supplied by Argentina (Rapoport, 1980).

The strong connection between the relatively favorable world market conditions and the evolution of top incomes over this period can be seen from Figure 6, which displays the total real income reported by the top 1% and top 0.1% income earners along with total agricultural and livestock exports on a logarithmic scale from 1932 to 1956. The two series are highly correlated and show that when exports increased, high incomes got a disproportionately share of national income, explaining why top incomes followed exports cycles over this period.

2.2. The years 1946-1955: a great compression

The Perón years (1943/1946-1955) coincide with a clear decline in the share of the top percentile, which moved down to around 15% in 1953. Mainly at the expense of rural rents and favored by the accumulation of foreign reserves and the advantageous terms of trade in the world markets after the Second World War and the War of Korea, the Peronist government deepened the industrialization process that had begun many years before, fostered by the impossibility of getting necessary imports from Europe during the war. A deliberate inward-looking policy to finance industrialization and social improvements with rural rents was also to modify the structure of the wealthy sector. New industrial families appeared, but also the old names, traditionally attached to land wealth, diversified to industrial production. One important instrument of the Peronist policy was the IAPI, Institute for the Promotion of Trade, which established a state monopoly on exports and limited the gains of large estates proprietors. This State management of exports was a powerful tool in extracting a fraction of the surplus from exporters. The IAPI was disbanded as soon as Perón was deposed in 1955.

Until the beginning of the decade of 1950, the government embarked upon a large redistributive policy and set the grounds for the welfare state and the development of the powerful middle class that characterized the country by the end of decade of 1960. It is this period that remained in the 'collective memory' as the clearest expression of

the economic policies of Peronism – the chapter by Di Tella and Dubra in this volume analyzes in a peculiar way these policies and the associated discourse. The development of a progressive personal taxation system played a secondary role, the redistribution being achieved by direct public assistance, subsidized interest rate in the credit markets, price controls, a minimum wage policy, and the state management of exports. Even if income tax rates steadily increased, the number of taxpayers was kept low. On the eve of Perón's presidency, the top marginal rate doubled, from 12% to 25% between 1942 and 1943, and was subsequently increased to 27% in 1946, 32% in 1952 and 40% by 1955. Those rates were similar to the levels found in Chile and Brazil, but well below the rates that affected the very rich in developed countries such as France, Canada or the United States.

Along with many other transformations, social and labor rights were enforced, unions gained in power, and a generalized national pension system was organized. The Peronist redistributive policy was successful and visible among the working class; this is a widely acknowledged phenomenon. The use of the income tax statistics let us numerically assess the magnitude of the losses experienced by the richest during the Peronist phase. The top percentile share moved down from 25.9% in 1943 to 15.3% in 1953. The most affected seem to have been the richest among the rich: the top 0.1% decreased from 11.6% to 5.1% and the top 0.01% declined from 4.1% to 1.4% in the same period. The reduction in income concentration was far from trivial, although it had only a limited effect on top incomes by international standards: income concentration in Argentina was still higher than in advanced economies during the same period (see section 2.4 below for a detailed international comparison).

After the frantic expansion of the economy during the years 1946-1949 of Peron's first term, a crisis in the external sector in 1949 forced major changes in the economic policy; initially the expansion of the public sector was held back while attempts were made to retain the policy of increasing wages. A new crisis took place in 1952 (negative trade balance, recession and demonetization). Thereafter, redistribution and credit policies became more prudent and incentives were introduced to favor the agricultural sector (which would always be the main export sector and, as such, the main provider of foreign reserves), which may explain the moderate impact of the drop in exports on top incomes shown in Figure 6 that year. Some recovery of top shares seems to have started even before the end of Perón's government.

Even if our data do not allow for a detailed explanation of what was happening below the top 1%, the drop in the top shares that took place until the middle of the decade of 1950 coincided with a general improvement in terms of income distribution, as indicated by the fact that the participation of wages in total income in national

accounts increased by 8% between 1945 and 1954 (Altimir and Beccaria, 1999). The ratio of wages to GDP reached a historical maximum of 50.8% in 1954, one year before the military coup that deposed Perón (see Figure 7).

2.3. The years 1956-1973

After 1955, the intrinsic limits of the import-substitution industrialization strategy (which began to become apparent by the end of Perón's period) resulted in a sequence of oscillating economic policies with deep social and political implications during the following twenty years. Neither the pro-industrialization sector nor the agricultural-based exporter sector (whose interests did not coincide) was powerful enough to permanently dominate the other. There was also the now powerful working class. Repeated cycles of short expansions and contractions, increasing inflation and institutional weakness dominated the period. The model in the Galiani and Somaini chapter in this volume details some of the political economy mechanisms behind this distributive conflict, whereas the Brambilla, Galiani and Porto's chapters describe the oscillation in trade policy over the same period.

The agrarian activities were responsible of generating the surpluses to foster industry and finance the imports of inputs and capital goods demanded by the expanding manufacturing sector. The exchange rate was usually fixed, to help maintain low levels of inflation and high stability of import prices (denominated in local currency). At the same time, extensive and deliberate foreign trade protection secured the industry from external competition even in the face of the appreciation of the exchange rate. As exports were mainly based on food products, any devaluation implied a real loss for wage earners. Consequently, a fixed exchange rate, with a tendency to appreciation, favored both workers and industrialists (protected from external competition) while it acted as a clear disincentive to landowners. The economic tensions translated to the political arena.

Under this scheme, any acceleration of the economy led to fewer exports (more exportable goods were demanded internally) and more imports of inputs and capital goods. Consuming more tradable goods, together with the discouragement of agriculture, generated recurrent balance of payment crises and output contractions. Sometimes the endogenous limits in this development strategy were reinforced by international conditions (drop in world prices of commodities) so that crises also occurred even if the economy was not growing rapidly. The way out of the crisis always implied a tightening of fiscal and monetary policies together with large devaluations that corrected the distortion in prices, favoring land-based activities again, drastically reducing the real value of wages, increasing exports and regaining foreign reserves. Then the process could restart.

The "stop-and-go" nature of economic policy, which eventually ended by the middle of the 1970s (to inaugurate a decade of stagnation and very high inflation), expressed therefore the limits to industrialization.[5] It was, nevertheless, a period of reasonable income growth vis-à-vis the poor performance that the economy displayed between 1981 and 1991.[6] The sudden movements of the nominal exchange rate ultimately led to violent redistributions between workers, the manufacturing sector and the export-oriented agricultural sector.[7]

For this period, we only have observations for the top income shares in 1958, 1959, 1961 and 1970-1973, during which top shares declined. However, in particular for the observations in 1970-1973, we cannot precisely assess which fraction of such a reduction is due to the increase in marginal rates, in tax evasion or to other factors. This is a serious limitation and the results must be read with caution.

2.4. Income concentration in Argentina in international perspective, 1932-1973

The previous sections discussed the trends in inequality as approximated by the shares of high incomes between 1932 and 1973. Recent work on top income shares allows the comparison of the level and trend of income concentration in Argentina with respect to advanced economies. As discussed in section 1 and highlighted in the chapters by Taylor, Llach, Campante and Glaeser in this volume, Argentina was one of the richest countries in the early twentieth century. Figure 3 provides the comparison of the top 1% income share with several economies of 'new settlement,' which are the subject of permanent comparison among scholars when trying to understand and explain the divergence of Argentina. The levels of income concentration in Argentina, Canada, New Zealand and the United States –but not in Australia– were remarkably similar in the early 1930s. Such communality in levels was rapidly lost, and by the mid-1940s the top 1% income share in Argentina more than doubled the observed shares in those other economies.

Figure 4 displays the top 0.01% income shares in Argentina, France, the United States and Spain. At least two facts can be noticed. Firstly, the level of top shares in

[5] For an analytic approach to the 'stop-and-go' model, see Braun and Joy (1967).

[6] The political economy and the economic policy of this period have been widely analysed in Diaz-Alejandro (1970), Mallon and Sourrouille (1975), Di Tella and Dornbusch (1983), Di Tella and Zymelman (1967, 1973), among others.

[7] The determination of the nominal exchange rate began to play a key and privileged role in all the spheres of the economy. Di Tella (1987) has characterized the styled facts of the pendular policy: a 'repressed stage,' when key prices were controlled to tame inflation, and a 'loosening stage', when controls collapsed and inflation jumped.

Argentina in 1942 (4.1%) is not very far from the one observed in the United States in 1916 (4.4%). Secondly, the dynamics in Argentina between 1932 and 1951 seem to reproduce the shape of US top income shares between 1922 and 1940 but at higher levels, as if the Argentine cycle lagged around 10-13 years with respect to the United States. This reinforces the idea that the pre-1930 figures in Argentina could reasonably be higher than that observed in 1932, in parallel with the evolution in the US, where the top 0.01% share declined from 4.4% in 1916 to 1.7% in 1921. It is also possible that the higher top shares in Argentina as compared to the US correspond to lower marginal tax rates.

As described in Atkinson and Piketty, 2007, the drop in income concentration between 1914 and 1945 in Anglo-Saxon and continental Europe countries was primary due to the fall in top capital incomes, as capital owners incurred severe shocks from destruction of infrastructure, inflation, bankruptcies and fiscal policy for financing war debts. The reason why capital incomes did not recover during the second half of the century is still an open question; Piketty, 2003 and Piketty and Saez, 2006 suggest that the introduction of generalized progressive income and estate taxation made such a reversal impossible. For most of the period, the data for Argentina do not offer information about the composition of income by brackets. This is unfortunate, as economic mechanisms can be very different for the distribution of income from labour, capital, business and rents, and limits the interpretation and comparison of results. In any case, while top shares started a sustained decrease by the beginning of the Second World War in the developed world, they kept growing in Argentina, favored by the export demand from Europe.

The Perón years (1946-1955) coincide with a clear decline in the share of the top percentile, although the evidence also reveals the limited effect on the upper part of the distribution when compared to international standards: by 1954 the top percentile shares were still higher than those found in the United States, France, Canada, Australia or Spain. Here it is worth noticing a striking contrast originated in economic policy between Argentina and Australia. As Atkinson and Leigh, 2007 describe, the effect of the commodity price boom after the Second World War directly affected top shares in Australia, generating a clear spike in 1950, mainly due to the peak of wool prices which sheep farmers received in that year (Figures 3 and 5). The state management of exports in Argentina seems to have been a powerful tool in extracting a fraction of the surplus from exporters, and as a sign of the distributional conflict surrounding trade policy the IAPI was disbanded as soon as Perón was deposed in 1955.

This international comparison highlights both the similarities and the differences between Argentina and a series of developed countries since the early 20th century. While relatively comparable in terms of average income, these initial conditions also indicate that inequality was substantially higher in Argentina by the late 1930s, and while it experienced a post World War II downward trend, the level of inequality remained substantially higher than that of advanced economies over most of the period.

3. An Episodic History of Income Distribution in Argentina in the late 20th and the early 21st centuries.Evidence from households' surveys

3.1. Overall evolution and other data sources

This section reviews the evolution of income inequality in Argentina between the mid-1970s and the mid-2000s, some of the factors affecting this evolution, and a comparison with other Latin American countries. The empirical evidence relies on information from households' surveys, which are available since 1974.

Over this period inequality increased substantially, irrespective of the measure employed, but with upward and downward movements.[8] Figure 8 presents a summary of this evolution by depicting the Gini coefficient for the distribution of household per capita income in the Greater Buenos Aires area (GBA) for years of relative stability. The Gini coefficient soared from 0.344 in 1974 to 0.487 in 2006.[9] The upward trend is statistically significant, as shown in Table 1. It is also robust to the choice of indicator: the share of the poorest quintile declined from 7.1% to 3.7%, the share for the richest quintile rose more than 10 percentage points, from 41.8% to 53.2%, and the 90/10 income ratio increased from around 5 in 1974 to 11 in 2006.[10]

[8]This section builds on Gasparini and Cruces (2008) and Gasparini et al. (2009), developed for the thematic Cluster on Poverty, Human Development and MDG's of the Regional Bureau for Latin America and the Caribbean (RBLAC), United Nations Development Programme (UNDP).

[9]The microdata behind these figures come from Argentina's main official household survey (Encuesta Permanente de Hogares, EPH), which covers the main urban areas of the country. The EPH started in the 1970s as a survey for Greater Buenos Aires (GBA), which accounts for one third of Argentina's population, and was gradually extended later to cover all urban areas with more than 100,000 inhabitants. As most periodic household surveys in the world, the EPH records labor incomes and cash transfers mainly, but it is weaker in capturing capital income, rents to natural resources and other sources of non-labor income.

[10]Gasparini (2005b, 2007) also establishes that this trend is robust to a host of methodological issues, including non-response, misreporting of income, inclusion of non-monetary income, inclusion of implicit rent from own housing, accounting for family structure through equivalization, and adjustment for regional prices, among other factors.

This change in inequality is also robust to the geographic coverage of the data. Inequality series from 1974 can only be estimated for the Greater Buenos Aires, an urban area containing around a third of Argentina's total population. Notwithstanding this limitation, the trends described in the previous paragraph can be extrapolated to the whole urban population. Figure 9 suggests that inequality estimates for the aggregate of all large urban areas in Argentina (available since 1992) do not differ considerably from those of the GBA.[11]

The trend in inequality can also be inferred from alternative data sources. Using comparable methodologies for the 1985-1986 and 1996-1997 expenditure surveys, Navajas (1999) reports Gini coefficients for the distribution of per capita expenditures of 0.33 and 0.38, broadly compatible with the trend in income inequality in Figure 9. Galbraith et al. (2006) find a large increase in inequality among formal workers between 1994 and 2002, using microdata from the social security contribution records.

It is also possible to complement indicators based on personal income with the distribution of income between the factors of production, which can be inferred from aggregate national accounts. While the share of wages was around 45 percent in the early 1970s, the estimations for the mid 2000s range from 30 to 38 percent (Lindemboim et al., 2005), suggesting again a substantial increase in inequality (see Figure 7).[12]

Finally, inequality statistics for the period after 1974 can also be derived from administrative tax sources, as in the previous section of this chapter. Figure 1 presented an attempt to reconcile these sources with household survey data – while not strictly comparable, the top income shares from administrative and survey data presented roughly the same trends for the overlapping period available. These data sources can also complement and correct some biases in inequality estimates derived from incomplete household survey samples - see Figure 11 and a full discussion in section 3.4 below.

The main reference points selected for Figure 8 depict the evolution of inequality in the long run, but conceal the volatility that characterized Argentina's income distribution along this upward trend. Figure 9 displays the Gini coefficient for all the years for which comparable data is available: there are short periods of relative calm, and episodes of rapid surge in inequality. This volatility contrasts with the relative

[11]See Gasparini and Cruces (2008) for more details.

[12]In recent years, an increasing share of wages in aggregated income per se has ceased to be an indicator of diminishing income concentration, since the rise of top wages in English-speaking economies has been a driving force of the sharp increase in top income shares.

stability between the mid 1950s and mid 1970s, based on more limited household surveys. A summary of these early indicators is presented in Table 1. The growth-incidence curves in Figure 10 reflect large and non-neutral income changes.[13] These income dynamics imply an increase in inequality. Overall, incomes fell over the 1992-2006 period for all centiles of the distribution, but the fall was larger for the poor.

This substantial increase in inequality has strong implications. The poverty headcount ratio in urban Argentina computed with the official moderate poverty line climbed from 18.5 to 26.7 between 1992 and 2006 (see Figure 9, bottom panel). It is difficult to explain theincrease in poverty without referring to the worsening in the inequality indicators. The same figure also depicts substantial fluctuations, with some high peaks, along the upper trend in poverty rates over the whole period. The following pages present a narrative of these ups and downs in income inequality in Argentina from the mid-1970s to the mid-2000s.

3.2 An Episodic History of Inequality since 1974

3.2.1. The first episode: the military regime

The first episode covers the period from 1974 to the early 1980s, encompassing the last two years of a democratic government and the whole dictatorial military regime.[14] Weak labor institutions, feeble unions, a sweeping trade liberalization reform, and sharp overall increase in inequality characterize this episode. In March 1976, and by means of a coup d'état, a military regime came into power. The dictatorial government suspended collective bargaining,targeted repression at lower level union leaders, weakened unions, undermined labor institutions, cut down social policies, and initiated a process of trade liberalization. In that framework, income disparities grew substantially: the Gini coefficient for the GBA rose from 0.345 in 1974 to 0.430 in 1981. Poverty did not increase much, and the economy grew at an annual rate of 1.3 percent per capita between 1976 and 1981.

This episode contains the first of the large macroeconomics crisis that the economy would suffer over the following thirty years. The banking crisis of 1980 and the collapse of the managed exchange rate system in 1981 were followed by a large devaluation and the reversal of capital flows. The situation further deteriorated in

[13]As in other parts of this section, the discussion focuses on the period 1992-2006 for which data is available for urban Argentina, and not for GBA only, unless it is explicitly mentioned.

[14] Even when the first episode should start in 1976, information from the EPH is available first for 1974, and then from 1980 onwards. Most of the observed distributional changes are attributed to the developments under the military regime.

1982, when Mexico's default on its external debt spread through the region. The devaluation of 1981 and the liquidity difficulties of 1982 (fuelled by the confidence crisis after the Malvinas war) resulted in a fall of output of around 5% in 1981 and 1982. The Gini coefficient increased significantly by about 3 percentage points and poverty rose 2 points from 1980 to 1981. Although the Gini fell almost one point from 1981 to 1982, the poverty headcount still increased by 3 percentage points and rose above the 10 percent level. The crisis also determined a substantial closing of the economy (imports fell by 50 percent in just 2 years), which marks the beginning of a new episode.

3.2.2. The second episode: the 1980s

The second episode comprises most of the decade of 1980, and it is characterized by the return to democratic rule, a substantially more closed economy, increased union activity, stronger labor institutions (minimum wage enforcement, collective bargaining), macroeconomic instability, and a rather stable income distribution.

The economy remained rather closed from trade, financial markets and technological change, even after democratic rule was restored at the end of 1983. Labor institutions were re-instated, unions regained their power, and social spending increased, although cash transfers remained low. In this scenario, inequality remained stable but poverty increased.

The poor macroeconomic performance over this episode is marked by the fact that capita GDP did not grow between 1982 and 1987, and inflation remained high. This episode is also characterized by the 1985 recession and the ensuing of the Austral stabilization plan. Output fell by 9% and poverty increased 2 percentage points in 1985; however, as can be appreciated in Figure 9, inequality as measured by the Gini coefficient fell by three points with respect to 1984. The 1985 stabilization plan initially managed to reduce inflation, but it accelerated again in 1986-1988, culminating in two hyperinflation episodes, one in mid 1989 and one in the first quarter of 1990, which mark the following episode.

3.2.3. The third episode: hyperinflation

The third episode corresponds to the serious macroeconomic crisis of 1989-1990, which included two bouts of hyperinflations. It is characterized first by a sharp increase and a consecutive sudden fall in inequality after the successful stabilization in 1991. This episode contains the second large increase in income inequality over the whole period under study. Output fell 11% between 1988 and 1990, and the annual inflation rates were 343% in 1988, 3,080% in 1989 and 2,314% in 1990.

The hyperinflation crisis had a large distributional impact: poverty increased by 25 percentage points and the Gini coefficient by 6.3 points between 1988 and 1989, although it should be noted that inequality had been increasing steadily between the 1985 stabilization and the 1989 hyperinflation-induced jump. The Convertibility Plan, which established a currency board, marks the subsequent period.

3.2.4. The fourth episode: the nineties

The fourth episode includes most of the decade of 1990, and it is characterized by relative macroeconomic stability, a currency board with an exchange rate fixed to the US dollar, and deep structural reforms which implied a much more open and flexible economy, with weaker labor institutions.[15] The income distribution during the 1990s became substantially more unequal.

In April 1991, the country adopted a currency board with a fixed exchange rate regime, the Convertibility plan, which managed to curb inflation successfully: yearly inflation fell from 172% in 1991 to 25% in 1992, and from 1993 until 2001 it remained at single digit levels. The Convertibility plan was accompanied by a series of far-reaching structural reforms. The economy grew fast after the implementation of the Convertibility plan until 1994, fuelled by growing public and private indebtedness from the liquidity in international capital markets. This fourth episode can be identified as a period of trade liberalization, intense capital accumulation and adoption of new technologies, weak labor institutions (lower employment protection, non binding minimum wages, among others), weak unions, and increasing although still small cash transfer programs. The peronist administration implemented a large set of structural reforms including deregulation, liberalization of trade and of capital markets, privatization of large state-owned enterprises, the demise of a pay-as-you-go pension system in favor of an individual capitalization scheme, and several other market-oriented reforms. In that scenario the economy started to grow after two decades of stagnation, but inequality went up substantially: the Gini coefficient for urban Argentina rose from 0.452 in 1992 to 0.507 in 2000.

This episode, while more stable in terms of inflation, was not exempt from macroeconomic crises. In December 1994, the newly elected government in Mexico let the currency float, which triggered a capital flight and a financial crisis that severely affected the Argentine economy. The currency board sustained the drain of reserves, but the so-called “Tequila crisis” implied a fall in GDP of around 4% in

[15]This stability refers mainly to the curbing of inflation, which was linked to the fixed exchange rate regime (currency board) set in place. The opening of the economy to capital flows implied a high degree of exposure to international fluctuations and to flow reversals, as witnessed by the impact of the succession of crises in Mexico, South-East Asia, Russia and Brazil. See the section on macro crises below for more details.

1995. While growth bounced back quickly after the contagion of the Mexican financial crisis, the episode had a very large distributional impact: poverty increased by 5 percentage points and the Gini index by 2.7 points in a year. The effects of the crisis are also visible in the evolution of the national urban unemployment rate, which soared from 10.7% in May 1994 to 18.4% in May 1995. Possibly as a consequence of the reforms, unemployment had already been increasing steadily from 6% in October 1991 (the first measure before the implementation of the Convertibility plan), but it jumped with the Tequila crisis and remained in double digits until 2007. The crisis also implied a set of changes in the structure of employment, most notably an increase in the labor force participation of women and secondary workers, and the implementation of the *Plan Trabajar*, a workfare program which would form the basis for future cash transfer initiatives.[16] Contrary to the previous episode, however, inequality levels and the unemployment rate did not fall during the recovery. It is possible that the financial crisis acted as a catalyst that accelerated and amplified the adverse distributive effects of the ongoing reforms. The Tequila crisis probably exacerbated what was going to be, in any case, a difficult transition to a post-reform economy. While growth resumed over 1996-1998, inequality levels only fell slightly.

3.2.5. The fifth episode: the recession and the 2001-2002 crisis

The fifth episode is marked by recession that hit the country in the late 1990s and the ensuing large macroeconomic crisis in 2001-2002, which triggered an economic meltdown and the devaluation of the currency. This episode is characterized by a sharp increase in inequality.

After the recovery from the Tequila crisis, growth resumed fairly strongly in 1996-1998. Policy inconsistencies (such as electoral spending and debt sustainability issues related to the transition to the fully-funded pension system), the exhaustion of the currency board, and an unfavorable international scenario deepened a recession which started in 1999 and triggered a large crisis at the end of 2001. The continuing exposure to international capital flows brought about by the fix exchange rate regime and the liberalization of the capital account hit the economy at the end of the millennium, with impacts from the 1997 financial crisis in South-East Asia and the 1998 crisis in Russia. In January 1999, the latter resulted in the devaluation of Brazil's currency, Argentina's largest trading partner. The economy entered a period

[16]For instance, the participation rate of adult women (aged 25-64) increased from 50.8 to 53.3 percent from 1994 to 1995, while it remained fairly stable for men in the same age group (91 and 91.3 percent). For the same years, the employment rate for adult women was stable at 45.1 percent, but it decreased from 83.5 to 80.6 percent for adult men, which is reflected in the unemployment rates increases from 11.2 to 15.4 for women and 11.8 to 12.3 for men. The participation rate for adults over 65 also increased throughout the period (CEDLAS, 2011).

of recession, which culminated in a major economic, banking and financial crisis in December 2001. The currency board finally collapsed after restrictions were imposed on withdrawal of funds from the banks, which triggered a devaluation of the currency. The meltdown resulted in a dramatic fall in output and employment: per capita GDP fell 17 percent between 2000 and 2002, and unemployment climbed to 19 percent.

Over this period, changes in inequality were dominated by the macro situation. The recession and the ensuing crisis had a large impact: the Gini coefficient, for instance, increased 4 percentage points between 1999 and 2002. The most dramatic effect was the combination of the jump in prices (due to the exchange rate pass through) and falling nominal incomes (due to the sharp fall in economic activity), which implied a jump in the official poverty rate from 38.3 percent in October 2001 to 53 percent in May 2002.

3.2.6. The sixth episode: the 2003-2007 recovery

The sixth episode started around 2003 with the rapid growth in the aftermath of the crisis, and lasted until 2008, with the development of a major international financial crisis that globally affected growth, commodity prices, and other relevant factors for Argentina. The average annual growth rate was unprecedentedly high, at 8% between 2003 and 2007, while the unemployment rate plummeted from more than 20%to 8%. Poverty and inequality indicators fell continuously during the same period. The Gini coefficient reached in 2006 approximately the same level as in the second half of the 1990s, before the start of the 1999-2001 recession.

The strong macroeconomic performance determined the evolution of all socioeconomic indicators during the sixth episode. The fast economic recovery was propitiated by the new structure of relative prices that emerged from the strong devaluation of the peso in 2002: the fall in real wages increased the competitiveness of Argentina's products and deterred imports. New taxes and a default on the government's debt allowed a fiscal surplus that helped stabilize the economy. The social unrest and the political instability of 2001-2002 were curbed by a new and stronger government from the traditional Peronist party (2002-2003), with the help of large cash transfer programs displaying rather wide coverage. Moreover, the period saw a large increase in the prices of the commodities exported by the country. These exceptional conditions in the international markets were also a key factor in the recovery. The Kirchner administration (2003-2007) did not innovate much from the economic policies inherited from the interim Duhalde's presidency. However, it strengthened labor institutions, by supporting the bargaining power of unions and innovating in cash transfer programs.

The main characteristics of this episode include the adjustment of economic agents to the new relative prices implied by the devaluation (and later, depreciation, given that a dirty floating was adopted), stronger labor institutions and a more extensive safety net. Inequality fell rapidly and substantially to pre-crisis levels over this period, as depicted in Figure 12. Several factors combined to create a scenario where inequality fell over this episode: (i) the stabilization of the economy and the recovery from the crisis 2001-2002; (ii) realignments in wages after the devaluation of the peso, (iii) a strong employment expansion; (iv) lower import competition and productive changes due to the new relative prices, which helped (through the devaluation) unskilled labor intensive industries; (v) slower technical upgrading, due in part to the change in the relative price of imported capital goods; (vi) stronger labor institutions, stronger unions and pro-worker labor policies, with increases in the minimum wage and mandated lump sum increases in wages; and (vii) a more extensive safety net, with the deployment in 2002 of a large emergency cash transfer program to the poor, which covered up to 20 percent of the households in the country.

3.2.7. A typology of episodes since the late 20th century

The six proposed episodes can be classified into three types: (i) periods of serious macroeconomic crisis (episodes 3 and 5), (ii) periods of liberalization with weak labor institutions (episodes 1 and 4), and (iii) episodes of low import penetration and stronger labor institutions (episodes 2 and 6). Inequality seems to have fluctuated widely under type-1 episodes, increased in a rather permanent way under type-2 episodes, and decreased or remained stable under type-3 episodes.

3.3. Determinants of the evolution of inequality

As the discussion of the episodes highlighted, there are clear differences with respect to the evolution of the income distribution. Figure 12 reproduces the pattern of the Gini coefficient and GDP per capita, and delimits the six episodes. Table 3 in turn characterizes these episodes in terms of five elements: (i) macroeconomic performance, (ii) openness to international trade, (iii) technological change and physical capital accumulation, (iv) unions and labor institutions, and (v) social protection. Changes in the income distribution are the result of a vast array of factors, so any simple classification excludes potentially relevant explanations. The five factors in Table 3 have two elements in common: they have close theoretical links with changes in the income distribution, and they have been extensively invoked in the distributional literature in Argentina. The following pages first describe the stylized facts behind the increase in inequality over the period, and then review the evidence on each of the factors listed in Table 3.

3.3.1. Stylized facts: returns to skills, sectoral changes and supply factors

The first relevant factor is the evolution of the returns to human capital. Figure 13 illustrates the changes in the returns to education in the context of multivariate wage regressions for the years 1980, 1986, 1992, 1998 and 2006.[17] These results are based on relatively stable years, to isolate the impact of crises and to focus on the impact of these factors on the trend in inequality. The results in Figure 13 indicate that the gap between primary school and secondary school graduates did not change much over time. However, the gap between college graduates and the rest fell over the 1980s, but then strongly increased in the 1990s. This is confirmed by Gasparini and Cruces (2008) based on a microsimulation approach, who find that inequality in hourly wages and earnings diminished in the 1980s (ignoring the macro crisis of the late 1980s), driven by a fall in the returns to education in terms of hourly wages. Conversely, during the 1990s the returns to education became highly unequalizing. According to the microsimulation results, the overall effect of returns to education accounts for 4.6 points out of the 8.4 point-increase in the Gini for the equivalized household income distribution. These results suggest that unskilled workers lost in terms of hourly wages and hours of work during the 1990s, and that these changes had a very significant role in shaping the distribution of hourly wages, earnings, and household income. The discussion of the determinants of inequality changes below pays particular attention to this phenomenon.

The second stylized fact is the evolution of the relative supply of skilled workers. The simplest explanation for the change in the wage gap between the skilled and the unskilled relies on changes in the relative supply and demand for both types of workers. Specifically, the skill premium may widen if the relative supply of skilled labor falls. The evidence for Argentina, in fact, reveals a strong increase in the relative supply of semi-skilled (high school graduates) and skilled (college graduates) workers, to the detriment of those with lower levels of skills (those with less than a high school degree). Gasparini and Cruces (2008) show that 78.6 percent of adults aged 20 to 65 were unskilled in GBA in 1974, but that their share fell significantly to 47.1 percent in 2006. For the semi-skilled, the share rose from 17.6 percent to 37 percent, and for the skilled from 3.8 percent to 15.9 percent. These patterns are even more pronounced when considering the share in employment or in aggregate labor.

The strong increase in the relative supply of college graduates would have driven down the wage skill premium if factor demands had not changed. This appears to have happened in the 1980s, but not in the 1990s. Instead, in the decade of 1990 the college wage premium rose sharply, which suggests an increase in the demand for

[17]For an analysis of the earlier part of the 20th century, see the chapter by Campante and Glaeser in this volume, which presents a comparative study of education and returns to skills in Chicago and Buenos Aires.

skilled workers that more than offset the downward pressures from its increased supply.

A third stylized fact refers to the sectoral distribution of workers. Argentina's economy experienced large changes in its productive and employment structure over the period under study. Gasparini and Cruces (2008) discuss the evolution of the shares in aggregate labor by economic sector in Greater Buenos Aires since 1974. The most noticeable change in the labor structure since the 1970s was the fall in employment in the manufacturing industry, and the increase in skilled services (public sector and professional and business services). While in 1974 39 percent of employment was in the manufacturing industry, the value dropped to just 17 percent in 2006. On the other hand, while in 1974 21 percent of employment was in the more skilled-intensive sectors of professional and business services and the government, that share rose to 41 percent in 2006. These patterns do not vary substantially when dividing the population of workers by skills.

The change in income inequality thus occurred against a backdrop of an increase in the wage skill premium, in the relative supply for skilled workers, and on increased use of skilled labor across economic sectors. The rest of the section reviews the plausible determinants of these observed trends.

3.3.2. Macroeconomic factors: hyperinflation, meltdown and adjustment

The macroeconomic performance of Argentina has been characterized by low growth, and high volatility from the early 1970s to the mid-2000s. Table 4 provides data on a set of related indicators. The macroeconomic performance is usually associated to the central position of the income distribution, and hence to poverty. In contrast, its links to inequality are not unambiguous or well established in the economic literature, since it is not the case that the benefits from growth (or the costs of recessions) are equally shared along the income distribution. However, in most cases large macroeconomic crisis – in terms of high inflation and output and employment falls – are associated to unequalizing changes, because households in the lower end of the distribution have relatively less access to income smoothing and insurance devices.[18]

The inequality dynamics in periods of economic turbulence are largely governed by the macroeconomic situation (see Table 5). Argentina suffered two large crises from the mid-1970s to the mid-2000s with substantial effects on the income distribution. Figure 12 depicts the sudden and large falls in GDP per capita. While the relationship

[18]The 1995 crisis in Mexico seems to be an exception. Székely (2005) reports that inequality actually fell between 1994 and 1996, because the reduction in income over all the population was largest among the richest households.

is not a perfect fit, there seems to be a clear negative correlation between the evolution of GDP and inequality indicators during the episodes of crisis and recovery. This is clearly visible during the crises of episodes 3 and 5, and the recovery of episode 6.

Understanding and accounting for crises is relevant, first and foremost, because of their large negative effect on household welfare, which has been documented elsewhere.[19] In terms of their effect on inequality, the following paragraphs concentrate on the mechanisms determining the differential impact of crises along the income distribution, and on the channels through which they can have a permanent effect on its shape.

From the macroeconomy-distribution perspective, the two largest crises (1989-1991 and 2001-2002) represent the most interesting episodes over the period, since they present unusually large falls in GDP and simultaneously large distributional impacts.[20] Under these two large crises, the evolution of poverty and inequality were dominated by the combination of falling output and sudden increases in prices, although the inflationary processes were fundamentally different in nature during both crises.[21]

Given the fiscal origin of most high inflation and hyperinflation bouts (Heymann and Leijonhufvud, 1995), it is not surprising that the literature concentrates on the differential incidence of the inflation tax.[22]Ahumada et al. (1993, 2000) have quantified the distributional effects of inflation in Argentina from a tax-incidence perspective. Recurring to similar methodologies, both studies estimate monetary demand functions, aggregate inflation tax and seigniorage collection, and a re-weight the consumer price index by quintile of the income distribution based on the 1987

[19]See for instance the discussion for Latin America and the Caribbean in Lustig (2000), and the comparative discussion of the impact of financial crises in the region and South-East Asia in Fallon and Lucas (2002).

[20]The recession preceding the Austral stabilization plan in 1985 was not associated to large increases in inequality. Also, as stated above, the lasting effects of the Tequila crises cannot be disentangled from those of the host of reforms taking place simultaneously.

[21] The devaluation in early 2002 implied a jump in the price level to accommodate the new relative prices of the economy. The inflation in the 2003-2007 period, although increasing, was moderate when compared to the hyperinflations of 1989 and 1991. It was mostly due to the expansive monetary policy, the growing levels of employment and to the adjustment of the real exchange rate to its equilibrium level after the devaluation's overshooting in a context of a dirty floating exchange rate regime. Contrary to the experience of the 1980s, government financing through the inflationary tax did not seem to be a major force behind the changes in the price index.

[22] Inflation constitutes by definition a proportional tax on nominal balances, but its effect on the income distribution is neutral only if all households face the same inflation rate, if all households have the same income elasticity in their demand for money, or if they all have access to the same "inflation-protection" technologies. Theoretical models have been developed by Bulir (1998) and Sturzenegger (1997), among others.

Household Expenditure Survey. An interesting finding from Ahumada et al. (2000) is that quintile-specific inflation rates do not differ much. However, the results indicate that inflation tax as a proportion of income was about twice as large for households in the first quintile as for those in the fifth quintile over the 1980-1990 period. The impact of the inflation tax on aggregate inequality indicators was comparatively small for high inflation periods, with increases of about 1-1.5 points of the Gini for 1980-1988 and 1990, but extremely large for the year 1989 – the inflation tax would imply an increase of 3.4 points in the Gini coefficient.

The available evidence on the impact of hyperinflation on inequality in Argentina suggests a relatively large regressive (and thus inequality increasing) effect. However, this impact should be short lived, since successful stabilization programs often reduce inflation rates drastically. This seems to be confirmed by the 1991-1993 trend of the Gini coefficient (Figure 12).

The other major episode of macroeconomic crisis was induced by the implosion of the currency board regime in December 2001 and the subsequent financial and economic meltdown, which was particularly virulent even by Argentine standards. Its impact on income inequality has been widely documented. Using a specific survey implemented by the World Bank in the midst of the crisis (June and July 2002), Fiszbein et al. (2003) report that almost half of the households suffered a fall in nominal income; they also observe a change in household roles with respect to the labor market, with higher employment among secondary workers as a strategy to complement the fall in income from unemployed (or working reduced-hours) primary workers. Other coping strategies reflected in the survey include relying on the help of family and friends, reducing consumption of non-basic goods and switching to cheaper products. As in other crises in Latin America, the extremely high level of unemployment implied that school enrolment did not fall significantly among younger children, and only slightly among those aged 16 to 18.[23]

One key component of the crisis was a large bank deposit freeze and liquidity restriction, which in principle has an ambiguous direct distributional effect.[24]Halac and Schmukler (2004) find that the probability of having savings was positively and significantly associated with measures of income (Bebczuk, 2008, reports similar evidence for other countries in the region). Interestingly, however, the authors also find that, among those with savings, the less educated and those with lower incomes

[23]CEDLAS (2008) reports small but positive increases in enrollment rates between 2001 and 2003 for virtually all age groups, from 3 to 23.

[24]While no empirical analysis has attempted to link the two phenomena, it is widely believed that the restrictions on withdrawing cash from banks had a poverty and inequality increasing effect by starving the cash (or informal) economy.

had a larger probability of being affected by the bank deposit freeze, which implies that the measure probably had a positive effect on inequality.

While other aspects of the 2001-2002 episode have been studied (see Gasparini and Cruces, 2008, for more details), the available evidence clearly states that the poor in Argentina were more affected by crises than the non-poor. However, most of the inequality-increasing factors tend to dissipate relatively quickly, through the increase in employment and income levels in the recovery periods. In the two episodes of large crisis, inequality first jumped but then fell considerably right after the stabilization. There is a debate on the existence of hysteresis effects on inequality from the crises (Lustig, 2000), but there does not seem to be definitive empirical evidence for Argentina. While the Tequila crisis might have had permanent effects on the income distribution, it is likely that this was due to the acceleration of the negative aspects of the underlying reform process. Moreover, any permanent effects of the 2001-2002 crisis are difficult to evaluate, since they are confounded with the strong recovery from 2003 onwards. The argument of a permanent reduction in the stock of general human capital does not seem to apply in the latter case, given the aforementioned evidence on non-falling school enrollment, although other more subtle mechanisms might be in place.[25]

Finally, regarding the importance of macroeconomic factors for the income distribution beyond episodes of crises, a current of the literature attributes the bulk of the increase in inequality in the 1990s in Argentina to the impact of macroeconomic adjustment and the resulting reduction in the aggregate demand for labor (González and Menéndez, 2000; Altimir et al., 2002, Frenkel and González Rozada, 2002; Damill et al., 2003; and Beccaria, 2006). However, as argued by Gasparini and Cruces (2008), the direct distributional effect of the increase in unemployment in the 1990s seems to be of second order, as it is mainly accounted for by the raise in labor market participation.[26]The effects of unemployment and adjustment are not mutually exclusive (and might even be complementary) to explanations based on the impact of trade liberalization and skill biased technical change.

3.3.3. Trade liberalization, technical change and capital incorporation: Implications for income inequality in the Argentine case

[25]While no empirical analysis has attempted to link the two phenomena, it is widely believed that the restrictions on withdrawing cash from banks had a poverty and inequality increasing effect by starving the cash (or informal) economy.

[26]The increase in unemployment may have depressed wages for those employed, especially among the unskilled and the semi-skilled, which bore the largest increase in joblessness, and this might have contributed to a higher wage premium and increased inequality, although there is no systematic evidence on the strength of this phenomenon in Argentina.

The relationship between international trade and inequality has long been a key issue in Economics. The degree of openness of a country is a crucial determinant of its price structure, and hence of the structure of employment and factor remunerations. The chapter by Galiani and Somaini in this volume presents a model of these aspects of the Argentine economy during the 20th century, highlighting the political economy factors behind the drives for integration to the world economy. While this model provides the political economy backdrop for the relationship between trade and evolution of inequality discussed in this section, the evidence presented below is partly based on the discussion by Brambilla, Galiani and Porto, also in this volume. These authors review the history of Argentine trade policy and its relationship with distributional conflict, international conditions and the country's fundamental comparative advantage in agriculture.

In terms of the analytic narrative of this section, the two periods of large increases in inequality in Argentina (besides the large macro crises), episodes 1 and 4, coincide with an explicit pursue of trade liberalization. More import competition might have induced a reduction in the relative demand for industries that were intensive in unskilled labor, and thus increased overall inequality through increasing skill premia.

The conventional wisdom in economic theory is that unskilled labor, the relatively abundant factor in developing economies, would benefit from trade reform, and thus inequality would fall, although these reforms usually have more complex effects (Goldberg and Pavcnik, 2004, 2007). As a middle-income country, the case for Argentina was not clear-cut ex ante, especially since the country's relative abundance might correspond to natural resources, which are complementary to capital and skilled labor, and not to unskilled labor (Berlinski, 1994; Galiani and Porto, 2008; Galiani and Somaini, this volume). The impact of trade liberalization on the distribution of income is ultimately an empirical question.

The evidence for Argentina suggests overwhelmingly that the episodes of trade liberalization led to an increase in inequality. Galiani and Sanguinetti (2003) were among the first to find evidence of an unequalizing effect of the trade reforms of the 1990s. They find that in sectors where import penetration was deeper, the wage gap between skilled and unskilled widened, although this factor can explain only 10 percent of the total change in the wage premium. While most of the studies on trade and inequality have concentrated in specific episodes (the short-lived liberalization of the 1970s in the earlier literature, and the reforms of the 1990s more recently), the study by Galiani and Porto (2008) spans over 1974-2001, spanning five of the six "episodes", with consecutive periods of protection and liberalization (see Figure 14 for a time series of the average tariff and the average skill premium in their data). The

analysis, based on the impact of sectoral tariffs on the wage skill premium, indicate that the level of tariffs has a positive and significant effect on the wages of unskilled labor, no significant effect on semi-skilled (high school graduates) labor, and a negative impact on the returns to higher education. Taken together, this evidence implies that the trade liberalization episodes increased skill premia and thus contributed to higher overall income inequality in Argentina.[27]

The general conclusion from these and other studies on the distributive impact of trade liberalization in Argentina is that, while more openness implied a wider wage gap and thus higher levels of earnings inequality, its effects can explain a significant fraction of the total increase in the wage premium, but the unexplained part is still large.

The recent literature on income distribution dynamics stresses the importance of technical change and capital incorporation as alternatives (or complements) of the trade liberalization channel. The third factor in Table 3 combines changes in production and organizational technologies, and physical capital accumulation. Both factors are usually associated with a bias towards skill labor, driving inequality in the labor market. The relevance of this hypothesis for Argentina is confirmed by the evidence linking the large increase in inequality in the 1990s to a shock in the adoption of new technologies, either directly, or through its incorporation via capital and international trade.

Some of the plausible concurrent factors behind the large increase in income inequality in Argentina during the decade of 1990 can be derived from the extensions to the standard trade model. Many of the arguments and the evidence point towards the importance of technology and capital accumulation (Goldberg and Pavcnik 2004, 2007). Skill biased technological change (SBTC), which might arise endogenously from increased trade, and the incorporation of technology through the process of capital accumulation might have occurred concurrently to trade reform in Argentina.

The theoretical arguments are relatively straightforward, and have been formalized in Krusell et al., 2000, Acemoglu, 2002 and Card and Di Nardo, 2006. Technological and organizational changes that increase the relative productivity of skilled workers translate into wider wage gaps, and, with labor market rigidities, also into lower employment for the unskilled. An increase in the use of physical capital in the production process becomes unequalizing through two channels. First, if capital goods incorporate embedded technological change, an increase in investment in new

[27]It must be stressed that, as is the case in all the literature covering the relationship between trade an inequality, the analysis is almost exclusively focused on earnings and not on overall income.

machinery and equipment can accelerate the adoption of new technologies. Second, even without technical innovations, physical capital is usually more complementary to skilled labor, being then a source for an increasing productivity gap across workers with different education levels. The arguments are compelling, but their empirical relevance for changes in inequality must be established.

Since the mid-1950s and until the mid-1970s, Argentina was a relatively closed economy with low investment rates. The political turmoil of the 1970s and the stagnant, unstable and protected economy of the 1980s discouraged investment in physical capital, especially foreign investment. A new scenario emerged in the 1990s, combining macroeconomic stability, and a set of market-oriented policies, including a massive process of privatizations and deregulations, and measures toward capital account liberalization. On top of that, the real exchange rate appreciation and the large tariff reductions substantially reduced the relative price of physical capital. The favorable international financial conditions also contributed to the massive inflow of foreign capitals. Technology and organizational changes are difficult to measure, and in Argentina they occurred in a period with several policy changes and economic shocks. The evidence in favor of these hypotheses is mostly indirect. Private investment as a proportion of GDP increased strongly between the 1980s and the 1990s. In particular, foreign direct investment as a share of GDP increased from an average of 0.4 percent in the period 1970-1990 to 1.6 percent in the period 1991-1997. According to FIEL (2002), the physical capital stock (excluding the public sector) grew by 20 percent between 1992 and 1999. The average age of the capital stock decreased from 8.8 years in 1989 to 5.2 years in 1998. This rapid increase in physical capital, particularly of imported machinery and equipment, was a vehicle of technology modernization after decades of backwardness.

The deregulation of many domestic markets and the removal of barriers to international trade forced private firms to seek the productivity gains necessary to stay in business. Besides, the openness of the Argentine economy occurred just in a moment of increasing globalization and diffusion of new communication and information technologies, inducing firms to adopt state-of-the-art production technologies. Many sectors went through radical changes in their production processes, incorporating information technology, computers, robots and modern assembly lines in just a few years.[28]These changes also occurred at the organizational level. There was an extraordinary transformation in the property structure of firms from public to private, from domestic to foreign, and from small to large owners.

[28] See Bisang *et al*. (1996), Kosacoff (1998), Katz (2000) and Bisang and Gómez (2006).

Both technological and organizational changes implied a lower relative demand for unskilled and semi-skilled workers. The impact on these workers could have been milder if changes had been adopted gradually, or in a context of strong social protection with compensatory measures. That was not the case: the modernization of Argentina's economy took place in just a few years in a scenario of weak labor institutions, and in the midst of a process of labor deregulation.

A sectoral decomposition of changes in the share of employment by educational groups (Gasparini and Cruces, 2008) suggests that the fall in the relative employment of unskilled workers is mainly accounted for by a drop in the intensity of use of this factor within all economic sectors. The "within" effect is particularly relevant in the period 1992-1998, which is consistent with the story of technological/organizational shock in the 1990s. With skilled-biased technological change, the increase in the stock of more educated workers can be easily absorbed in each sector, consistent with a strong increase in the intensity of use of skilled labor in most sectors of the economy. The skill upgrading in production processes was particularly strong in basic and high tech manufacturing sectors, but also in commerce and public administration. Moreover, the observed changes in the returns to education, which favored skilled workers, are also compatible with the SBTC/capital accumulation hypothesis. The returns to observed and unobserved skill substantially increased in the 1990s (and not in the 1980s), a fact that is consistent with a technological shock driving changes in both returns.

Acosta and Gasparini (2007) present evidence for the relationship between capital accumulation and the wage structure by taking advantage of the variability of wage premia and capital investment across industries in Argentina's manufacturing sectors. The results suggest that sectors that accumulated more physical capital in the 1990s were those where the wage premium grew the most. In related work, Bustos (2006) assesses the impact of trade and foreign investment on technology and skill upgrading at the firm level. This study shows that aggregate skill intensity in the manufacturing sector is almost entirely accounted for by skill upgrading within firms. Moreover, the paper shows that firms that upgraded technology faster also upgraded skill faster.

The profound trade and capital account liberalization process of the 1990s was probably a relevant factor in fostering the rapid adoption of new technologies through the capital/technology and trade/technology channels, and these effects might have been larger than the "pure" trade channel covered previously.

The main hypothesis behind the increase in inequality in many developed countries, skill-biased technological change, seems to be present in Argentina. First, changes

occurred not only in production technologies, but also in the way of organizing economic activity, including substantial changes in firm size and ownership structure. Second, unlike other countries where changes were introduced gradually, Argentina experienced a shock in the way production was carried out, due to the sudden openness of the economy. Thirdly, the overvaluation of the exchange rate and the global transition towards intensive use of information technologies coincided, driving the adoption of state-of-the-art equipment and processes. Finally, as discussed below, changes occurred in a framework of weak labor and social institutions. It should be noted, however, that while several studies suggest the empirical relevance of the argument discussed in this section, there is no conclusive evidence on the overall quantitative importance of this hypothesis.

3.3.4. Labor institutions

Labor institutions encompass labor taxation and regulation, freedom of unionization, forms of collective bargaining, minimum wages, and other more subtle active labor market policies that might reinforce the bargaining power of employees. The literature in general agrees on the equalizing effect of these factors, at least in the short run, although the range of impact estimates is very ample.

The area of labor taxation and regulation was targeted by the first Menem administration in the early 1990s. It introduced a sweeping program of payroll tax reductions, explicitly motivated by the belief that lower taxes would reduce unemployment and promote formalization of the labor market.[29]The government considered these reductions to be compensatory measures, and thus mandated larger cuts for less developed areas. Cruces et al. (2008), however, report that the reductions had no significant effects on levels of local employment (the purpose of the reform), although the reductions were partially shifted to higher wages. This limited increase in wages implies that the distributional effect should be minor, but with an ambiguous direction: on the one hand, poorer regions received larger cuts, so they should see the largest wage increases (reduction in between region inequality). On the other hand, the cuts only benefited formal workers, potentially increasing within-region inequality.

[29]Neffa (2005) provides an exhaustive description of all the changes introduced in this and other aspects of labor regulation in the 1989-2001 period. The Menem administration also introduced a series of so-called "flexible" wage contracts (*modalidadespromovidas*), which allowed firms to legally hire workers with reduced entitlements (such as the reduction or the removal of severance payments for some categories, or rebates in social security contributions), or to make extensive use of trial periods and internships. While these measures certainly implied lower labor standards for registered workers, it is not evident to isolate their distributional impact from the contemporaneous trends in labor markets, marked by increasing unemployment and informality, and from concurrent reforms. Cruces, Galiani and Kidyba (2010) analyze the impact of reductions in payroll taxes on wages and employment.

There has also been some discussion in the literature about the distributive impact of minimum wage levels and their change. The minimum wage was an important variable bargained over by government and unions in the inflationary 1980s because it constituted a centralized device for recouping the erosion of price increases on the purchasing power of wages. In that sense, it is likely that through this channel increases in the minimum wage had an equalizing effect. The low inflation rates in 1993-2001 implied a loss of relevance of the minimum wage, which was fixed in nominal terms at a low level from August 1993 to June 2003, and largely not binding over most of the period. The minimum wage increased substantially from July 2003, coinciding with the recovery of the economy, and it probably had an equalizing effect over the recovery period.

The partial review of the previous paragraphs shows that the distributional impact of labor policies and reform during the 1990s is not a settled issue. Most of the measures were qualified as anti-labor, and the increase in employment and efficiency that justified them failed to materialize in many cases. However, disentangling the effect of each policy from that of concurrent reforms in the labor market and elsewhere might prove impossible.

The Argentine labor market (and political landscape) has been characterized by the presence of strong, industry wide unions, which played a significant role in shaping the country's social, economic and political outlook, mainly through their relation with the Peronist party. Despite the importance of unions in the Argentine economy, there is only limited empirical evidence on their impact on wages and income, mostly because of data availability issues.[30]

There is a broad consensus about the inequality-reducing effects of the first Perón government's pro-labor policies, in which the previous (relatively scattered) unions were centralized and greatly strengthened.[31]From the 1940s to the 1950s union membership increased markedly, from 30 percent to 51-65 percent for manufacturing workers, and from 24 to 38-41 percent for non-agricultural workers (Marshall, 2005). After this initial consolidation of large unions, it is highly likely that unions also had an overall equalizing effect in the 1950-1970 period, as in more advanced economies. The low levels of informality and high levels of union membership warranted a large fraction of beneficiaries from union activities, and the presence of high tariffs implied

[30]The EPH, an otherwise fine labor force survey, has never routinely collected information on union membership.

[31]The overall distributive effect of unions depends on the characteristics of union members, which is an empirical question. Membership premia might have equalizing effects if members are unskilled, low income workers, while the contrary is also possible if members are mostly skilled or semi-skilled. This is especially relevant in latter periods, with a labor force characterized by higher levels of informal workers.

a relative abundance of rents to share (and to fight for). Moreover, unions also played an important role in inflationary periods, by helping regain the losses in the purchasing power of wages (which are in fact temporary rents enjoyed by firms).

While consistent series of union membership are not available, the evolution of coverage and strength for 1970-1983 can be deducted from qualitative sources.[32] In broad terms, unions were only relatively weakened by the authoritarian governments at the beginning of the 1970s, and regained a substantial political and formal power with the return to democratic rule (and to a Peronist government) in 1973. The military coup of 1976 and the ensuing military regime of 1976-1983 implied an important retreat of unions from the labor market, and the persecution of middle and low rank union representatives at the workplace. From 1984 onwards, with the return to democratic rule, it is possible to observe the evolution of union influence from the available data on number of strikes and days lost to industrial action (figures for 1984-2006 can be constructed from Murillo, 1997, and Etchemendy and Collier, 2007). These figures show a high degree of union activity and volatility during the 1980s, receding greatly from 1991 onwards, and then growing again after 2001. Union membership also declined between 1990 and 2001 (Marshall, 2005). These trends are suggestive of a series of factors.

The decline in union activity coincides with reforms such as privatizations, trade liberalization and price stabilization of the 1990s, which at least in theory greatly reduced the power of unions. This is due to the dissipation of rents from inefficient state-owned enterprises, from protective tariffs and from the inflation-induced rents and subsequent wage bargaining (Marshall, 2002, highlights price stabilization as the loss of a common standard for collective bargaining in this period). The decline in union activity during the 1990s, thus, coincided with a period of rising wage inequality and with factors that according to the evidence reviewed contributed to this rise in wage inequality.

3.3.5. Cash transfers and poverty reduction programs

The previous sections analyzed the level and the evolution of inequality from the mid-1970s to the mid-2000s in Argentina, and covered a host of potential determinants of the major changes observed throughout the period. The influence of the state in most explanations was pervasive but indirect, operating mainly through major reforms. Social protection affects the income distribution in more straightforward ways. In particular, the impact of cash transfers are directly reflected in income inequality

[32] Marshall (2005) presents an informed discussion of the trend in unionization rates in Argentina in the period 1940-2000. The series cannot be presented without this discussion, because the available indicators are not comparable *per se*; therefore, interested readers are referred to the original article.

statistics. This section focuses on the direct effect of cash transfer policies and poverty reduction programs.[33]

As described by Gasparini and Cruces (2008), the structure of public social expenditure changed in the period under analysis. The growth in the share of cash transfers from social assistance and emergency employment programs represented the main change, increasing from 15 percent to 25 percent. This increase was due to the new workfare programs in the mid-1990s, and to the implementation of a large emergency cash transfer program after the 2001-2002 crisis, the Programa Jefes y Jefas de Hogar Desocupados (PJJHD). The program covered around 2 million households (about 20 percent of all households in the country). As the economy recovered, the coverage of the program fell to 1.4 million beneficiaries in 2007.[34] Gasparini and Cruces (2008) report that the distributional impact of this program has been small, although not negligible – it accounted for a reduction of around 1 Gini percentage point in 2006, and seemed to contrast with the widespread adoption of massive targeted conditional cash transfer programs in the region. However, the economic history of Argentina reviewed in this volume indicates that groundbreaking policy innovations happen often in the country. In 2009, the Fernandez de Kirchner administration announced the "Asignación Universal por Hijo" program, which expanded the coverage of family allowances to the children of the unemployed and informal workers. This expansion in this benefit's coverage resulted in its virtual universalization, and the level of benefits and coverage of the program placed it among the most significant in the region (Gasparini and Cruces, 2010).

3.4. Making the link between taxed-based statistics and survey-based statistics

Section 2 was devoted to the very top of the income distribution based on tax statistics, while this section is based on more detailed household survey data for the years following 1974. Figure 1 provided an attempt to exploit the overlapping period of the two data sources. The brief discussion that follows illustrates how the two data sources can be considered as complements in the analysis.[35] The main insight is that

[33]Gasparini and Cruces (2008) present a full benefit incidence analysis of taxation and public social expenditure. They find that fiscal policy reduces the level of inequality, but it does not have a significant impact in its evolution over the last decades. This result is driven by the fact that changes in the distributional impact of fiscal policy were small compared to inequality changes driven by "market" forces.

[34] The new programs *Familiaspor la Inclusión Social* and *Seguro de Capacitación y Empleo* gained relevance as successors to the PJJHD, but the latter was still the one with the highest number of beneficiaries in 2008. See Cruces and Gasparini (2008) for details on these programs.

[35]Research on the comparison between households' surveys and tax records in developing countries is being conducted by Alvaredo.

even when the number of well-off individuals may be regarded as very small with respect to the economy as a whole, they cannot be neglected for distributive analysis. If an infinitesimal (in term of members) richest group owns a finite share S of total income, then the Gini coefficient can be approximated as $G \approx S + (1-S) G^*$, where G* is the Gini for the rest of the population.[36]

Data from Argentina also illustrate the limitations of household surveys, as opposed to tax reports, as a source of information on high and very high income recipients.[37] A comparison between tax tabulations and household income surveys reveals that it is not an exaggeration to assume that the top 1% (or even the top 5%) income earners are not considered in the survey. Under this assumption, let G* be the survey-based Gini. One can then compute G by applying the estimates of top income shares to the approximation mentioned above. For Greater Buenos Aires, we can compute G by using the estimates of top income shares from Alvaredo (2011) and the survey-based Gini coefficient. Results are presented in figure 11, where G1 and G2 are the Gini coefficient G under the assumption that the top 0.1 percent and the top 1 percent, respectively, are not represented in the surveys. Two facts are noticeable. First, G can be several percentage points above G*. For instance, in 2004 G* was 0.487, while G1 was 0.523 and G2 was 0.573. Second, not only can levels be different, but also the trends of G and G* can diverge. According to survey results, G* displays almost no change when 2001 and 2003 are compared, going from 0.511 to 0.509 in those years. However, G2 was 0.574 in 2001 and 0.592 in 2003.[38] That means that even when survey-based results seem to indicate that inequality between those years was stable, overall inequality might have risen because the share of top incomes not captured by surveys increased substantially. This means that when the participation of the rich in total income is important (no matter how small this group is), changes in their income shares are relevant in explaining changes in overall distribution.

3.5. Changes in income inequality in a comparative perspective, 1970s to 2000s

The increase in inequality in Argentina from the mid-1970s to the mid-2000s was comparatively large by international standards. This section documents the pattern of

[36] This explanation follows Atkinson (2007); for a formal proof see Alvaredo (2011).

[37] See Alvaredo (2010) for Argentina and Székeley and Hilgert (1999) for a general view of Latin America. Burkhauser and others (2009) shows, for the United States, that the top 1 percent share measured by the internal Current Population Survey (CPS) is consistently lower than the top 1 percent income share measured by tax data, mainly because the CPS does not record important income sources at the top (realized capital gains and stock option gains) and because the CPS records top incomes by means of codes instead of actual income figures.

[38] Determining whether those estimates of the Gini coefficient are statistically different or identical isbeyond the scope of this analysis.

income inequality in Argentina with respect to selected Latin American countries. Because of data availability and comparability issues, most of the evidence corresponds to the period 1992-2006.

Although economic historians have conducted research about inequality in socioeconomic indicators in Latin America and the Caribbean from as early as the 15th century (see Bourguignon and Morrison, 2002, Robinson and Sokoloff, 2004, and Williamson, 2009), systematic data on the personal income distribution only became available in the 1970s, when several countries in the region introduced household survey programs. However, the early surveys were not implemented at periodic intervals, they were usually restricted to main cities, they collected only limited information about income, and their questionnaires and sampling frames changed over time. This implies that the information available for the 1970s and the 1980s is less comparable than for the latter period (see Altimir, 1996, Londoño and Székely, 2000, and Gasparini, 2003, for reviews of this early evidence).

The literature suggests that in the 1970s inequality fell in several countries – such as Mexico, Bahamas, Panama, Colombia, Peru and Venezuela– and increased in some Southern Cone economies – Argentina, Chile and Uruguay (Gasparini, 2003). The weak macroeconomic performance over most of the continent during the 1980s did not help improve the distribution income in most countries. Londoño and Székely (2000) report that the average income ratio of top to bottom quintiles in Latin American countries fell from 22.9 in 1970 to 18.0 in 1982, but rose back to 22.9 by 1991.

Aggregate trends for the region can be computed since the early 1990s, when most countries in the region consolidated their household survey programs.[39] Gasparini et al. (2011) report that the mean Gini for the region increased over the 1990s and fell in the first half of the 2000s, with levels in or around 2006 similar to those of the early 1990s. However, they also report that weighting the indices by population changes the whole picture: Brazil and Mexico account jointly for 56 percent of the region's population, and experienced stronger equalizing changes than the rest of the countries over the 2000s. The weighted mean of the Gini coefficient is significantly lower in the mid-2000s than in the early 1990s, but although the direction of the overall change in inequality is not ambiguous, the magnitudes are relatively small. The unweighted mean of the Gini first increased and then fell less than 2 points since the early 1990s,

[39]The estimates correspond to selected continental Latin American countries. Information for Caribbean countries is not presented as no country in that sub-region has reliably comparable information available for the early 1990s. See CEDLAS (2008) for documentation on the coverage of the Socio-Economic Database for Latin America and the Caribbean (SEDLAC), the source of the figures in this section.

and similar patterns emerge when considering inequality of income for the region as a whole (Gasprini et al., 2009).[40]

3.5.1. Heterogeneity at the country level

The overall regional pattern described above, however, masks important differences at the country level. Figure 15 presents the values of the Gini coefficients in the early 1990s and in the mid-2000s for Latin American countries.[41] Figure 15 suggests a sort of continuum of inequality levels across countries, with values ranging from the low forties up to about sixty Gini points. Uruguay, Venezuela, Argentina and Costa Rica have relatively low inequality levels, while Bolivia, Haiti, Brazil and Colombia are among the most unequal societies in the region.[42]

Latin American countries also differ in the changes of inequality experienced over the period under analysis. Figure 16 presents the changes in inequality (Gini coefficient) for the same countries for the whole early 1990s-mid 2000s period, and for five year subperiods. In 7 cases out of 17, inequality did not increase over the 1990s. While the fall in inequality in the 2000s seems more widespread, there are some exceptions. When taking the whole period into consideration, about the same number of countries experienced increases and falls in the Gini coefficients.

The evidence in Figure 17 suggests a continuum of inequality levels rather than clusters of egalitarian and unequal countries in the region. The changes in inequality levels in Figure 16, however, indicate that the dispersion in inequality levels across countries has diminished in the period under analysis. This narrowing of the range of inequality levels reflects some degree of convergence: it is the result of increased inequality in some low-inequality countries, such as Uruguay, Argentina, Venezuela and Costa Rica, and a fall in inequality in some high-inequality countries as Brazil and Mexico. This incipient convergence arises when comparing the mid-2000s to the early 1990s, but also when comparing the mid-2000s and the early 2000s, and the latter period with the early 1990s (Figure 17 depicts the groups of large and small

[40]Regarding sub-regional trends, the changes in inequality were similar in the Andean countries and in the rest of South America: the Gini increased in the 1990s and fell in the 2000s. In contrast, on average the Gini has been slowly falling in Mexico and Central American countries since the early 1990s (Gasparini et al., 2009).

[41]Most of the results discussed in this section are robust to inequality indices, income definitions, treatment of zero incomes, and sample variability concerns. The methodological appendix details the construction of these tables and figures. The reader is referred to the SEDLAC webpage (www.cedlas.org) for a large set of statistics on these issues.

[42]Even within sub-regions the gaps in inequality levels are large: Southern South America encompasses some of the countries with the lowest (Uruguay) and highest (Brazil) Ginis in LAC; the same is true for the Andean region (Venezuela and Colombia), Central America (El Salvador and Honduras), and the Caribbean (Dominican Republic and Haiti).

changes in inequality for these periods). This is, however, just the picture of the developments in only a decade, and does not necessarily indicate a long-run trend.

3.5.2. Argentina and neighboring countries

Figures 18 and 19 depict the Gini coefficients for selected countries in Latin America from 1992 to the mid-2006. As it was apparent in previous figures, the increase in inequality in Argentina is among the largest for the whole period (comparable to that in Costa Rica). The gap with more unequal economies, like Brazil, Mexico or Chile, fell substantially in the last two decades. Income disparities grew during the period of structural reforms of the 1990s, accelerated during the deep macroeconomic crisis of 2001-2002, and fell to pre-crisis levels in the recovery between 2003 and 2006. Neighboring Uruguay, also a country with relatively low levels of inequality, also experienced an increase since the early 1990s, although with a smoother pattern. The Gini coefficient increased by 2 points in the 1990s, grew by around 2 additional points in the stagnation and crisis of the early 2000s, and fell 2 points in the subsequent recovery.

Venezuela has the most egalitarian income distribution in the Andean region. Inequality rose substantially in the 1990s, with a Gini of 42.5 in 1989, increasing to 47.2 in 1998, and fluctuating around that level until 2005. Costa Rica also presents low levels of inequality in a regional perspective, and inequality also increased substantially in the second half of the 1990s. While it has fallen in the 2000s, it has not returned to its previous level: the Gini coefficient for the distribution of household per capita income climbed rose from 44.6 in 1995 to 50.0 in 2001, and fell only to 47.3 in 2005.

These experiences contrast with those of other countries in the region with high levels of inequality. Brazil has always been one of the most unequal economies in the region. While its income distribution did not change much in the first half of the 1990s, inequality has fallen substantially since 1999; the Gini coefficient was 60.4 in 1990, 58.6 in 1999, and fell to 55.9 in 2006. High levels of inequality have also been a pervasive characteristic of the Chilean economy. However, there are encouraging signs of a significant fall in inequality in the 2000s. The Gini coefficient, roughly unchanged between 1990 and 2000 (55.1 and 55.2, respectively), fell slightly by 2003 (54.6) and by a larger degree by 2006, reaching 51.8. Finally, the data for Mexico indicates a slow, although continuous, reduction in income inequality since the early 1990s. The largest fall occurred between 2000 and 2002. The Gini in 2006, at around 50, was almost 5 points lower than in 1992.

Concluding remarks

This chapter described the level and evolution of inequality in Argentina over seventy-five years. The evidence for the older period originates in tax return data, while the figures from the mid-1970s to the mid-2000s are based on household surveys. The review of the trends in inequality and the empirical evidence on its determinants attempted to establish which factors made the Argentine case exceptional – both with respect to other countries in Latin America, and to other nations relatively better off at the beginning of the 20th century.

Argentina's level of income started to diverge from that of other rich countries before the middle of the 20th century. The country was also substantially more unequal than others in this selected group, although also relatively more equal than its regional neighbors. The evidence discussed in the previous pages is illustrative of the comparative trends: the gap with traditionally more unequal economies, like Brazil or Chile, substantially shrunk in the last decades of the 20th century. Argentina's income distribution, characterized by a large middle class and large groups with middle and higher educational attainment, was once proudly described as "European" (or more "European" than that of its regional partners, in any case). The average increase in inequality in Argentina has outpaced regional averages with periods of negative growth hitting the poor strongly, while its larger neighbors experienced significant declines: the country seemed to move closer to "Latin American" levels since the early 1990s. Notwithstanding this trend, Argentina's human development index has remained among the highest in Latin America since its publication in 1975, and the post 2002 crisis recovery was accompanied by substantial reductions in inequality – although it is too early to judge if this is the beginning of a sustainable downward trend o only a correction of a crisis induced "overshooting".

While not the sole case in the region, both the original low levels of inequality and its upward trend since the mid-1970s are characteristic of the Argentine case. Is there any exceptionality in these developments? The economic determinants of inequality trends discussed in this chapter were present in most (if not all) Latin American economies: macroeconomic crises, structural reforms, trade liberalization. However, the strength or scope of these factors seems to be the first exceptional characteristic of the Argentine case. Macroeconomic crises (such as the 2001-2002 collapse and the hyperinflation episodes) were particularly virulent, and the long-term macroeconomic performance (the stagnation in per capita income) is exceptionally disappointing. Moreover, while most countries in the region adopted different aspects of market oriented reforms, Argentina reformed most aspects of economic life simultaneously, and more deeply and more quickly than its neighbors, especially in the 1990s – the

only comparable (and earlier) case is that of Chile under a military regime.[43] The crises and the reforms over the last few decades in Argentina have been deeper and more sudden than in other countries in the region.

Besides the extreme nature of most changes in Argentina, the special characteristics of its social structure also played a role in its large increase in inequality. In the mid-1970s, the Argentine society was characterized by a relatively equal income distribution, and specifically by the presence of a large fraction of workers with middle and high qualifications. The Gini coefficient in those years was not very far from continental Europe countries in 2000.Moreover, according to some authors, the emergence of this publicly educated workforce can be linked to the demand for services by the elite in a land rich economy (see Galiani, Heyman, Dabus and Thome, 2008, and Galiani and Somaini in this volume). This modern economy was thus probably more prepared than that of its regional neighbors to incorporate more capital and new technologies, and to absorb the changes brought by market oriented reforms and liberalization. As discussed at length previously, most of these changes are inequality-increasing, in the short and medium run at least. This apparent convergence with its neighbors might be related to the comparatively higher levels of education of Argentina's population, which resulted in lower initial levels of inequality.

There are, however, other simultaneous factors that have only been partially accounted for in this discussion. Explaining the breadth and speed of crises and reforms, and of the political factors behind them, such as the specificity of the federal structure of the country or of the Peronist coalition, is beyond the scope of this chapter. Other chapters in this book shed some light on the exceptionality of these factors in the Argentine case. The following chapter discusses the connection between this inequality and the political triumphs of Peron, whose popularity stemmed, in part, from his promises to redress social wrongs. The chapter discusses the policies established by the two Peron administrations 1946-1955 in terms of their impact on the income distribution and economic growth, and speculates about the impact that Peronist beliefs still have on Argentinian policies.

[43] On the positive side, Argentina was also the first of the countries in the Southern cone that emerged from authoritarian rule in the 1980s.

Transition Remarks

Economic success is often associated with rule of law, and Argentina's economic stagnation has often been associated with an apparent deterioration in the quality of government services. The increased equality after 1946, shown in the previous chapter, can paint a misleading picture about quality of life for poorer Argentinians if they were also facing an increasingly problematic public sector. The next chapter looks specifically at one important public service—policing—and compares 20th century developments in Argentina and Chile. The comparison with Chile is important, because it provides a reasonable benchmark for expectations about policing quality.

The paper begins with modern survey data about corruption and trust in the police. Chile is today an outlier in Latin America, with surprisingly high levels of trust in its police system and apparently a remarkably low level of bribery. Surveys suggest far less trust of police in Argentina and that bribery is far more widespread. Argentina is not unusual in Latin America, where policing problems are standard, but it is unusual given its relatively high levels of wealth within the region. While Chile has distinctly more trust in its police than is typical for its income levels, Argentina has distinctly less trust in its police than its level of economic development should warrant.

The authors then take us back to the start of the 20th century when conditions appear to have been completely reversed. In those years, Chilean policing was known for corruption, while Argentina appears to have had the best policing in Latin America. Chile appears to have taken steps over the 20th century which gradually led to a highly professional, independent and honest police force, while Argentina primarily saw deterioration in its policing quality.

The authors ask two questions about these changes. First, what policies explain the differences between Argentina and Chile. Second, what political forces help to explain the different policing strategies.

Boruchowicz and Wagner make the reasonable observation that simple stories about police compensation cannot explain the gap. Corruption is often excused as a response to low wages, but there is no discernible difference in the level of compensation between Argentina and Chile. Instead, the difference appears to come from at least three institutional features in Chile.

First, the Chilean system is national and highly independent of local politicians. Argentine police, like the U.S., are far more local and as a result they are more subject to capture by local political elites. Second, the Chilean system is set up to encourage rotation of policing across districts. The constant flow of fresh policemen makes it more difficult to establish the long-run relationships that enable corruption. Finally, the Chilean system emphasizes recruiting better educated personnel for the police and compensating them with some eye on competence and honesty.

These differences suggest that there is no magic ingredient for Chilean success. The features of the Chilean system were common ideas among progressive reformers during the early 20th century. The key question is why Chile adopted such reforms, while Argentina did not, and that must lead us back to politics.

The paper identifies Carlos Ibáñez with creating police reforms in Chile that last until this day. Ibáñez was a former head of a gendarmerie and for him a strong national police became a tool of his authority. By centralizing control over the police, he lessened the possibility of independent action against his regime.

While Juan Perón may have wanted to centralize authority, he doesn't seem to have had the capacity to do so. Argentina's Federalist structure limited the ability to centralize control. He perhaps lacked Ibáñez' overall authority. Moreover, his poorer constituents may have been less enthusiastic about an overly empowered police force. Since then the more durable Chilean governments have often been willing to invest in long run support for the police than the more unstable Argentine governments. Argentina's 20th century political problems seem to have hurt the quality of the public sector as well as economic success.

CHAPTER EIGHT

Why do Argentines trust less their Police than Chileans do? Institutional decay over the 20^{th} century

Cynthia Boruchowicz
Rodrigo Wagner

1. Introduction

Security in the streets is an important public good, but in Argentina the Police Organizations that help on its provision got relatively worse over the 20th century. In narratives comparing to the neighboring Chilean Police, Argentinean Police Forces were perceived as better prepared a century ago. Nonetheless, current surveys show that the advantage is now on the Chilean side. What features of Police Organizations can explain this reversal in fortune? What deep political reasons can explain why Argentineans have failed to reform their Police Forces? These two questions are precisely the focus of this chapter.

Having a bad Police is not a rare phenomenon. In general, less-developed countries have poorly evaluated Police Forces, as shown by the Global Corruption Barometer (2009) that ranks the Police as the most bribed organization in the world. Thus, a bad Police is not in itself a problem exceptional to Argentina. However, studying how the Police got worse, is an example of the failure of policies and politics to preserve good institutions. In short, it is an example of a broader problem that took place during the 20th century: Argentina seemed to have lost more than simply economic growth vis-à-vis developed economies; the political instability may have degraded core public institutions, like the Police.

As contribution, this chapter systematically compares Police Forces under the light of different economic theories of organizations. We study how Argentinean and Chilean Police Forces differ from each other, looking for differences in incentives or resources that can explain their contrasting performance. Chiefly, we observe that Chile has relatively better trained policeman who are geographically rotated to avoid collusion. We believe that these and other core human resources practices, rather than simply wages or pensions, might be the likely reason for the better police performance at the West of the Andes.

At the end of the chapter, while exploring the deeper political causes of this failure, we offer a simple formal framework to understand institutional decay. In this framework a weak and unstable political leader is willing to accept more corruption in the Police, in exchange for loyalty of this armed group in case of a potential coup or uprising of a subgroup of the military . Although inspired in the Police, this mechanism can explain why the historically higher political instability in Argentina, vis-a-vis Chile, can be the cause of the institutional quality differences we observe nowadays.

The rest of the chapter is structured as follows. Section 2 remarks the value of the Police for society and shows why we are focusing on it. Section 3 documents the “reversal of fortune” between Argentinean and Chilean Police forces. Section 4 takes as benchmark the Chilean

Police and tries to identify what are the root causes that explain its good relative performance. Section 5 comes back to Argentina and shows the different incentives faced by policeman. Section 6 presents a simple formal model, to discuss why the political context may have constrained Argentinean politicians to choose policies less conducive to Police honesty, while in Chile it was the opposite. Finally, in section 7 we conclude with some remarks.

2. Why are we focusing on the police?

According to the Latinobarometro survey (2006), crime and corruption are among the top concern of Argentineans. This is coincident with the trend in other Latin American countries , in which crime is a central public problem. What is puzzling, however, is that despite the high public demand for security (and Police honesty), most governments have systematically failed to deliver an effective institution to deal with the problem. In the case of the poorest Latin American countries, one can think that there has never been effective forces or that there are much deeper economic problems to take care off before dealing with security issues. However, that is not the case neither for Chile nor for Argentina.

Despite similar income levels, today's perceptions about Police honesty are dramatically different in Chile and Argentina. The 2004 Latinobarometro survey of values and perceptions ranks the Chilean Police at the top, while Argentineans end up in the last places among Latin American countries. In Chile, slightly more than 20% of the adult population thinks that a policeman can be bribed with "effective" results for the briber (Figure 1). Strikingly, in Argentina this figure is three times higher, in spite of having a very similar level of economic development as measured by GDP per capita in PPP.

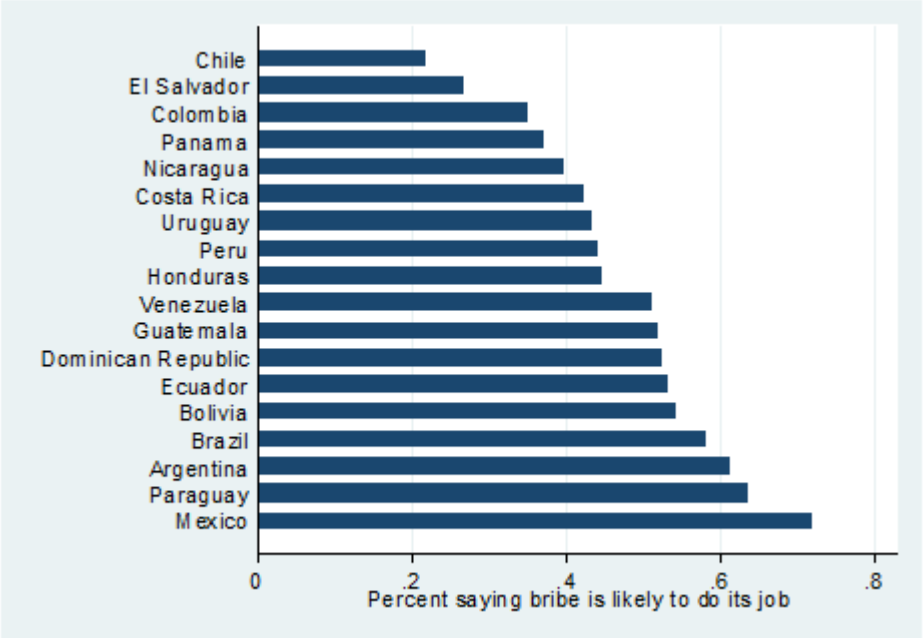


Figure 1. If you bribe a policeman, how likely is that you get what you want?
Source: Authors' calculation from Latinobarometro survey 2004.

Controlling for some obvious suspects does not help to solve the puzzle. Both countries share many geographic features and are historically and ethno-linguistically similar. Furthermore, both their Police Forces took a role in political repression during recent military dictatorships

in the 1970s and 1980s. Despite these similarities, distrust in the police is many times higher in Argentina than in Chile (Figure 1). More generally, the data from Daniel Kauffman and co-authors from the World Bank show that the "control of corruption" in Argentina is roughly at Russian levels. In contrast, Chile ranks close to the United States, which is three times richer in per capita terms (Figure 2).

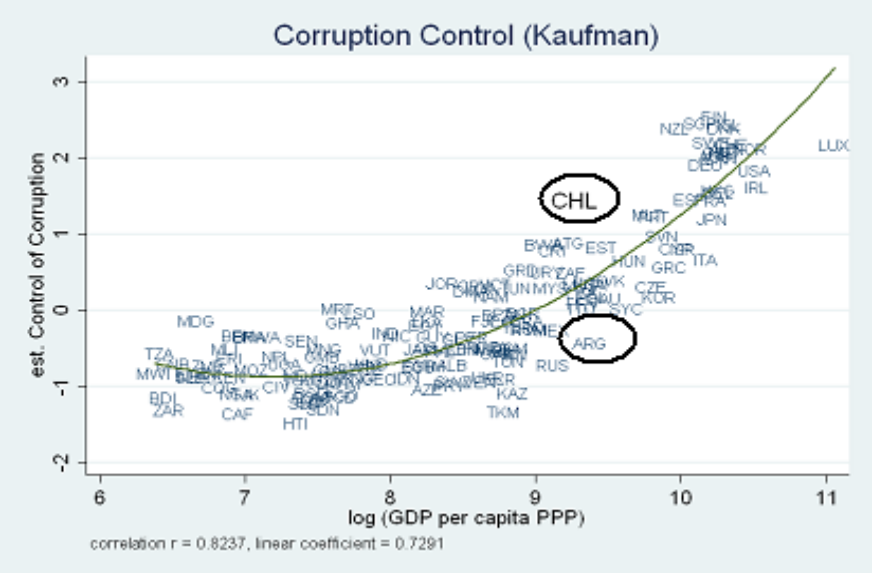


Figure 2. Control of Corruption in Chile and Argentina in comparison with other countries, by GDP per capita.
Source: Authors' calculations based on Kaufman, Kray and Mastruzzi and World Development Indicators.

But even if we compare within country, the relative low performance of the Police is clear in Argentina. Indeed, Carabineros de Chile ranked systematically at the top of the ladder of perceived organizational honesty in different surveys that compare them with other Chilean public organizations. In contrast, Argentinean Police Forces are usually among the most distrusted organizations within the Argentinean society (Figure 3, 4 5 and 6). Note that in many countries, like Peru (Hunt, 2007) and Brazil, the Police is also ranked very poorly in terms of corruption. Looking at other countries in the region, the Chilean Police is certainly exceptional. Nonetheless, once we focus on Latin American countries with similar income (like Chile or Uruguay), the perceived honesty of the Argentinean Police's looks very poor.

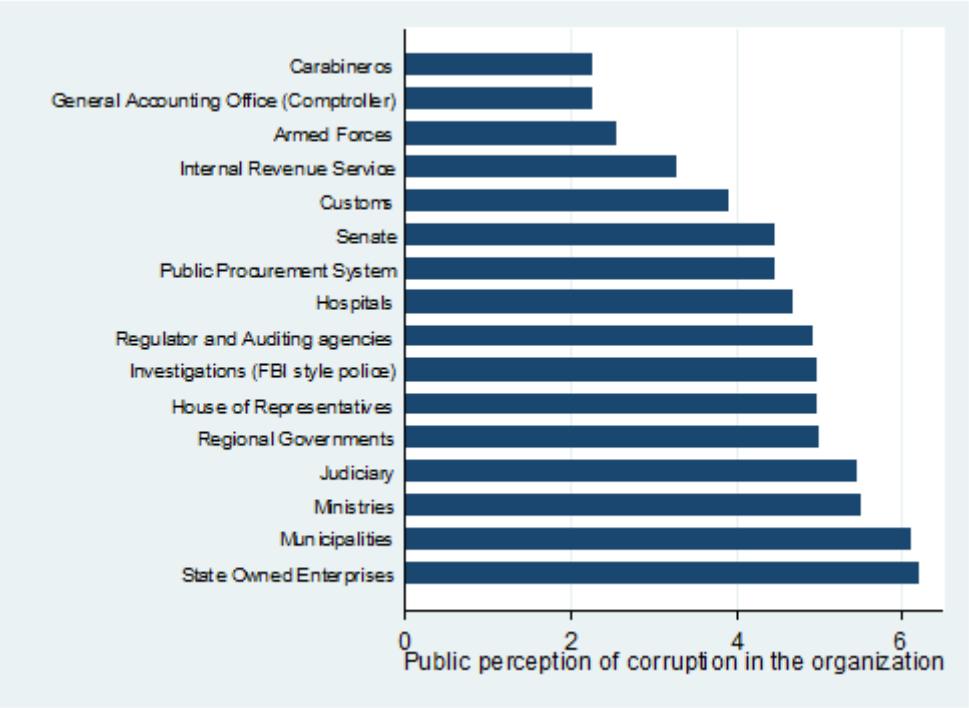


Figure 3. Public Perception of corruption about 16 types of public organizations in Chile.
Source: authors' calculations based on Corruption Perception Survey by Instituto Libertad y Desarrollo 2007 & 2008.

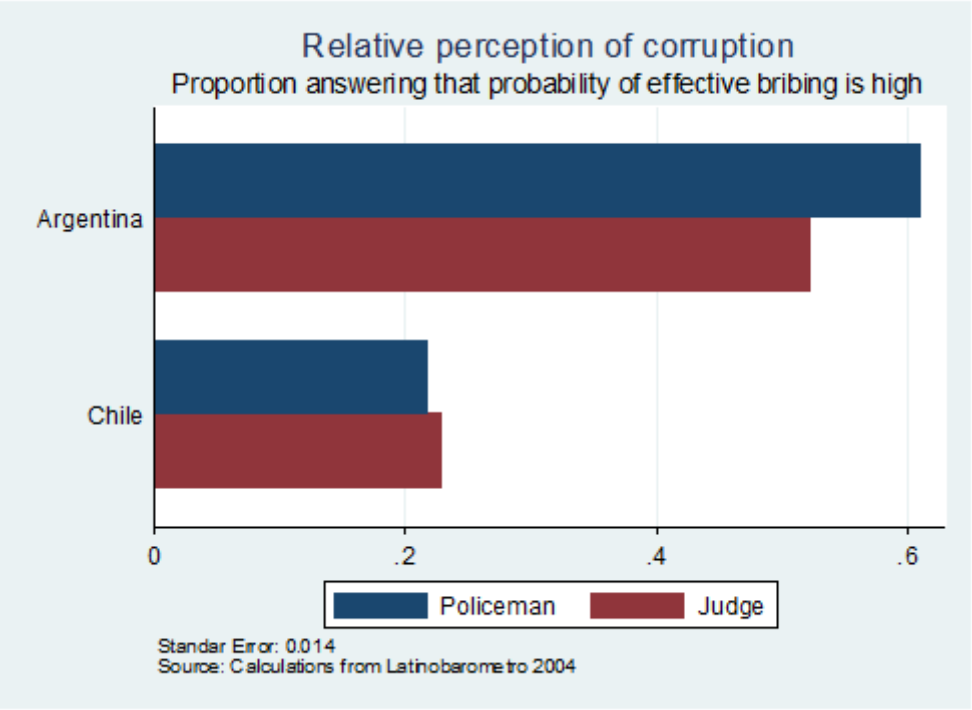


Figure 4. Public Perception of corruption in the Police and the Judiciary.
Source: Authors' calculations based on Latinobarometro survey 2004. Note how the police is above the judiciary in Argentina but not in Chile. Standard Error 0.014. argcopsmay302009Fig4.wmf about here.

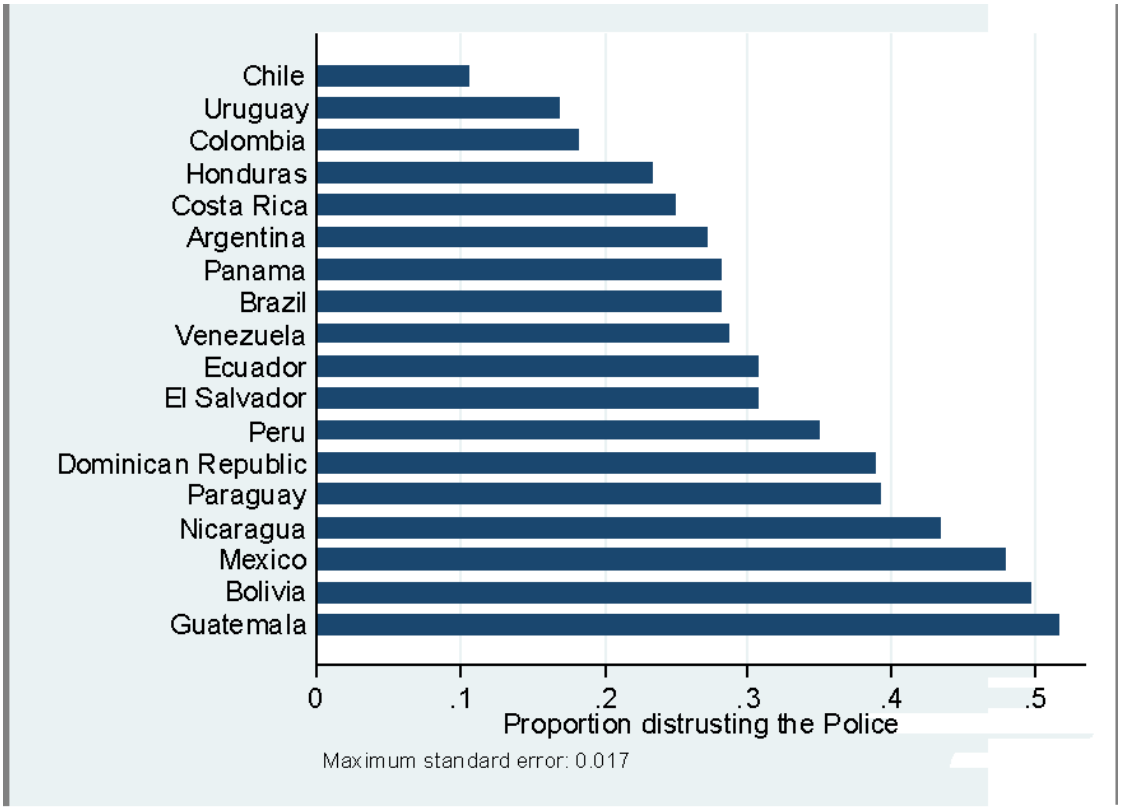


Figure 5. Percentage of the population distrusting the police.
Source: Authors' calculations based on Latinobarometro survey 2004. Standard Error 0.014

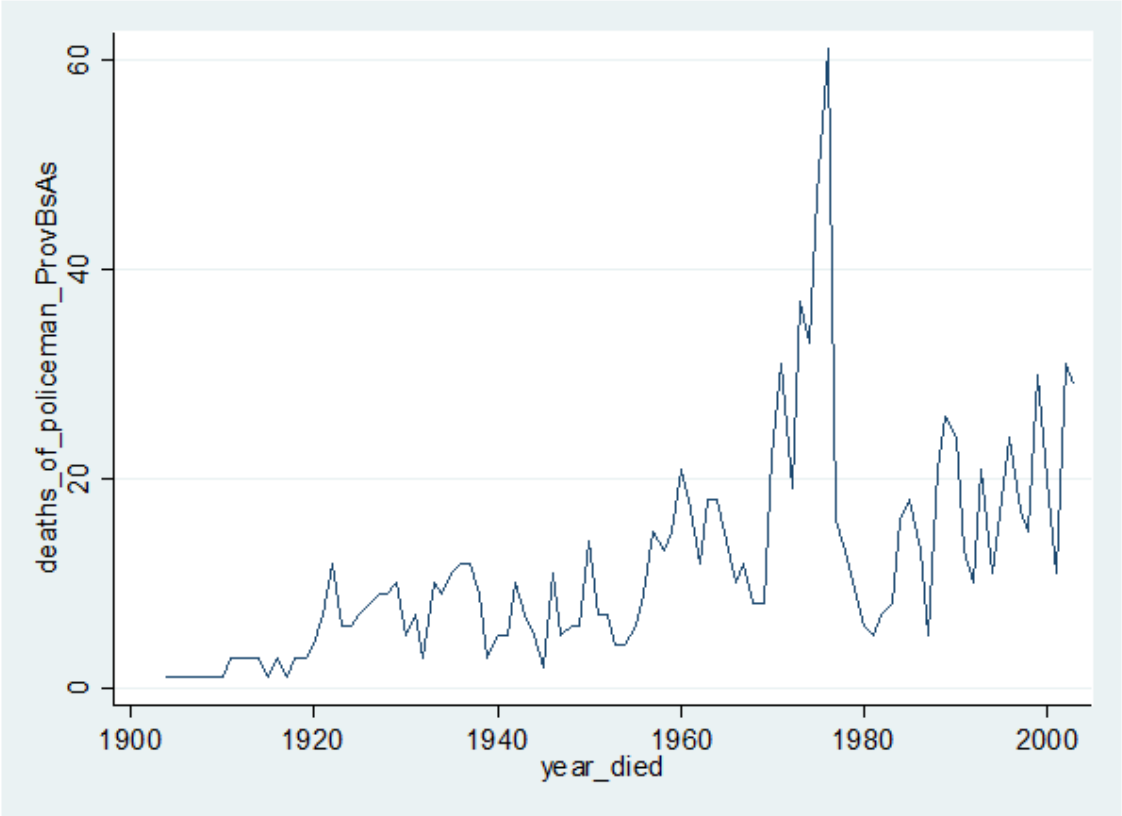


Figure 6. Percentage of people with negative perception of different organizations in Argentina.
Source: "La imagen de las fuerzas de policiales y de seguridad", Centro de Estudios Nueva Mayoría,

2001. **Negative includes any non positive perception.**

3. A Reversal of Fortune

To enlarge our question marks, this difference in the Police was exactly the opposite one hundred years ago. In the late XIX century different authors argued for the superiority of the Argentinean Police, at least in the capital city. According to Vera (1899), a century ago "*[In Chile you can easily see] policeman drunk in the street, [...], supporting thieves and covering up crimes for a small tip. […] In contrast, the Buenos Aires police admirably fulfills its mission*". Even the Mayor of Santiago de Chile severely criticized the local Police at the time, in spite of his obvious incentive to overstate the quality of amenities in his city (see Vicuña-Mackenna, 1875). Thus, it is not that Chile always had a better Police; the fortune of security forces in these two countries was reversed. The timing of the reversal of fortune seems obvious in Chile: 1927. That year, General Carlos Ibañez merged the rural and urban Police Forces – with dependence from local authorities - with a gendarmerie that was previously part of the Army. This lead to the foundation of a national and centralized Police: Carabineros de Chile. Unlike Ibañez's government itself, this new organization survived the devastating effects of the Great Depression in Chile – which was much deeper than in Argentina -. In Argentina it seems harder to find a clear cutoff, maybe because secular deterioration of institutions can happen with delays. In the early 20th century policeman in Argentina had a high status in society, which can be summarized by the fact that one of them, Hipolito Yrigoyen, became president in 1916. Moreover, Argentina was the center of many innovations in the Police practices in the region, as evidenced by the Latin American Police meetings held in Buenos Aires in 1905 and 1915. By 1964 the CIA still reported that the Argentinean Federal Police was "universally considered one of the best police forces in Latin America, only behind Carabineros de Chile in its efficacy." However, that same document discusses the low status that Police was getting within the Argentinean society. This report blames the first and second government of Juan Domingo Perón (1946-1955) for this deterioration, but without further justification for the conclusions. While it is true that the Police supported the uprising of Perón in 1946, his government also increased police wages and improved working conditions overall. Nonetheless, it is unclear that these measures translated into lower corruption. In contrast to the CIA report, Barreneche (2007) dates the origins of the problems some years before Perón. According to him, the political instability of the 1930s "infamous decade" coincide with a strong deterioration of the Police. Interestingly, during this period the Police started to provide paid private security for events (Rodriguez et al, 1999), which may have fostered rent-seeking within the organization. Not without controversy, we can date the first decay of the Buenos Aires Police at some point between the 1920s and 1950. Nonetheless, between the anecdotal CIA report in 1964 and today, the Police in Argentina seems much worse evaluated. Neither the trustworthiness nor the bribing indicators rank the Argentinean Police even close to the mean in Latin America, despite being a much richer country than the average in the sample (see Figure 1). As an extreme symptom of institutional decay, as well as signal of wrong incentives, Stanley (2005) shows how Argentinean policemen in the 1990s framed innocent victims to make arrests and get Press coverage. The 20th century history of Argentina and Chile share many commonalities. Notably, there were dictatorships on the two sides of the Andes. Moreover, these autocracies usually used the Police Forces for political purposes. Also, Police wages tended to be comparable in both countries, with a very strong amount allocated into pensions. It's not to say that military dictatorships, human rights problems and wage compensation are not reasons behind the differences. But to be a reasonable explanation, these hypothesis need to interact with something else; otherwise the Chilean Police would have followed the same pathway as the Argentinean one. The next chapters will make comparative

analysis of the Argentinean and Chilean Police Forces, to enlighten the potential causes of the current problems in Argentina. More than a mere benchmarking, we believe that this comparison could partially unpack the black box of institutional performance problems in the Argentinean public organizations overall. Section 4 explores the root of the Chilean success with the Police, while section 5 explores the Argentinean case.

4. What things does Chile do differently and why?

This section explores the potential causes of the better perception of the Chilean Police. In a nutshell, we observe that Argentineans cops have less schooling and training, despite no obvious differences in compensation with the Chileans. We also find that Chilean cops are rotated geographically with more frequency. The rest of the section details these and other differences.

1. Chileans cops are more educated and have longer training than Argentinean ones

To start with, *Carabineros de Chile* is able to select people with a higher level of schooling than the Argentinean Police Forces. More than 90% of the Organization has at least a *high school* diploma. In contrast, a 1995 report by the Argentinean Ministry of Interior identified that at least a third of the policeman did *not* complete *primary* school (Hinton, 2006). Of course, the possibility of making this selection is constrained by the status that the profession has . Even in the 1960s the CIA attributed "*the low popularity of the Police as a career [...] to not only [...] low wages, but also [...] a decrease in the social and professional prestige of the Police among the general public*". Several references to the police in Argentina today [1] show that this relatively low status has not improved. Prendegarst (2007) argued that the pure compensating differential of a bureaucratic job can select both the best agents for the position, but also the *worst*; impatient people that do not intrinsically value to be a policeman, and are eager to abuse from the conferred discretion. Thus, a military style and a long duration of training are important factors helping to self select in the most suitable agents and select out the less intrinsically motivated. The Chile-Argentina gap in the duration of initial training is much less marked in the Officer ranks[2], but very large for the Enrolled personnel, which constitutes roughly 80% of the force (and shapes the street level relationship with the public). In Chile, Enrolled personnel has at least 1 year of training - recently moved to one and a half years -. In Argentina training is shorter and, anecdotally, less hard. For agents of the Argentinean Federal Police (PFA), the minimum training period is 6 months, while for agents of the Police of the Province of Buenos Aires it is generally no longer than 3 months (Córdoba and Pastor, 2003). After acceptance in the Police Academy, preferences of people can change through indoctrination and training. Akerlof and Kranton (2000) remark that the process of transformation is crucial for bureaucracies with high level of discretion and mission orientation, like Police Forces. In general, the longer and more coherent the training with the rest of the organization, the more successful this preference change can be. As mentioned, training is twice as long in Chile than in Argentina. Other source of transformation is the continuous education of personnel, which is certainly higher in Chile. For example, there, the Enrolled personnel is required to participate in many workshops, events and even allowed to go to a Sub-officers school. In contrast, the Argentinean experience is less intensive in continuous training. It seems that once enrolled as policeman in Argentina, education is only to officers that are likely to be promoted. Other sources of selection may well be related to the family. On

[1] See Córdoba and Pastor (2003), Burzaco (2001 and 2004)
[2] Four in chile and three in Argentina's federal police

the one hand, Carabineros de Chile still checks the family records of a potential wife of a policeman to avoid incompatibilities with policing tasks. On the other hand, they encourage strong socialization with the families of other Carabineros. This is a further *fundamental transformation* that increases the relative value of belonging to the organization, making even harder the punishment of a dishonorable discharge. In general, Argentinean Police Organizations seem to intervene less in the private lives of agents.

2. Compensation: Chileans cops get neither higher income nor have higher pensions. If any it is the opposite.

One natural mechanism to make the value of being in the organization higher than the expected value of being kicked out is to pay people well. Indeed, wages have been shown to lower corruption in other areas of the Argentinean public sector (Di Tella and Schargrodsky 2003). However, the wages of Carabineros do not seem higher than those of policemen on the other side of the Andes. In Chile, a Mincerian regression[3] of the wage shows a *penalty* of roughly the size of the minimum wage for being a policeman. Thus, people of the same age and education make – on average – more money in other jobs than in the Police. This is fully consistent with the common wisdom held in Chile, and is even stronger if we consider that a Carabinero does not receive any payment for working beyond eight hours a day. [4] For Argentina, we were able to get data on four local Police forces: Rio Negro and Tierra del Fuego, Province and City of Buenos Aires[5]. This sample accounts for roughly 40% of the total number of street level cops, working for a half of the country's population.

	Wages for Police		Distribution of wages for observationally equivalent Workers (dollars)			
Province	Mean - Superior Officer	Mean - Subordinate Officer	Mean	25th percentile	Median	75th percentile
Buenos Aires Province	2660	770	363	203	291	407
Rio Negro	605	200	421	232	349	581
Tierra del Fuego	2442	1309	595	349	494	697
Buenos Aires City (*)	390	240	348	218	291	407

(*) Agents of the PFA. "Comparable wages" correspond to 25 to 45 year-old male individuals with 9 years of education that are currently working according to INDEC (2003) survey

Table 1. Comparison between Police wages in 2008 and the wage of workers reported in the National Household Survey (2003), adjusted by inflation and measured in constant US Dollars of 2008. *Source*: authors' calculations based on: INDEC survey (2003) , National Decree 1327/2005 (federal police wage act), Internal Sources of the Province of Buenos Aires Police, Census and Statistics General Direction of Rio Negro and Tierra del Fuego's local newspaper.

In contrast with the Chilean case, there seems to be no *penalty* in wages for being a policeman in Argentina (Table 2). Moreover, high rank policeman's wages appear higher than the ones of

[3]Using 1998 data. Regressing the logarithm of wage as a linear function of age, age ^{2} , education.

[4]However, as it will be discussed later, there are other non monetary benefits that can compensate this.

[5]Note that there is no consistent source for policeman wages in the 23 provincial police forces

observationally equivalent individuals. For subordinate agents, the situation varies depending on the jurisdiction. In the Province of Buenos Aires, policeman earn more than observationally equivalent individuals, and agents of the PFA earn approximately the same as the median counterfactual wage. If the comparisons are meaningful[6], these figures confirm that the explanation for the reversal of fortune does not seem t to arise from a particularly low monetary compensation. Moreover, unlike the Chilean case, Argentinean policeman get overtime payments, which can account for an additional 50 % of the wage in the PFA (Cordoba and Pastor, 2003) or even 100% of their wage in the Police of the Province of Buenos Aires[7].

Pensions

Becker and Stigler's theory (1974) suggest that in order to *always* keep the future value of being in the Organization above the malfeasance threshold, optimal contracts need to offer good pensions. This back-ends a substantial portion of the compensation aligning incentives because the premium is paid *after* chances for misbehavior are over. In Chile the replacement rate (i.e. the ratio between the last salary and the pension) is 100%, so policemen keep their last salary forever. In Argentina it is also complete, although with some exceptions[8]. Timing is the other big ingredient impacting the net present value of Pension benefits. In Chile policeman can retire after 30 years in the organization. In Argentina it is after 35 years for agents of the Police of the Province of Buenos Aires and national security forces, except the PFA, which is after 30 years. For people that leave the Organization before this period, both police forces include a 20 year threshold that entitle policeman with some level of pension. The differences seem – again – relatively minor between the two countries. Both have early retirement vis-a-vis alternative occupations. Thus, prima facie, there seems to be no radical differences in terms of monetary wage and pension compensation that can fully justify the difference in performance between Chile and Argentina. As benchmark, wages of police officers in the US are higher than the average and also higher than the median wage for their observationally equivalent indivduals.[9] In contrast with Chile and Argentina, developed countries seem to weight more the compensation of active policeman and less the back ending of benefits.

1. Non-wage benefits

In both countries there are important non-wage benefits. Both Chile and Argentina have special health insurance and hospital for the police officers and their families. Similarly, taking advantage of the superior level of repayment monitoring, in both countries there is special access to credit. In the Police of the Province of Buenos Aires, for example, there are special credit facilities for members of the organization sponsored by the Provincial Pensions Administration. Namely, credits for up to 48 payment periods and the possibility of having more than one loan at the same time. In Chile many Carabineros can benefit from a partially subsidized assignment of publicly owned housing. In particular, this is more relevant for

[6]Note that to get compatibility between the administrative data and the household survey we used an estimate of inflation. Inflation measurement and misreport by authorities is a whole issue in Argentina today.
[7]Calculations based on the fact that policemen are allowed to do 8 extra hours per day, and that they are worth between 2 and 4 dollars per hour, depending on the service.
[8]*In Argentina the replacement rate de facto* is difficult to calculate, but seems well above 80% . Part of the wages are not considered for pension purposes to avoid the fiscal burden of indexation. By law, wage increases in the active Argentinean Police forces should also be mirrored by an increase in the pension payments for retired policeman. To avoid that, part of the benefits, which take the form of familiar allowances for members of the PFA and Buenos Aires Police, are technically paid as non wages but are de facto wages. This makes a de jure 100% replacement rate to be a *de facto* around 80%, roughly.
[9]See Wagner, 2008

personnel that rotates geographically. Unfortunately, we were unable to find the coverage of equivalent programs in Argentina.

2. Weight on low powered incentives.

By rewarding effort in measurable activities, Organizations can discourage effort in other non measurable dimensions, and may even end up worse off than without explicit high powered incentives. [10] This high power incentives may include, but it is not restricted to, bonus payments for overtime as well as the option of having another (paid) job. Carabineros de Chile has a rather clear policy about it. On the one hand policemen are not allowed to have another job; on the other hand they do not receive additional payments for the overtime they work as policeman. On top of it, their average workday is long, which in itself is a powerful deterrent to get another job. In short, Carabineros are policeman "24/7", and this policy has some level of practical relevance. A typical Argentinean Police Force officer has different incentives in this issue. For example, cops can perform additional security services for private organizations (such as soccer clubs, banks and casinos) or work as private security guards - even though it is de jure prohibited (Córdoba and Pastor, 2003). Policemen have de facto regulated workdays and get compensation for the overtime worked as street level cops. These tasks, rewarded more than the normal Police duty, have the potential to reduce the quality of the service and, in some cases, facilitates collusion to cover up crimes, as we will discuss next.

3. Chileans rotate personnel more often and try to avoid collusion within the organization

Finding malfeasance is hard in bureaucracies. The information flow is complicated by the possibility of collusion between agents and supervisors as well as with local criminals. As a result, optimal contracts need to satisfy a *coalition proof constraint*, such that the supervisor has incentives to truthfully reveal the illicit action rather than being silent and getting a favor from the agent. To break potential coalitions a principal may prefer to build institutions such that: (i) supervisor and agent engage only in *short run relationships* and; (ii) the supervisor does not have decision power in spite of the natural advantage she has for doing so (Tirole, 1986). The implementation of these ideas seems a crucial difference between the Police in Chile and Argentina. In Chile, personnel rotates geographically through their career. On average they move every three years, with random variation to avoid making changes predictable[11]. In Argentina, the bulk of the street level Police do not rotate[12]. In some historical periods there has been rotation of high rank officers, but limited to the extent of their jurisdiction, which are much narrower than in Chile. Argentina's low rotation can facilitate a long term agreements between medium rank supervisor (e.g. chief of a local Police Station) and the street level policeman, to cover up crimes. In exchange for the cooperation, the supervisor can offer benefits and a better career. Indeed, beyond the abovementioned multitasking considerations, the payment of overtime can also be a source of collusion. Extra hours in Buenos Aires are allocated by supervisors, even though agents are the ones requesting to perform them. This – *ceteris paribus* - facilitates collusion through trade of favors, because middle managers in the Organization can pay with "clean" money any favor they receive from

[10]The argument goes through under the standard case where the effort for the two activities are substitutes rather than complements. See Holmstrom and Milgrom 1991

[11]With the recent implementation of "Plan Cuadrante" rotation is being reduced in Chile.

[12]Notably, the exception in Argentina is Gendarmeria Nacional, which follows more of less the same national rotation pattern as Carabineros do. This made us think that there is some relationship between this personnel and the high level of public support for Gendarmeria in Argentina.

the low rank policeman. [13]

4. The Chilean police is national, and less likely to be captured by local political elites.

Until 2010 the *national* Police Forces in both countries depend from the Ministry of Interior, although during some periods of the 20th century they were controlled by the Ministry of Defense.[14] Nonetheless, unlike in Chile, the great majority of Argentinean Police Forces have only sub-national jurisdiction and oversight. They report directly to the provincial political authorities. This is more or less how Chile was before 1927. At that time, Police Forces were mainly local, making it really difficult to enforce law against local chiefs and powerful landowners (See Zapatta, 1940). In the Province of Buenos Aires the control of local elites over the Police was evident, even during the rather centralized Perón government. In spite of the reforms implemented in the early 1950, the central government was unable to destabilize the connection between the Police and local fat cats (Barreneche, 2007). Prendergast's (2003) theory argues that beyond capture by local elites, Police Forces that are over exposed to customers complains induce their agents to under report crime, to avoid a future sanctions. At the margin, pretending that a criminal action just never happened becomes a dominant strategy for the policeman. In this channel, the relative isolation of *Carabineros de Chile* from political pressures may well be contributing to the better revelation of criminal activity. Finally, an important difference iswho judges a policeman. While the Chilean Carabineros rely on the military code, being judged by a special military courts composed by Carabineros; Argentinean Police Forces have been switching in and out of civil courts . In 1953 Perón enacted the Police Justice Code, leaving the Police outside of the Jurisdiction of Civil Courts. The *Revolución Libertadora* that overthrew Perón in 1955 proscribed this special judicial system (*fueros policiales*). However, according to Anderson (2002) this did not prevent impunity for the cases where the Police made unlawful favors to the ruling anti-Peronist government. The military coup of 1976 started again with the use of military courts to judge disciplinary faults made by policeman. Since the return of Democracy in 1983, only normal courts are allowed to judge policeman during peace times. In sum, the Chilean Police seems more independent from external pressures from both municipal leaders and the judiciary than many of the Argentinean forces.

5. Other families of explanations

The level of crime does not seem to be a source of disparity in Police honesty, since crime rates in Argentina and Chile have been in the same range recently[15], at least when we measure it in terms of homicides: circa 2004 the UNODC reports between 5.3 and 5.5 people being killed per 100,000 inhabitants in Argentina while for Chile the range is between 2.9 and 5.5. They are relatively safe countries for Latin American standards[16], not so different than the homicide levels in the United States[17]. Police did not seem to become a more dangerous job, at least as measured by mortality on duty. A regression analysis of Police martyrs in the Province of

[13]We were unable to find when did the payment of extra hours started in the different provinces. In Santa Fe province the payment of extra hours is just being discussed.
[14]In Chile wages and promotions are defined today in the Ministry of Defense, but the overall operative dependence is from the Ministry of Interior
[15]Although, victimization rates are higher in Argentina.
[16]Note that this is far away from other much more violent of Latin American countries like Brazil (26-30) Colombia (45-60) , Venezuela(32-37) , Mexico and the Caribbean (above 10). (See UNOCD 2004). More recent reports show Venezuela leading the list of homicides.
[17]According to the UNOCD report the United States has between 5.4 and 5.9 homicides per 100,000 people

Buenos Aires shows that – from 1910 to 2003 – average yearly mortality has increase by two policemen every decade. Nothing disproportionate considering the growth in both the city population and the Police Force.[18] Other environmental component that may have an impact on the Police is the judicial process and the penalties. As a proxy for it, one can see that incarceration rate is twice as big in Chile than in Argentina; 235 versus 114 incarcerated people per 100,000 inhabitants. Note, however, that this is still a third or a quarter of what it is in the United States, with 700 incarcerated per 100,000 people UNODC (2002)[19]. With the available evidence it's hard to discard that interaction with the judiciary is not binding for the quality of the Police. Other three "environmental factors" may also underlie a lower supply of bribes in Chile vis-à-vis Argentina. First, faults and crimes *against* a policeman are judged by a military court in Chile, whereas in Argentina, on top of the low social stigma from bribing and the low monitoring, bribers are judged by civilian courts, which usually means a lower expected punishment. Second, different anecdotes of the Police suggest that the prohibition of illegal games and prostitution was more active in Argentina than in Chile. This may have created higher quasi-rents for colluding with the Police and induced the proliferation of Mafias.[20] Third, during the 20th century Argentina had more Mafias than Chile. Even though highly organized crime can completely distort incentives and induce malfeasance[21], the difference in Organized crime today seems too small to be the cause of the difference in perceptions about police performance in these two countries Finally, it is important to remark that "cultural differences" between the two countries cannot fully account for the differential performance of Police Forces. As we will see in the next section, there are some islands of low corruption in Argentina. This seems inconsistent with an across the board Chile-Argentina cultural difference as an explanation. Interestingly, incentive systems similar to the one of Carabineros de Chile seem to produce comparable results in Argentina.

5. Argentinean Police forces organized similar to the Chilean Carabineros are also better evaluated.

Unlike Chile, Argentina, has many types of street level Police Forces. The majority of policemen correspond to the Provincial forces, which account for more tha 170,000 officers, including the personnel of the PFA, which has street level duties in the City of Buenos Aires . However, there are also two national organizations of security forces, *Gendarmeria Nacional* and *Prefectura Naval*, which jointly account for some 36,000 active members. These more militarized forces have a very different organizational structure. Interestingly, these two forces also receive a better evaluation from citizens in Argentina. Figure 8 shows that the civilian Police Forces (PFA and Police of the Province of Buenos Aires) have roughly twice the negative perception than the militarized ones. Although this survey was made in 2001, two years before militarized forces started to have a broader role as cops, we think that the trend is still valid today. First, because it is consistent with qualitative interviews we recently held in Argentina. Second, because in recent events of salient crimes, neighbors appeared on TV asking for more protection from Gendarmes. Finally, in Figure 98 we observe that the advantage is also present for residents of the City of Buenos Aires, where militarized forces had activity before 2001.

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[18]See appendix

[19]Eight UNOCD Survey. Available at http://www.unodc.org/pdf/crime/eighthsurvey/8sv.pdf

[20]See Andersen, 2002 for references

[21]Ernesto Dal Bó & Pedro Dal Bó & Rafael Di Tella, metricconverterProductID2002. "2002. "'Plata o Plomo': Bribe and Punishment in a Theory of Political Influence," Working Papers 2002-28, Brown University, Department of Economics.

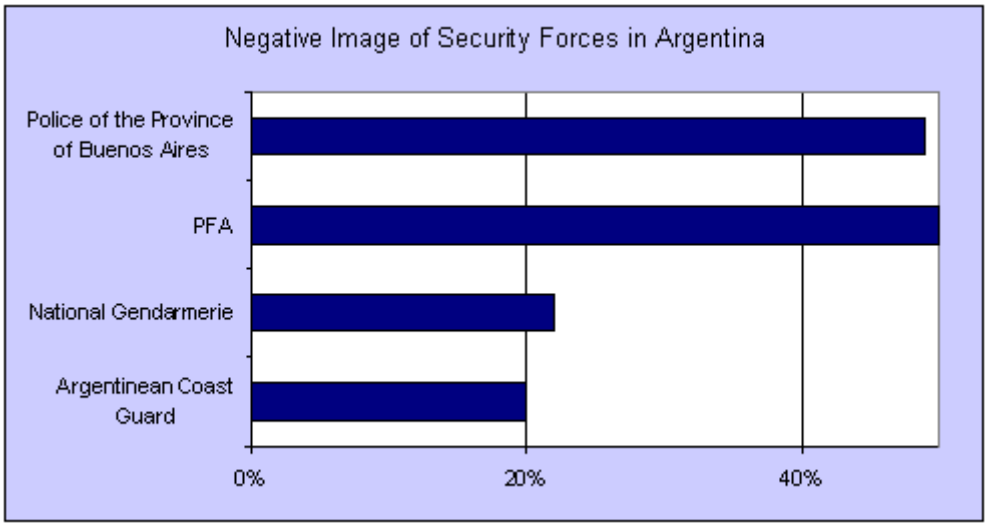

Figure 7. Share of people having a negative perception for different police forces studied in Argentina. *Source*: "*La imagen de las fuerzas de policiales y de seguridad*", Centro de Estudios Nueva Mayoría, 2001.

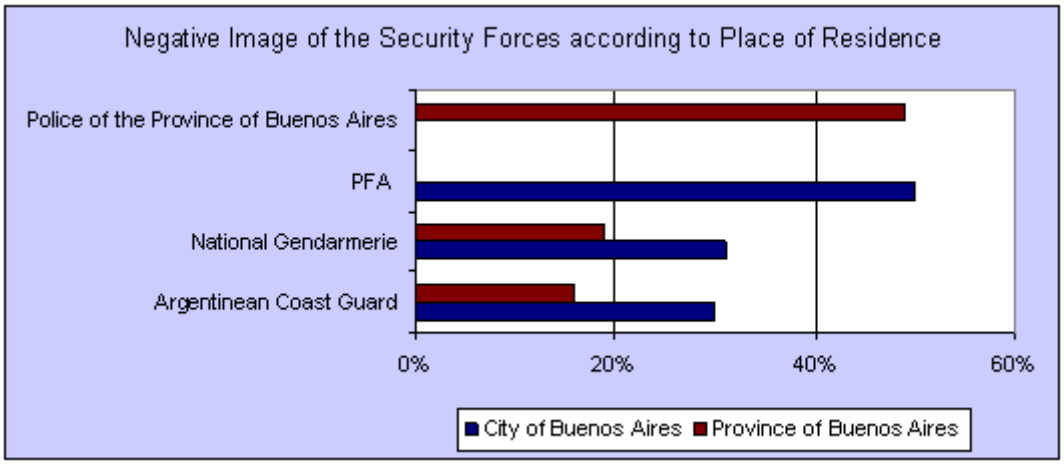

Figure 8. Negative perception of different security forces by residence of the respondant..
Source: "La imagen de las fuerzas de policiales y de seguridad", Centro de Estudios Nueva Mayoría, 2001.

Appendix 10 describes more deeply the differences in police organization within Argentina. However, we will discuss here the main differences between the militarized Police Forces and the civilian ones. In particular, we will observe that the better evaluated Police Forces have organizational practices that look similar to the ones of the Chilean Carabineros. First, both Gendarmeria and Prefectura require completed high school for all their personnel. This contrasts with the two civilian police forces we studied, which requiere only 9 years of schooling. Anecdotally, the training is also longer and tougher in the militarized Police Forces. A second finding is that wages in these better evaluated Police Forces do not seem higher. Moreover, in an interview with Gendarmeria Nacional they mentioned that the organization avoided enrolling personnel in the Province of Buenos Aires because , they argue, the wage they offered is not competitive to attract good candidates in that Province. Moreover, by doing so, they would risk at adversely selecting those applicants that were rejected from other better

paid Police Forces.[22] A third difference is that militarized Police Forces do not used to pay overtime for the street-level service as cops. In the lines of Tirole (1986), avoiding these discretionary payments seem useful to reduce the probability of collusion. In recent years, though, the budgetary problems have induced both members of Gendarmeria and Prefectura to sell private security services outside of their normal working time. We are yet to see the consequences of such a reform. A fifth important difference has to do with geographic personnel rotation. Police officers of the PFA that render their service on the City of Buenos Aires are hardly rotated to the interior of the country and vice versa. Agents of the Police of the Province of Buenos Aires move very little. Only Captains rotate once a year, but always on the same jurisdiction. On the contrary, the National Gendarmerie's strategy is set to avoid collusion. Both Officers and Enrolled *Gendarmes* are constantly being rotated to different locations across the country, staying in general no more than three years on the same location. Within the location, every two months they either change their post or their shift so as not to let the people get involved with one particular gendarme. The Coast Guard still have some rotation, but only for the high rank personnel, which moves every two or three years. Subordinate officers hardly rotate; their post is fixed. They are only moved as a punishment for bad performance. As expected, the militarized forces are also stricter with norms of conduct. Coast guards and gendarmes are fired if they accumulate late entrances, if they are absent from their post without a proper justification or if they do not act according to their responsibilities. Regarding the agents expelled, they have an indictment and are not allowed to work in any other security force. That is not the case for fired agents of the civilian Police Forces, as there is no track of them. In the Police of the Province of Buenos Aires , there are no records of expelled personnel, despite most cops were fired due to cases of corruption. In short, the punishment from misbehavior in the civilian Police Forces seems weaker and less credible than in the militarized forces. Regarding the bribe offers, one should recognize that not all forces can issue tickets, which might be an important determinant of the willingness of civilians to bribe. Both the PFA and the Provincial Police, as they act as local police forces in their respective jurisdiction, are allowed to fine civilians. The Argentinean Coast Guard acts as the local Police Force in the City's district of Puerto Madero (as well as other port jurisdictions all over the country),[23] where they also have the authority to *fine civilians.* In contrast the National Gendarmerie is the only force that it is not allowed to issue tickets, even though it is responsible for the security of the national roads. Although we cannot fully discard that this is behind the differences in perception among Police Forces in Argentina, we think it is not the main issue. On the one hand there can also be some bribing in national roads, by Gendarmes, because issuing a ticket is not the only bargaining tool to get money. Discretionary delays and other special requirements have to be taken into account too. On the other hand the anecdotal explanations for why the civilian Police Forces have worse reputation is not because of petty bribes, but because of deeper problems, like close connection with local Mafias, criminals or illegal businesses. In short, even if the comparison cannot be perfect, the diversify of Police Organization and performance within Argentina is suggestive of a lesson: the Argentinean security organizations that follow similar practices than Carabienros de Chile are better evaluated by Argentinean citizens.

[22]Although in the last few years Gendarmeria started to enroll personnel in the Capital city

[23]In Puerto Madero there is a high density of policeman from Prefectura. There are 500 subordinate officers and 40 superior officers, who work in 4 quarters of 8 rotary hours.

6. Why did the Argentinean Police decay? Discussing a political economy framework.

We have shown that various organizational practices can account, at least partially, for the lagging performance of the Argentinean Police Forces. However, it is important to discuss why Argentina may have chosen these practices, that seem inferior to corruption control [24]. In this section we discuss the role of political and fiscal instability as deep causes of the problem, offering a formal framework to understand the historical events. Since the Police can be an important player in the decision to support or oppose to a military coup, we argue that political leaders failed to produce a much needed reform in the Argentina Police because they badly needed the loyalty of its officers, especially in the mid 20th century. It is not that the Police is sufficient to ignite or deterr a coup, but our argument is that the Police can be *pivotal* in the balance of forces. Analogoues to median voter theories, we argue that a weak leader needs the support of a "median armed group". The Police is a particular bureaucracy, because it has the option value of being a source of military and political power. While in countries with stable regimes this channel is irrelevant, for unstable regimes the support of the Police can be crucial. Like good financial assets, good friends pay on rainy days. And there were many rainy days for Argentinean leaders, who faced continuous and sistematic potential uprisings, even from within the Army that the leader supposedly "controlled". According to the Center for Sistemic Peace, Argentina had 15 military uprisings and coup events between 1946 and 1990, being the highest in the sample. In contrast, during the same period, Chile had only three. Even autocratic leaders in Chile felt less uncertainty than their counterparts in Argentina. What seems different in Chile and Argentina is *the way* the regimes built loyalty in the Police during those periods of instability. In 1927, Chile was also coming from a very unstable political environment. However, Carlos Ibañez used to be the director of a small gendarmerie unit within the Army in the 1920s[25]. After he arrived to power, he widely expanded his former organization, putting his fellows in charge of security in every town of the country, as well as getting rid of all other locally led Police Forces. This generated a double benefit for him. On the one hand he create an effective national Police. On the other hand, he reduced the probability of a coup against him, by controlling a larger fraction of the armed people in the country. Since he directly controlled the Police, he did not need to compensate the Police chiefs to get their loyalty. Juan Domingo Perón, with several similarities with Ibañez[26], may well have shared Ibañez's diagnosis about Police inefficiency and corruption, especially after the Argentinean "infamous decade" of political instability in the 1930s. However, Perón arguably faced much tighted constraints. First, the Police of the Province of Buenos Aires was a crucial supporter of his successful uprising in 1945 (Luna, 1981 ; Barreneche, 2007) which probably increased the value of the status quo in terms of military power for him. Second, the federal nature of the Argentinean government – got after 50 years of post independence wars - restricts Police organizations to be a provincial task. Reforming that law may have been too costly in terms of getting the support of other provinces; something really destabilizing for a regime with important latent boycotts coming from *within* the Armed Forces.[27] Finally, the political base of Perón came

[24]Simple ignorance about what determines good police institutions seems not to be the the cause. In fact, Buenos Aires was the neuralgic center of both intellectual activity and police coordination in the region. Since 1905 and in many occasions through the century the different police forces gathered in Buenos Aires to discuss about new technologies for both policing and repression (Conferencia Latinoamericana de Policia, 1920 ; Rodriguez et al , 1999).

[25]He was director of this 'Cuerpo de Carabineros" within the Army roughly ten years before he took power.

[26]Both were vice presidents first, allowed vote for women while presidents and had to go into exile and then returned to their countries for a final presidential period.

[27]After the disastrous effects of the 1891 civil war in Chile, where the Armed forced split and fought each other,

disproportionately from the lower middle class and the poor, which may have pushed towards more rights in the trade off between the costs of disorder and the rights of the arrested citizen. Perón made some efforts to reduce the collusion of the local Police with the local authorities and Mafias. However, Barreneche (2007) documents that he did not continue with the reforms beyond introducing some personnel rotation and audits. This limited reform is consistent with the view that Peron understood that a higher level of reform could create problems for his stability. The following subsection offers a formal framework to understand this phenomenon

1. A simple framework of postponed reform and decay of police institutions.

This section follows up on the previous discussion, presenting a simple formal framework to clarify thinking. It shows how it might be optimal for a leader to let the Police steal and get bribes, as a mechanism to retain their loyalty on rainy days.[28]

1. Setup

In this model, the survival of a political leader depends not only on the standard requirement to have the majority of votes, but also on the loyalty of the Police, as a potential insurance against insurrections from within the Army. We focus on the mechanism of buying insurance for different levels of regime instability, $\sigma \in [0, \bar{\sigma}]$. The leader can move some levers to impact the loyalty of the Police. In particular, it can change legal wages w for the Police , or let them take bribes b. If the leader survives, its payoff will be simply the total (exogenous) fiscal budget B minus the wage bill w. Note that, importantly, the bribes b do not enter directly into the fiscal budget constraint. Although we model the leader as purely selfish , this is just a mathematical simplification. The core idea is that bribes b are a cheaper source of finance for the leader, because they do not enter directly the fiscal budget constraint $(B \geq w)$. For simplicity we define the leader's problem with the following expected utility form:

$$\max_{w,b} \left(1 - \sigma e^{-\gamma[w+b]}\right)[B - w] - \alpha b$$

; the round parenthesis is a true probability function that describes the leader's survival in the job, $\left(1 - \sigma e^{-\gamma[w+b]}\right)$, where σ explained before is the political instability and γ is a parameter that increases when police loyalty is more responsive to a dollar of compensation (either legal or illegal). Note that, as discussed, the probability is increasing in the additional legal or extra legal contributions of the leader to the the Police. The squared parenthesis represents the expected payoff of the leader in case of survival. Finally, the last term is a (small) unit cost to represent the politician's weight of the social problems that bribing may cause. Our argument that bribing is cheap for the leader, so $\alpha \in (0,1)$.

2. Scared leaders allow more police corruption.

Having established the setup, we discuss the main prediction of the model, which formalizes why Argentinean leaders might have accepted too much corruption in exchange for survival. . **Proposition 1.** In more unstable regimes,with higher σ, leaders let the Police be more corrupt and collect a higher level of bribes. **Proof**: $\frac{\partial b}{\partial \sigma} = \frac{1}{\sigma\gamma} > 0$. See appendix for calculations In strong regimes, when σ is small, there is no benefit from paying more to the Police, since survival is determined by constitutional mechanisms. In contrast, with higher levels of

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there is a strong indoctrination in the Chilean military forces to avoid any splitting of military forces. This factor may have contributed to some extent to the relative low level of latent challenges to military regimes.

[28]Although we are focusing on the Argentinean case, this same principle can be applied to rationalize how corruption and crime increased after the failed coup against Venezuelan President Hugo Chavez in 2002; or to understand the poor security provision in Burundi vis-a-vis Rwanda after the genocides in the 1990s.

instability, σ, a worried leader has more incentives to transfer illegal resources to the police, in order to to retain its loyalty. They key mechanism that makes the leader prefer bribes is that they are cheaper for the short run budget constraint of the government. In the model we use the concept of "bribe" b as a theoretical device, but in practice we really mean any socially undesirable investment to get the loyalty of the Police. This means much more than petty bribing in the streets. For example, we think of the involvemenent of the Police in the protection of illegal activities (e.g. illegal games, prostitution...), as well as on the biased appointment of loyal friends as chiefs of the Police. In fact, privileging loyalty above knowledge of the Police duties has been a trend in Argentina when appointing Police bosses, because leaders tended to nominate either politicians without experience in the organization or military officers (Rodriguez et al, 1999) . This "glass ceiling" in the organization breaks career concerns and destroys incentives for the performance of high level policeman. In contrast, in Carabineros de Chile, the Director has almost always been a career *Carabinero*[29]. This is not to mean that in Chile politics does not play any role in the appointment. The difference is that by selecting among people validated within the Police, then the organization has an easier time keeping its own culture and the tacit incentive system.

2. Discussing the predictions and the difficulty of reform

The above framework rationalizes instability as root causes behind the degradation of Argentinean Police institutions. Up to a level, it shares commonalities with Mancur Olson's view that for a country is preferable to have a "stationary bandit" to a myopic "roving bandit", who is only in power for a short time. [30] Our story departs from Olson's, because in his narrative the roving bandit has a short time but with *known* exit date. In our framework, the leader's survival is endogenous to the level of loyalty he tries to induce. Our argument explains the degradation of Police as a by-product of a scared leader's last resorts to remain in power. Having established an incentive to degrade institutions, we have to recognize that in the last 20-25 years there has been a generalized movement towards more political stability in Latin America. In our framework this is represented as a reduction in latent instability σ, which would predict that leaders today are much less worried about a potential coup. To justify why Police institutions are still very poor in Argentina, despite more than two decades of constitutional order, we need to argue that reforming the Police is a hard task. Although a formal model is beyond the scope of this chapter, we discuss below why we think bad institutions are sticky and hard to reform. The first empirical point is that low quality of Police is ubiquitous, despite the great waves of democratization around the world. In fact, according to the Global Corruption Barometer (2008), the Police Forces are the single most bribed organizations in the world. A second reason is that Police Organizations accumulate a wealth of knowledge of past behavior of politicians. At a provincial level in Argentina, for example, the Police has developed a slow cooked set of connections with the ruling political parties, and vice-versa. Since leaders usually need to be loyal to the local political machinery to climb the ladder, this may self-select leaders likely to be involved in some "secrets", that the Police can tell to the public in case of reforms that menace their status quo. A similar problem can also happen to clean politicians, that might be scared to face personal vendettas and framing. A third issue is that reforms to the Police has synergies with reforming the judiciary, because to provide effective security both need to be perceived as functional and honest. The judiciary, however, has been systematically manipulated, using various legal tricks to appoint people loyal to the government.[31] A fourth family of problems is that building a strong national Police

[29]at least after the first ten years.
[30]Olson, M. 2000. Power and prosperity: Outgrowing communist and capitalist dictatorships Basic books
[31]This has been especially relevant in the nominations for Supreme Court

in Argentina is hard from a fiscal and constitutional points of view, at least much complicated than in Chile, which is organized as a unitary republic.[32] This difficulties become stronger when the overall fiscal position of the country is weak, as in Argentina between 1980 and 2003. While for a teacher or a nurse in a public hospital is much harder to ask for bribes, for a policeman the reduction in wages can be compensated by an increase in illegal sources of compensation, generating a probably higher social cost. The problem is permanent, even if the cause is transitory, because when receiving bribes loses social stigma, then there is no reason to stop the corruption even after wages come back to normal. In contrast, Chile had a better fiscal position in the last 30 years. But even in cases of fiscal problems, like the 1982 debt crisis, the bargaining on how to distribute a fiscal shock favored more the Police, especially because Carabineros was an important member of the military junta running the country at the time. This strong position of the Police in the budgetary decisions shielded even more the personnel benefits and the organizational culture to macroeconomic shocks. To finish, there is now a movement towards reform, because as of 2007-2008 the Argentinean government is increasing the personnel of Police Forces that are better evaluated in surveys (Gendarmeria Nacional and Prefectura Naval). This might be due to the improved fiscal position as well as the political weight that crime has been receiving recently. Nonetheless, we watch this recent move towards expanding national Police Forces with caution. For example, because the new enrollment of Gendarmeria and Prefectura are being made with "fast" six month training, to fit the spreadsheet of governmental targets of more Police Forces. Promising more quantity of the Police Forces that are better evaluated by society is not a bad move in itself. However, myopia seems pervasive. Having a short training is against the normal practices of Gendarmeria and more like the practice of the poorly evaluated Police of the Province of Buenos Aires. In our view, this is the tip of the iceberg of a deeper problem, in which politics wants to deliver political promises without internalizing the long term costs that this can have in the reputation of public organizations. [33] Building strong institutions requires long term political players, which seem lacking in Argentina according to Spiller and Tommasi (2003)

7. Concluding remarks.

In Argentina Police Forces are among the least trusted organizations. Despite being better than in Chile a century ago, the Argentinean Police Forces have decayed during the 20th century. In contrast, nowadays the Chilean Police is among the most respected organizations in the country. The difference is there, despite Argentina having roughly twice the number of policeman per capita than Chile, with wages that are not that different. We document that various organizational practices may account for the current difference between Chilean Carabineros and the Argentinan Police. One difference is that the Chilean police is more educated and trained longer. A second difference is that the Chilean police is national and the personnel rotates geographically. This is a well known device used to prevent collusion within the organization or with the local political elite. While there are other differences between countries, it is reassuring to know that the Argentinean Police Organization that resembles the most to the Chilean Carabineros, namely Gendarmeria Nacional, is evaluated better than other Police Forces in Argentina. This comparative exercise suggests that the same set of organizational incentives may be useful on both sides of the Andes. In this chapter, we asked

[32]For example, the Federal government could not reduce the provincial budget to use the resources in a nationally funded police.

[33]Even in Chile in the early 1990s the government requested a target for more Carabineros by using express training. Fortunately many internal controls were in place, and a large proportion of this "express Carabineros" ended out of the organization soon. Poor training seem to be a problem even for good police forces in countries with better institutions

the deeper question of why the Argentinean political system has failed to reform the Police, which seems a symptom of a broader political failure in Argentina during the century. We present a formal framework, in which a leader in an unstable regime fears over his survival in power. Namely, there are latent boycotts coming from the armed forces he supposedly controls. This instability seems empirically relevant according to the Center for Sistemic Peace, which records that Argentina had 15 military uprisings and coup events between 1946 and 1990, being the highest in the sample. In contrast, Chile had only three during this same period. Our framework predicts that countries with a history of more instability have also worse Police Forces, which can account for the current difference between Argentina and Chile. A second channel we remark is that fiscal crises can be translated into increases in corruption, because a leader with empty fiscal pockets allows the Police to receive bribes in compensation for lower wages. In our view, the low performance of the Police in Argentina is just a symptom of a more general trend of the decay of core institutions. Building strong institutions requieres long term political players that can internalize the benefits of their reforms. But many Argentinean leaders during the 20th century were forced to be myopic in order to survive. Unfortunately, according to Spiller and Tommasi (2003), long term players are also in short supply in contemporary Argentinean politics.

8. Appendix: Proofs of propositions

The two first order conditions for the problem are:

$$\theta\,\gamma\,e^{-\gamma\,(w+b)}(B-w)-\alpha=0 \qquad (1)$$

$$\theta\,\gamma\,e^{-\gamma\,(w+b)}(B-w)-1+\theta\,e^{-\gamma\,(w+b)}=0 \qquad (2)$$

Given the functional form, we we end up with a close form solution for the levels of w and b.

$$w=B+\frac{\alpha}{\gamma(\alpha-1)}$$

Note that we assume that the solution requires both b and w to be non-negative. For the case of b we need $-B+\frac{\alpha}{\gamma(\alpha-1)}+\frac{1}{\gamma}\ln\left(\frac{1-\alpha}{\sigma}\right)>0$. This requires two things: First, that $\in[0,1]$; which is what we meant in the setup by a "small" cost for the leader. This implies that $\frac{\alpha}{\gamma(\alpha-1)}$ is a negative number, which is reassuring because the negative of that number is the amount $B-w$ in the objective function. Second, we need $-\frac{\alpha}{\gamma(\alpha-1)}<\frac{1}{\gamma}\ln\left(\frac{1-\alpha}{\theta}\right)$. Finally, for w to be non-negative we need to assume that $\left|\frac{\alpha}{\gamma(\alpha-1)}\right|<B$. If these conditions are met, then we have the following partial derivatives; which can be either obtained directly or by total differentiation plus the implicit function theorem.

$$\frac{\partial b}{\partial\sigma}=-\frac{\left(\frac{1}{\sigma}-\frac{\alpha}{\sigma}\right)}{\gamma(-1+\alpha)}=\frac{1}{\gamma\sigma}$$

$$\frac{\partial b}{\partial B}=-1$$

Finally, it is reassuring to know that the second order conditions for a maximum are also satisfied in the range above, since the determinant of the Hessian is negative everywhere: $-\sigma^2\gamma^2\left(e^{-\gamma(w+b)}\right)^2$.

10. Appendix: Describing and comparing canonical police forces in Argentina

There are important differences *within* Argentina, both in the way they Police duties are organized as well as in the way citizens perceive the different Police Forces. On the one hand there are four *national* public security forces: Argentinean Federal Police (PFA), National Gendarmerie, Argentinean Coast Guards and Airport Security Police. On the other hand, as Argentina is organized as a federal state, each of the 23 provinces has one Police. Unlike in the United States, however, there is no separate city-level Police. Each city's Police is the same as the Provincial Police, with very few exceptions in the areas protected by national forces like ports or highly violent neighborhoods. Although the federal PFA has an investigative role in all the Argentinean territory– *a la* FBI in the US – it is also the street level Police in the City of Buenos Aires. Interestingly, the government of the Federal Capital does not have the right to organize their own police force. Due to Cafiero's Law (1996)[34] , this is a duty of the *Federal* Government.[35]

[34]Cafiero's Law prohibits the Mayor of Buenos Aires to have control over the City's police force.

[35]This information represents argentinean institutions in 2008. In 2009 the Government of the Cityof Buenos Aires started its own police force and we are not including this into our analysis. But changes here goback and

Table 2. Comparative facts for canonical police forces in Argentina

	PFA	Police of the Province of Buenos Aires	Argentinean Coast Guard	National Gendarmerie
Foundation (year)	1943	1857	1896	1938
Militarized force?	NO	NO	YES	YES
Active members (2008)	35000	46000	18000	28000
National Budget (dollars 2007)	528,672,016	1,080,127,954 (*)	268,017,999	402,826,193
% Budget to security (2007)	42.94%	100% (*)	21.77%	32.72%
Jurisdiction	Crimes of national jurisdiction all over the country; local police force in the City of B. Aires	Local police force in the Province of Buenos Aires	Ports. Also allowed to contribute to national security if asked by the National Government	Borders and national roads. Also allowed to contribute to national security if asked by the National Government
Division between superior and subordinate officers?	YES	YES (before Jan 2004)., NO (Jan 2004-Dec08) YES (since Jan 2009)	YES	YES
Minimum Years of Education Required				
Officers	12	12	12	12
Enrolled	9	9	12	12
Basic Wages (dollars 2008 per month)				
Officer personnel (high Rank)	390	2,660	360	360
Enrolled Personnel	240	770	340	220
Benefits outside basic wage?	Family Allowances	Family Allowances	N/A	Supplementals
Overtime payment				
Are they legal?	YES	YES	YES	YES (since 5 years)
Overtime as street level cops?	YES	YES	NO	NO
Payment for private security?	YES (most is for privates)	YES (most is for privates)	YES (most is for privates)	YES (only transportation and security of public officers like judges)
Higher pay in public than private	YES	YES	NO	NO
Pensions				
Years to retirement (& replacement rate)	30 (100% last wage)	35 (100% last wage)	35 (100% last wage)	35 (100% last wage)
Who does control Pension funds?	Caja de Retiros, Jubilaciones y Pensiones de la PFA	Caja de Retiros, Jubilaciones y Pensiones de la Policía de Prov BA	National Government	National Government
Health Insurance & Hospital	Own Organization	Own Organization	From the Navy	From the Army
Personnel fired	No tracks	No tracks	Indictment	Indictment
Geographic Personnel Rotation	Low	Low	High	High

Source: Author's compilation from many sources. National and Provincial Budgets (2007), National Decrees 1246/2005 and 1327/2005, Institutional pages of the PFA, Prefectura Naval, Gendarmería Nacional and Policía de la Provincia de Buenos Aires

To understand the within-Argentina institutional variation we will concentrate in four canonical forces: PFA in its street level role in the City of Buenos Aires, the National Gendarmerie, the Coast Guard in its role policing areas close to ports and, finally, one example of a provincial force from the Province of Buenos Aires. [36] The Police of the Province of Buenos Aires was created in 1857 as an independent security force, destined to provide its services to the citizens of the Province. Formally, the oldest *national* security force is the Argentinean Coast Guard (Argentinean Maritime Authority), as it was created in 1896. The federal PFA was created in 1943, even though it previously worked as the Police of the City of Buenos Aires, which was constituted in 1880. The National Gendarmerie was created in 1938, due to the necessity to consolidate the borders of Argentina and to guarantee the security of the settlers of the remote territories. While the Argentinean Coast Guard and the National Gendarmerie are militarized security forces with specific objectives to look over[37], they are allowed to render services of internal security in any place across the country *when asked by the National Government*. Nowadays they are increasingly taking a more important role in public security, especially *Gendarmeria*, which in the last 8 years moved from 18 thousand to 28 thousand agents. Even though it is just a provincial security force with no national jurisdiction, the Police of the Province of Buenos Aires is the largest force in Argentina, as it counts with approximately 46,000 agents and serves as the local police force to over 13 million people[38]. The federal PFA currently has 35 thousand agents and approximately 18 thousand of those agents work as street level cops in the City of Buenos Aires. In 2007, 42.94% of the Federal Budget assigned to security was for the PFA, 32.72% to the National Gendarmerie and 21.77% to the Coast Guard (*Prefectura*). As in any other province, the budget assigned to the Police of the Province of Buenos Aires comes from the provincial budget[39]. Like in many Armies around the world and in Carabineros de Chile, all forces analyzed here have separated entry routes for Officers (high ranks) and Enrolled Personnel (lower ranks). The only exception has been a 2004 experiment to unify them in a single rank, in the Province of Buenos Aires, but this was recently reversed.[40] For the four forces analyzed the applicants to the Officer's School are required to have 12 years of schooling. However, in the two "civilian forces" analyzed (Buenos Aires Province and PFA), the subordinate officers are only required to have nine years

[36]This sample accounts for more than 80% of the national level security agents. On the other hand, the police of Buenos Aires TypeProvince represent 34% of the provincial security agents. On the whole, the four security forces that are going to be analyzed count for 58% of the security agents all over the country (provincial and national).

[37]The Argentinean Coast Guard is in charge of security of navigation and public order in waters of national jurisdiction and in ports. The National Gendarmerie is in charge of the control and protection of the Argentinean borders and strategic objectives at time of war

[38]37% of the total population

[39]In 2007, US$ 1080127954 were assigned to the Police of the Province of Buenos Aires.

[40]As militarized forces, the National Gendarmerie and the Argentinean Coast Guard have a strong division between superior and subordinate agents. There are eight hierarchies both for subordinate and superior gendarmes and coast guards. Even though the PFA is not a militarized force , its agents are also divided since their enrollment between superior and subordinate agents. The only security force analyzed that does not have the abovementioned division is the Police of the Province of Buenos Aires. As the PFA, until 2004 this force had a strong division between superior and subordinate officers. But on January 2001, Law 13.201 was adopted. It established that the 17 existing rankings were going to be replaced by just 9 with no division between superior and subordinate agents. According to internal sources, the Ministry of Security back then, Leon Arslanian, thought that the old hierarchy was related to the one that the Military Forces used between 1974 and 1983 when they ruled the country. Supposedly, to change the rankings in order to have just one hierarchy scale was a way to "democratize" the force. However, after 4 years, and due to the strong security related problems that the Province of Buenos Aires has suffered in 2008, the Governor determined that by January 2009, the old hierarchy was going back to action.

of formal education, whereas in the militarized forces they need to have 12 years. [41] Nevertheless, applicants to the recently created "accelerated preparation" for Coast Guard and Gendarmerie have a lower requirement: nine years of schooling. As there are differences in the requirements to join the forces, there are also differences regarding the basic mean monthly wage they receive. In the PFA, the National Gendarmerie and the Argentinean Coast Guard, it is in the ballpark of US$ 360 and US$ 390 for Officers. For subordinate officers, the basic mean wage lies between US$220 and US$240 for agents of the PFA and the National Gendarmerie, it is US$ 340 for agents of the Argentinean Coast Guard, and it is US$ 770 for officers of the Police of the Province of Buenos Aires.

In any case, given that these wages are only a portion of the compensation – in a percentage that varies among different Organizations – is hard to make precise comparisons of the total wage. For example members of the PFA and the Police of the Province of Buenos Aires receive family allowances. These are mainly monthly allowances for under aged children, disabled children and spouses. The PFA also makes annual payment to policemen that render their services on the interior of Argentina. Regarding overtime payment, it is legal for agents of all the security forces to do them. But, in general, the subordinate ranks are the ones that render this additional service. There are two types of overtime: for privates (banks, soccer matches, etc.), which are called *PolAd* in the Province; or for providing the service of patrolling and controlling the streets of the city were agents regularly work, called *Co.Re.S.* in Buenos Aires province. Most extra hours are done for privates, which involves a higher payment as they are riskier activities than the normal street level service.[42] Police agents request to do them. In Buenos Aires, for example, Co.Re.S. hours are paid by the Provincial Government and are worth US$2 per hour whereas PolAd hours are paid by the private consumers because they request the security to the local police force and are worth between US$3,5 and US$4 per hour. Police officers are allowed to do *up to 8 extra hours per day*, which certainly increases our concerns about multitasking. As in Chile, the two militarized forces do not make overtime payment for the extra hours worked by their agents in their normal duties. Agents of the Argentinean Coast Guard are allowed to perform extra hours but just for privates like country clubs, discos and banks who hire the security service of the force (even outside their jurisdiction). In contrast, they are not paid extra time when they have to stay longer on their regular positions. The coast guards apply directly to do those extra hours for privates. They are not allowed to do additional services as civilians unless they receive a specific permit. However, many coast guards provide their security services for civilians without authorization because of the low payment. In the National Gendarmerie, extra hours *were not allowed until five years ago*. Nowadays, they are legal but just for privates, particularly for looking after transportations and for the security of public officers like judges. Like Coast Guards, they do not get paid for additional service on their regular post. The gendarme can not apply to do those overtime hours for privates, they are appointed to him. Even though they are legal, it is not very common for gendarmes to do overtime hours as in general they do not have time to perform them. However, gendarmes have supplemental components of their basic wage, like "supplement for hierarchy", "supplement for uniform", "supplemental for living expenditures", "supplemental for studies" and "supplemental for zone" that for a low hierarchy

[41]This is not the case for officers of the National Gendarmerie and the Argentinean Coast Guard, where both subordinate and superior agents need 12 full years of formal education before starting a career (in the National Gendarmerie the difference lie on the basic knowledge of automobile and motorcycle driving that superior officers need to have; in the Argentinean Coast Guard to have previous knowledge of physics is needed to get enrolled as a superior officer).

[42]This was the explanation given by an Officer of the Buenos Aires police on an interview in order to rationalize the differences in the extra hours' payment. An alternative view is that the pricing of private services by the police is in part determined by the availability of a market of private security guards, while the extra hours for public service are just determined by the public budget.

gendarme means that the mean wage can be as much as US$600. In interviews, this amount was not considered competitive with the more than US$ 700 paid by the Province of Buenos Aires. That is why, up to a few years ago, gendarmerie did not open vacancies for applicants from Buenos Aires, probably expecting to avoid bad applicants rejected from other forces. In terms of retirement, as it was previously mentioned, agents need to have 35 years of service (except for agents of the PFA who need 30 years) in order to retire with 100% of their basic wage[43]. In the two civilian forces pensions are controlled by a special fund owned by Organization[44]. However, the pensions of the agents of the National Gendarmerie are controlled by the National Government. In a similar way, agents of the PFA and the Provincial Police have health care plans and hospitals of their own[45], while they are active and also once they retire. The two militarized forces analyzed get health services and insurance from the military: the Army for the National Gendarmerie and the Navy for the Coast Guard. Even if they are independent Organizations with completely different roles, they retain the pension and health system of the Organization from which they born. Regarding geographic personnel rotation, it is high for the National Gendarmerie and the Argentinean Coast Guard and low for the Police Forces. Police officers of the PFA that render their service on the City of Buenos Aires are hardly rotated to the interior of the country and vice versa. Agents of the Police of the Province of Buenos Aires move very little. Only Captains rotate once a year, but always on the same jurisdiction. On the contrary the National Gendarmerie's strategy is set to avoid collusion, like in Tirole's model (1986). Both Officers and Enrolled Gendarmes are constantly being rotated to different locations across the country, staying in general no more than three years on the same location. Within the location, every two months they either change their post or their shift so as not to let the people get involved with one particular gendarme. Things are different in the Coast Guard, where only high rank personnel rotate every two or three years. Subordinate officers hardly rotate; their post is fixed. They are only moved as a punishment for bad performance. The Argentinean Coast Guard and the National Gendarmeries are strict with the norms and rules that its agents have to fulfill. Coast guards and gendarmes are fired if they accumulate late entrances, if they are absent from their post without a proper justification or if they do not act according to their responsibilities. Regarding the agents expelled, they have an indictment and are not allowed to work in any other security force. That is not the case for fired agents of the PFA, as there is no track of them. Out of the expelled officers from the Buenos Aires Provincial Police, most were due to cases of corruption. Again, there is no official track of these provincial agents. In short, the punishment from misbehavior in the civilian police forces seems weaker and less credible than in the militarized forces. Regarding the bribe offers, one should recognize that not all forces can issue tickets, which might be an important determinant of the willingness of civilians to bribe. Both the PFA and the Provincial Police, as they act as local police forces in their respective jurisdiction, are allowed to fine civilians. The Argentinean Coast Guard acts as the local Police Force in the City's district of Puerto Madero,[46] where they also have the authority to *fine civilians*. In contrast the National Gendarmerie is the only force that it is not allowed to issue tickets, even though it is responsible for the security of the national roads. Although we cannot fully discard that this is behind the differences in perception among Police Forces in Argentina, we think it is not the main issue. On the one hand there is also some bribing in national roads, because issuing a ticket is not the

[43]This is the de jure replacement rate. As abovementioned, the de facto replacement rate lies around 70% to 80%

[44]"Caja de Retiros, Jubilaciones y Pensiones de la PFA". It is the same in the Police of the Province of Buenos Aires, where pensions are controlled through the "Caja de Retiros, Jubilaciones y Pensiones de la Policia de la Provincia de Buenos Aires"

[45]The PFA's hospital is "Bartolome Churrica – Visca"

[46]In Puerto Madero there is a high density of policeman from Prefectura. There are 500 subordinate officers and 40 superior officers, who work in 4 quarters of 8 rotary hours.

only bargaining tool to get money. On the other hand the anecdotal explanations for bad reputation of the civilian Police Forces have more to do with deeper problems, like joint operations with criminals. When there are serious problem related to the lack of security, people demand the intervention of the National Gendarmerie or the Coast Guard rather than a civilian Police Force, either national or provincial. Ovalle (2005) mentions that *"In the last years there has been a transition […] The intervention of the Coast Guard and the Gendarmerie was initially set out in particular situations regarding public order. Then, its presence proliferated to security services of public buildings and strategic places […]. By 2002, the "combined system" was established, with the intervention of the PFA, the Police of the Province of Buenos Aires, the Coast Guard and the Gendarmerie. […] Finally […] in July 2003 there was a displacement of the Gendarmerie and Coast Guard's roles towards police duties. […]* . Taking stock, we think that at least part of this better perception and image of lower corruption in the militarized Police Forces in Argentina might be because of the same reasons why Carabineros de Chile is perceived as more trustworthy.

11. Appendix: Data compiled on Argentinean police forces:

In this appendix we store some useful statistics about Police Forces in Argentina. We found no well established record for these statistics in Argentina.

1. Police Forces and budgets in different Argentinean provinces

Table 3. Police forces, crime and budget across Argentinean provinces.
Source: Budget is an author's compilation of data coming different Provincial Ministries of Economy . Othe data comes from Police Project "Construyendo una Red de Policías en Latinoamérica" by Fundación FUNDAR (2006) , Public Security Survey by INDEC (2005),Victimization Survey 2006 by U. Torcuato Di Tella's "LICIP".

Province	Number of Provincial Police Agents - 2006	Agents/1000 people - 2006	Homicides/100,000 people - 2005	Victimization Index - 2006
Buenos Aires	44,500	3	6	39.90%
Catamarca	2,300	8	2	-
Cordoba	9,800	3	6	40.80%
Corrientes	4,500	5	10	-
Chaco	4,400	5	4	-
Chubut	2,300	5	6	-
Entre Rios	5,800	5	5	-
Formosa	3,200	7	9	-
Jujuy	3,300	6	4	-
La Pampa	1,800	6	2	-
La Rioja	2,700	10	3	-
Mendoza	5,900	4	7	40.80%
Misiones	3,200	3	8	-
Neuquen	3,300	6	7	-
Rio Negro	3,500	6	6	-
Salta	3,900	4	6	-
San Juan	3,300	6	2	-
San Luis	2,200	6	3	-
Santa Cruz	1,900	10	5	-
Santa Fe	12,000	4	8	40.80%
Santiago del Estero	4,200	6	4	-
Tierra del Fuego	1,200	10	1	-
Tucuman	5,000	4	3	40.80%
Buenos Aires City	18,000	6	5	34.50%

(*)				
Buenos Aires City (*) (1)	18,000	3	2	34.50%
TOTAL	170,200	6	6	39.20%

(*) Agents of the PFA ; (1) Taking into account that 7 million people work in Buenos Aires City during the week.

2. Wage profile of different ranks in various Argentinean Police Forces

Table 4. Buenos Aires Provincial Police

Rank	Number of Policemen	Wage (pesos): with high school diploma	Wage (pesos): without high school diploma	Wage (dollars): with high school diploma*	Wage (dollars): without high school diploma*
Oficial de Policía	14,138	$ 1,765	$ 1,713	$ 558	$ 542
Sargento	9,000	$ 2,002	$ 1,940	$ 633	$ 613
Subteniente	7,600	$ 2,547	$ 2,340	$ 805	$ 740
Teniente	6,800	$ 2,741	(1)	$ 867	(1)
Teniente Primero	5,000	$ 2,782	(1)	$ 880	(1)
Capitan	2,500	$ 5,089	(1)	$ 1,609	(1)
Inspector	700	$ 6,912	(1)	$ 2,186	(1)
Comisionado	250	$ 8,312	(1)	$ 2,628	(1)
Superintendente	12	$ 12,498	(1)	$ 3,952	(1)
TOTAL	46,000				

Source: Agencia Federal de Noticias (09/14/2008), Newspaper "La Palabra" (09/14/2008), Newspaper "El Ciudadano" (09/14/2009), Internal Sources of the Province of Buenos Aires Police and Exchange Statistics from the Central Bank of Argentina (BCRA) . Notes (1): rank only available for policeman with high school diploma

Table 5. Policia Federal Argentina (City of Buenos Aires)

Rank	Wage (pesos): 2005	Wage (pesos): 2006. Adjusted by inflation	Wage (pesos): 2007. Adjusted by inflation	Wage (pesos): 2008. Adjusted by inflation	Wage (dollars)*
Comisario General	1940.8	2282.4	2722.9	3553.4	1123.7
Comisario Mayor	1804.0	2121.5	2531.0	3302.9	1044.5
Comisario Inspector	1664.9	1957.9	2335.8	3048.2	963.9
Comisario	1314.6	1546.0	1844.3	2406.9	761.1
Subcomisario	1074.2	1263.3	1507.1	1966.7	621.9
Principal	899.7	1058.0	1262.3	1647.2	520.9
Inspector	793.6	933.3	1113.4	1453.0	459.5

Subinspector	721.6	848.6	1012.4	1321.2	417.8
Ayudante	655.5	770.9	919.6	1200.1	379.5
Suboficial Mayor	1046.0	1230.1	1467.5	1915.1	605.6
Suboficial Auxiliar	875.4	1029.5	1228.2	1602.7	506.8
Suboficial Escribente	804.1	945.6	1128.1	1472.2	465.5
Sargento Primero	687.3	808.3	964.3	1258.4	397.9
Sargento	660.1	776.3	926.1	1208.6	382.2
Cabo Primero	615.0	723.2	862.8	1126.0	356.1
Cabo	603.6	709.8	846.8	1105.1	349.5
Agente	597.4	702.5	838.1	1093.8	345.9

Official Exchange Rate (average for 2008): 3.1623. Source: National Decree 1327/2005, Universidad Di Tella's inflation expectation survey and Exchange Statistics from the Central Bank of Argentina (BCRA)

Table 6. Tierra del Fuego

Rank	Wage (pesos)	Wage (dollars)*
Comisario General	17344	5485
Comisario Mayor	15906	5030
Comisario Inspector	14380	4547
Comisario	11127	3519
Subcomisario	8932	2825
Principal	7986	2525
Inspector	6882	2176
Subinspector	6275	1984
Ayudante	5774	1826
Suboficial Mayor	9524	3012
Suboficial Auxiliar	8130	2571
Suboficial Escribente	7450	2356
Sargento Primero	6405	2025
Sargento	6035	1908
Cabo Primero	5345	1690
Cabo	5102	1613
Agente	5009	1584
Cadete	5009	1584

Source: Provincial Decree 2624/08 and Exchange Statistics from the Central Bank of Argentina (BCRA). Official Exchange Rate (average for 2008): 3.1623

Rank	Basic Wage and Allocations (pesos): 2006	Basic Wage and Allocations (pesos): 2007. Adjusted by Inflation	Basic Wage and Allocations (pesos): 2008. Adjusted by Inflation	Basic Wage and Allocations (dollars): 2008*	Net Wage with Personal Allocations (pesos): 2006	Net Wage with Personal Allocations (pesos): 2007. Adjusted by inflation	Net Wage with Personal Allocations (pesos): 2008. Adjusted by inflation	Net Wage with Personal Allocations (dollars): 2008*
Comisario	2630.5	3138.1	4095.3	1295.0	4353.0	5193.1	6777.0	2143.0
Inspector								
Oficial	1101.51	1314.1	1714.9	542.2	1805.3	2153.7	2153.7	681.0
Inspector								
Cabo	645.54	770.1	1005.0	317.8	1287.9	1536.4	1536.4	485.8
Agente	570.04	680.0	887.4	280.6	1235.4	1473.8	1473.8	466.0

Source: Census and Statistics General Direction of Rio Negro, Universidad Di Tella's inflation expectation survey and Exchange Statistics from the Central Bank of Argentina (BCRA). Official Exchange Rate (average for 2008): 3.1623

3. Applicants versus accepted:

	Enrolled Personnel Applicants	Enrolled Personnel Accepted	% of Acceptance	Officer Personnel Applicants	Officer Personnel Accepted	% of Acceptance	Accelerated Preparation (applicants)	Accelerated Preparation (accepted)	% of Acceptance
PFA (1)									
2006	2425	1784	74	225	215	96	-	-	-
2007	2450	1587	65	244	235	96	-	-	-
2008 (*)	1207	712	59	250	0	0	-	-	-
National Gendarmerie (2)									
2006	430	420	98	127	99	78	2000	1251	63
2007	430	469	109	127	99	78	2000	1056	53
2008 (*)	450	0	0	145	0	0	2000	724	36
Buenos Aires Police (3)									
2006	10000	3500	35	N/A	N/A	N/A	-	-	-
2007	7000	3500	50	N/A	N/A	N/A	-	-	-
Argentinean Coast Guard (4)									
2006	250	207	83	95	89	94	1000	752	75
2007	250	241	96	80	73	91	600	569	95
2008 (*)	150	0	0	55	0	0	1000	744	74

Sources: (1) Ministerio de Economía - Secretaría de Hacienda - Oficina Nacional de Presupuesto - Seguimiento Físico Financiero; Presupuesto de la Administración Nacional - Formación y Capacitación Profesional de la Policía Federal Argentina (2) Ministerio de Economía - Secretaría de Hacienda - Oficina Nacional de Presupuesto - Seguimiento Físico Financiero; Presupuesto de la Administración Nacional - Formación y Capacitación Profesional de la Gendarmería Nacional (3) La Nación Newspaper (05/02/2007) (4) Source: Ministerio de Economía - Secretaría de Hacienda - Oficina Nacional de Presupuesto - Seguimiento Físico Financiero; Presupuesto de la Administración Nacional - Formación y Capacitación Profesional de la Prefectura Naval Argentina Note: In 2008, inscription to the Metropolitan Police (Police Force of the City of Buenos Aires) began. Number of applicants: 5000 (source: La Nación Newspaper, 12/20/2008)

4. Police deaths during the 20th century

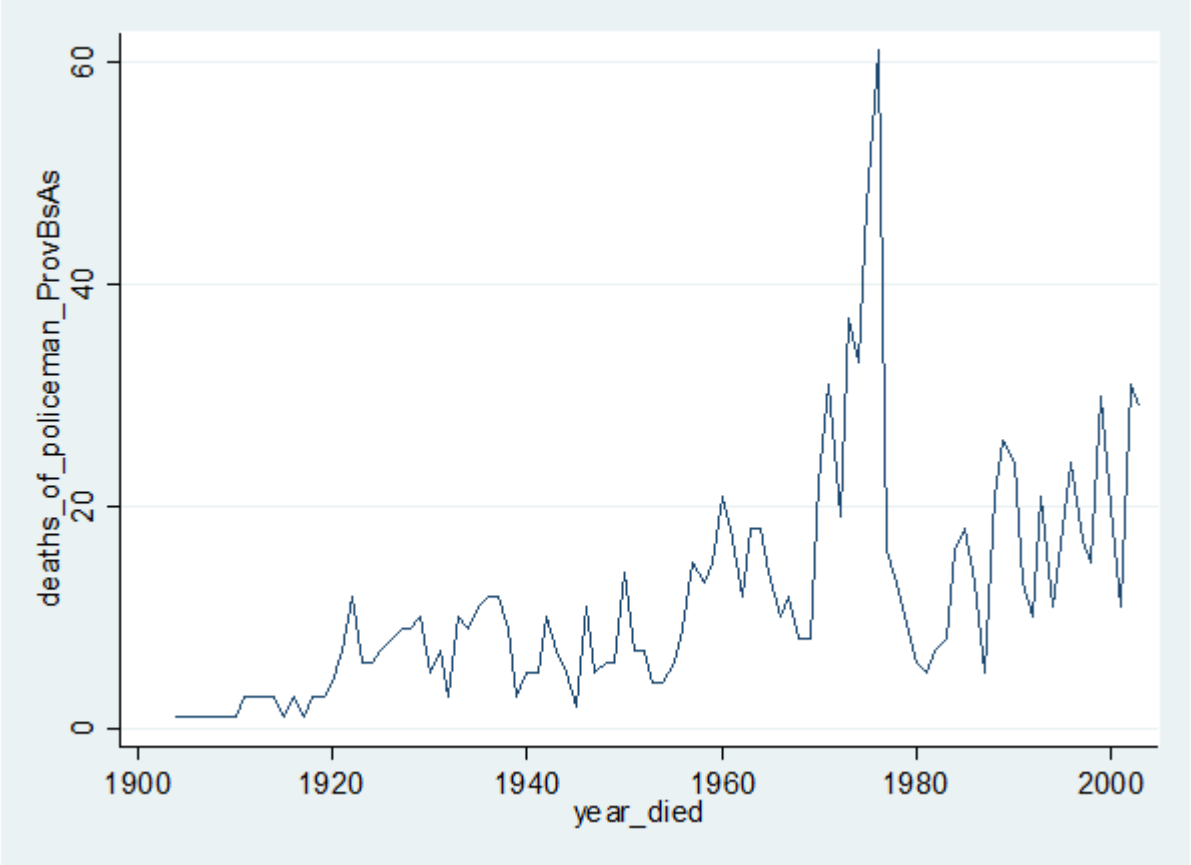

Figure 9. Yearly martyrs of Buenos Aires Province Police (1910-2003).
Source: Author's calculations based on the reports of the Province of Buenos Aires.

Transition Remarks

Since 1980, Argentina has moved towards openness, but the economic results appear to have been lackluster. The country's economic growth has increased but only modestly, which has left many wondering whether Argentina's economic problems lie deeper than its policies towards trade. The next paper challenges the existing data and the idea that Argentina has grown sluggishly since its economy opened up.

Growth in real incomes requires two separate data series: nominal income and real price indices. Flaws in either series could cause real income growth to be significantly mismeasured. In many cases, measuring national output, at nominal prices, may be easier than measuring real price indices especially in an era of rapidly changing product quality or new product innovation. Both changes produce challenges for traditional price indices.

Consider, for example, the product quality challenge. Cars may appear to have kept relatively constant prices over the last thirty years, but today's automobiles bear little resemblance to their predecessors a generation ago. They are fitted with electronic technology, and are typically much safer. The shift in computer technology is even more dramatic, and even in the area of food, the range and quality of goods appears to have increased enormously.

In the case of new product introduction, the measurement problems become more severe. An iPod could not have been purchased, at essentially any price, in 1985. Hedonic work can be done to try to create a facsimile, but the process is imperfect at best. The opening up of an economy to world trade creates new product introductions almost as extreme as technological innovation.

There are two ways of getting at this problem. The first approach is to trust that hedonic price methods enable us to adequately control for quality. This approach assumes relatively good measurement of product attributes and a number of other statistical tools to price a particular product attribute in any given year. While this approach is certainly quite valuable, it is also quite imperfect.

The next paper implements the second approach to measuring changes in real income. This approach assumes a constant relationship between real incomes and the share of incomes being spent on food. If this relationship is stable across time, then changes in the share of expenditures on food provide us with an alternative means of charting changes in real income. This approach has been applied in many contexts, including long run historical data.

The authors find that the share of Argentinian incomes being spent on food has dropped dramatically over the past thirty years. This implies that real incomes have increased substantially more quickly than official statistics. Their estimate is that real incomes have risen between 4.3% and 5.7% faster per year than previous estimates suggest. If true, this suggests a radical rethinking of the past thirty years and a radical re-interpretation of the positive effects of the era of Argentine openness.

Of course, these conclusions depend on assumptions that can be questioned. Yet the official statistics are also certainly debatable. At the very least, this work suggests that the official statistics are likely to be significantly underestimated the pace of growth in recent decades.

CHAPTER NINE

An estimation of CPI biases in Argentina 1985-2005, and its implications on real income growth and income distribution[1]

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Abstract
We use the shifts in Engel curves estimated from household surveys to estimate CPI biases in Argentina between 1985 and 2005. We find that real earning levels increased during this period between 4.3 and 5.7% faster per year than previously estimated. More surprisingly, relative to conventional wisdom, that income distribution has improved throughout this period.

1 Introduction

Argentina has always been considered a basket case. No better proof of this fact than the name of this conference which refers to Argentina's exceptionalism, thus assuming that there is something unusual, "exceptional", for good or bad, regarding Argentina's economic performance.

It is a well known fact that at the turn of the XXth century Argentina was among the richest countries in the world[2] that after WWII started a long period of economic decline[3]. While by the turn of the XXIst century Argentina still was, in PPP terms, the richest among large Latin American countries, it had lost significant ground relative to it peer group of a century ago. This long stagnation has become to some an apparently unavoidable fate, only to be interrupted occasionally by brief growth spurts that inevitably provided the stage for the following crisis (a process that has been dubbed

[1] This paper was prepared for the Argentine Exceptionalism Conference at Harvard Kennedy School on February 13th, 2009. We would like to give special thanks to conference participants, Javier Alejo, Guillermo Cruces, Leonardo Gasparini, Ana Pacheco and Guido Porto for their useful comments. Contact address: fsturzenegger@bancociudad.com.ar or gluzmann@yahoo.com.

[2] Gerchunoff and Llach (2003a, 2003b and 2004) have studied in detail this phenomenon, as well as other chapters of this book (Llach; Glaeser and Campante; and Alvaredo, Cruces and Gasparini). Many of these authors found that Argentina was less developed in terms of education, health, inequality and other determinants of growth than countries with similar levels of product.

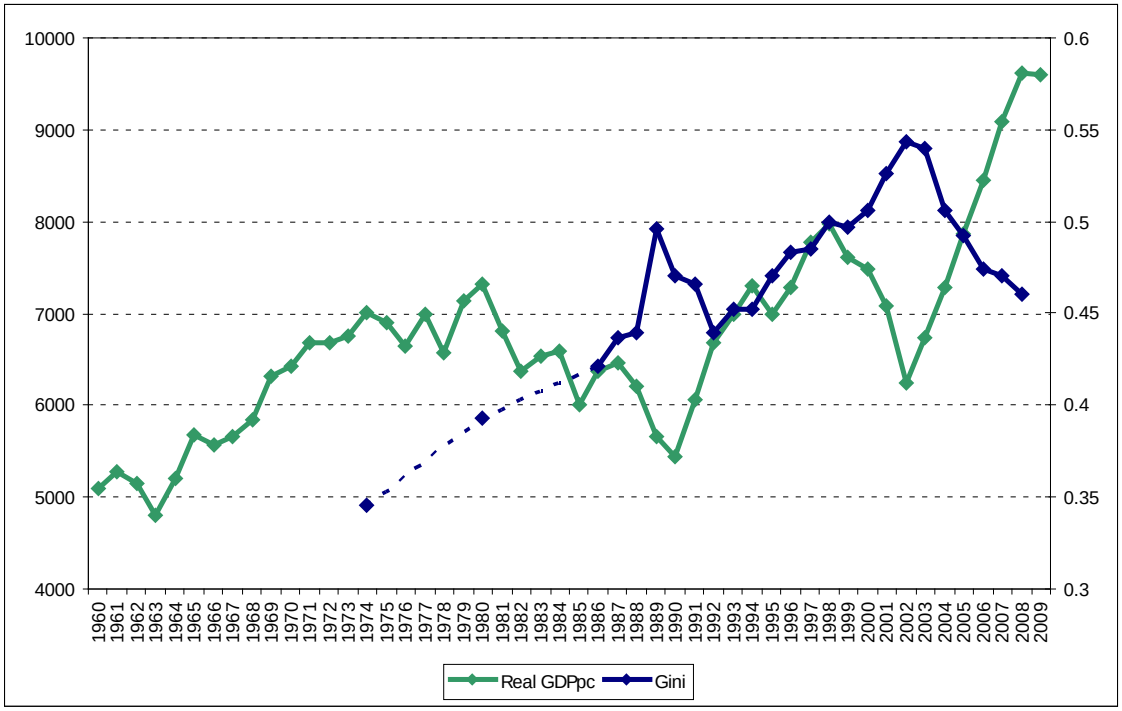
[3] Most part of this book analyzes the determinants of this poor performance. Brambilla, Galiani and Porto and Galiani and Somaini relate it to trade policy, Di Tella to political beliefs and Taylor to insufficient domestic savings and investment.

"stop go" dynamics[4]). In fact studies about the Argentine perception of the business cycle indicate that Argentines tend to become pessimists in the midst of each economic boom, as if anticipating the unavoidable next crisis (see Gabrielli and Rouillet, 2003).

This stagnation and perennial process of going forward and backwards, has permeated not only the economic sphere, but has also been relevant in politics, as Argentina witnessed a string of military interventions between 1930 and 1983. It is perhaps in this parallel dimension where Argentines feel that real progress has been made since 1983, as nowadays there is virtually no possibility of an interruption of the democratic political process. But does this improvement in the political sphere been matched by a similar success in economic performance? Not in the collective imagination. Since the return of democracy the country has experienced two hyperinflations, several defaults and restructurings of its debt, many large devaluations, periods of persistent high inflation, deflation, introduction of parallel currencies, and deep economic crises. This poor economic performance has implied a volatile evolution of its per capita GDP growth and a deteriorating income distribution, as shown in Figure 1. It is the long period between the 70s and the first decade of the XXIst century that has built the belief of a stagnant economy. Taking 1983, the year of the restoration of democracy as a starting point, output per capita has grown only 1.5% when considering the period until 2009. But the per capita income of 1983, with ups and downs, was left behind only in 2002-2003. The per capita income of 1980 was left behind only in 2005, i.e. 25 years later.

Figure 1. Real GDP growth and income distribution

[4] See for example Diaz Alejandro (1970) y Gerchunoff (2005).



Source: The Gini coefficient includes only Buenos Aires and its metropolitan area, it was computed using the Socioeconomic Database of Latin America and the Caribbean (CEDLAS-WB), the Real GDPpc are values reported in World Development Indicators (WB).

All the historical literature accepts this perspective as a given[5], providing a cohesive and unanimous answer to the question about economic performance: Argentina's exceptional bad performance since democracy is considered a stylized fact.

The purpose of this paper is to challenge this view. In fact we want to challenge the view that economic performance during Argentina's recent democracy has been dismal, both in terms of earnings growth as well as in terms of income distribution. Using the shift in the Engel curves to re-estimate the relevant price levels, we will argue that real earnings growth has been steady and much bigger than measured, and that income distribution has improved. If we are able to convince our readers of our results, our work would throw a completely new light on recent economic performance. Under this new light the exceptionalism that has been the focus of the other chapters of this book, would appear to have been left behind already two decades ago. With commodity prices on a relatively strong footing, a region that appears to be increasingly in order, and large wealth increases from the development of mining, agricultural and energy resources, the prospect for Argentina looks bright in the foreseeable future.

The outline of the paper is extremely simple. Section 2 explains the methodology to correct the bias in the price levels typically used to estimate real income growth; section 3 shows the results; and section 4 provides some final thoughts. Our conclusions are that Argentina's exceptionalism is a presumption that still needs to be proven, and that Argentina's economic performance during our recent democracy, both in terms of

[5] There are many articles that analyze the performance of Argentina during this period. See for example Damill and Frenkel (1990 and 2003), Damill, Frenkel, and Mauricio, R. (2002), Gerchunoff and Llach (2003a) for output performance and its determinants. For papers specially focused on income distribution and its determinants see Altimir and Beccaria (1999 and 2001), Altimir, Beccaria and Gonzalez Rozada (2002), Gasparini (2003), Lindenboim, Graña and Kennedy (2005) and Cruces and Gasparini (2008).

income distribution and earnings growth has been substantially better than accepted in the economic debate.

2 Methodology

It is standard to use income as the most relevant measure to estimate well being. However, to obtain a comparable measure of income over time, it is necessary to deflate the nominal measures at each specific moment by a price series, most commonly, the consumer price index (CPI). In the case of Argentina, in particular, the one used it that corresponding to the city of Buenos Aires and its metropolitan area. This a Laspeyres type index, with a fixed basket, and subject to a series of well known biases.[6]

First, these indexes overestimate inflation, because they omit the effect of substitution between goods, changes in quality of the goods and the impact of the availability of new products. Second, the use of a common price index, may be problem when building measures of income distribution because it assumes that baskets are equivalent across all income groups.

In Argentina, consumption surveys are not very frequent. The last three were conducted in 1984-85, 1996-97 and 2004-05, and where undertaken to update the basket in the CPI. However, the large time gap between updates, may lead to significant biases, particularly if we consider the large structural changes undergone by the Argentina economy over the last 25 years (e.g. a large trade liberalization process).[7] Thus, correcting for the biases produced in the CPI can change the evolution of real income and correcting for the biases at different income levels can also change the evolution of income distribution during this period. [8]

These consumption surveys can be used to estimate the biases following the methodology of Costa (2001) and Hamilton (2001). In a nutshell the methodology uses the assumption that Engel curves for food should be relatively stable. If this is the case, when the estimation of the Engel curves at different dates show shifts, it is assumed that these correspond to CPI bias. To illustrate the point, consider two points in time between which the share of food in income declines with a stagnant earning levels. Under the assumption that the Engel curve is stable, this provides a presumption that CPI may be biased (overestimated in this case) as a falling income share is consistent with *rising*, not stagnant, income levels. Thus, the changes in the share, with some assumptions, may be linked to the CPI bias. Of course, the biases in the Engel curve are obtained after correcting for changes in relative prices and household characteristics.

In later work Carvalho Filho and Chamon (2006) use semi-parametric models to extend the methodology to estimate the biases at different income levels thus allowing to tackle the issue of income distribution.

We should clarify that in previous work, identification was built from exploiting the differences across regions. In the case of Argentina, however, our data contained only

[6] Diewert, Greenlees, and Hulten (2009) summarizes the main developments of this literatura and how they impacted on methodological cahnges in the US.
[7] In many countries these surveys are annual, and basket revisions are done at higher frequencies.
[8] This adjustment occurs by allowing an adjustment in household income by a specific index that considers the prices paid by that household.

one area (the metropolitan area of the city of Buenos Aires). Thus, our paper needs to innovate from a methodological point of view relative to previous work, by finding a way to obtain identification when only data from one region is available, something we do by using individual price indexes by household.

Given that the book focuses on a more historical approach to the issue of Argentina exceptionalism, we have chosen to provide the methodological description of the literature and of our approach in the appendixes. The interested reader should move to those sections now, while those not so concerned about methodological issues can move to the results, which are presented in the next section.

3 Results

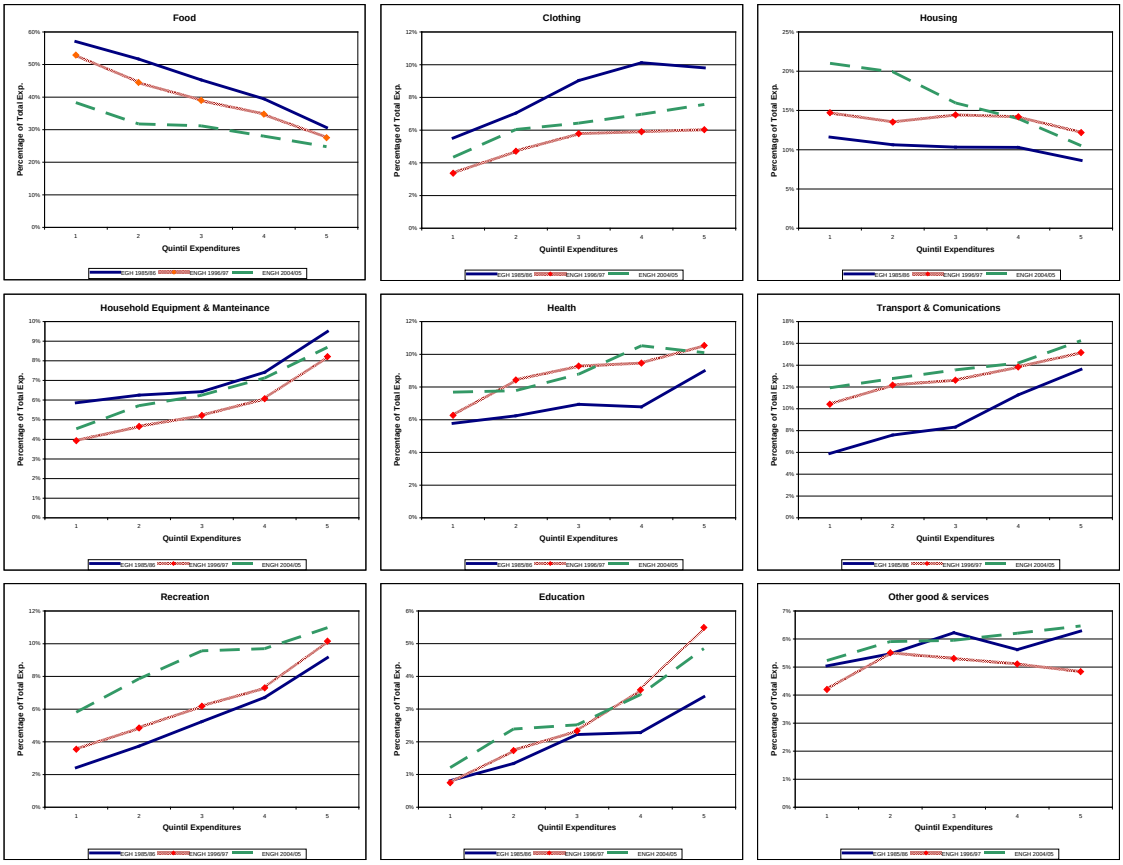
3.1 Data

As we mentioned above, Argentina has relatively few consumption expenditures that are publicly available. Thus, we only had access to the Survey of household Expenditures of 1985/1986 (Encuesta de Gasto de los Hogares 1985/86, EGH85/86), the National Survey of Household Expenditures 1996/1997 (Encuesta Nacional de Gasto de los Hogares 1996/97, ENGH 96/97) and National Survey of household Expenditures 2004/2005 (Encuesta Nacional de Gasto de los Hogares 2004/05, ENGH 04/05). The EGH 85/86 took place in the city of Buenos Aires and its metropolitan area. For the ENGH 2004/05 we only have data for the city of Buenos Aires.

We start our analysis of this data in Figure 2, with a brief illustration of some basic statistics for the three household surveys. There, we show expenditure shares on different types of goods, as a function of income levels. Each curve depicts one the three surveys for which we have data.

Some straightforward conclusions may be inferred from the figure. First, that the relation between food and income is negative, indicating that food is a basic good. More so, not only can we see that the share of food falls systematically as we move upwards in income, but that the shares fall for each later survey. To the extent that Engel curves are stable, this would clearly indicate that income levels increased uninterruptedly throughout the period. With the exception of housing, the shares of the remaining composite goods tend to increase with income. For a non Argentinean perhaps it is surprising how much Education expenditures increase with income, a result that originates on the much higher use of private education among higher income levels.

Figure 2. Basic Statistics



To check the consistency and quality of the data, Table 1a shows the main demographic characteristics for each survey. The table shows that the data is fairly homogenous but that over the period of the three surveys Argentina has experienced a reduction in household size, a larger share of females in the labor force, and an increase in the number of single parents' households.

Table 1a. Demographics

	EGH 85 / 86				ENGH 96 / 97				ENGH 04 / 05			
	Mean	S. D.	Minimun	Maximun	Mean	S. D.	Minimun	Maximun	Mean	S. D.	Minimun	Maximun
Share of food	0.45	0.17	0.01	1.00	0.40	0.17	0.01	1.00	0.31	0.14	0.00	0.95
Relative price of food and non-food	1.09	0.20	0.52	1.69	1.06	0.03	0.95	1.17	1.17	0.06	0.99	1.39
Household expenditure	1,601.0	1,334.7	100.9	13,929.3	1,011.6	947.5	2.2	12,792.5	1,375.9	1,196.9	52.1	15,337.8
Household income	1,657.6	1,447.4	0.0	23,933.0	1,202.4	1,118.6	0.0	14,980.3	1,490.2	1,521.9	0.0	29,779.5
Household size	3.58	1.70	1	13	3.46	1.96	1	17	2.61	1.46	1	12
Percentage of pop. in Capital Federal	35%	48%	0%	100%	30%	46%	0%	100%	100%	0%	100%	100%
% of members ages 0 to 4	0.08	0.14	0%	67%	6%	12%	0%	67%	4%	11%	0%	67%
% of members ages 5 to 9	0.08	0.14	0%	67%	6%	12%	0%	67%	4%	11%	0%	67%
% of members ages 10 to 15	0.07	0.13	0%	75%	6%	12%	0%	75%	4%	10%	0%	75%
% of members ages 15 to 19	0.06	0.13	0%	75%	7%	14%	0%	100%	4%	12%	0%	100%
Male head	83%	38%	0%	100%	74%	44%	0%	100%	64%	48%	0%	100%
Spouse present	78%	42%	0%	100%	68%	47%	0%	100%	55%	50%	0%	100%
Head has a job	75%	43%	0%	100%	65%	48%	0%	100%	72%	45%	0%	100%
Spouse has a job	24%	43%	0%	100%	24%	43%	0%	100%	30%	46%	0%	100%
Head and spouse have both a job	22%	41%	0%	100%	19%	39%	0%	100%	28%	45%	0%	100%
Owner occupied	75%	43%	0%	100%	71%	45%	0%	100%	61%	49%	0%	100%
Free housing occupied	11%	31%	0%	100%	15%	36%	0%	100%	11%	31%	0%	100%
Observations	2,703				4,867				2,814			
Weigthed sample	2,885,720				3,224,364				1,127,851			

To compare the nominal variables we use the CPI to bring them to a comparable basis (in the table all prices are expressed in 1999 pesos). The table shows that, according to the data, income levels decrease quite sizably between the 85/86 wave and the 96/97 sample. Notice that during the same period (see Figure 2) there is an unambiguous

decline in the share of food for all income groups. It is this inconsistency (lower food share comes with higher, not lower income) that will be at the crux of our estimation of the CPI bias during this period. For the later period, incomes increase while the food share continues to decline, so at this stage it is unclear whether a bias exists or not.

Table 1b. Demographics, city of Buenos Aires only

	EGH 85 / 86				ENGH 96 / 97				ENGH 04 / 05			
	Mean	S. D.	Minimun	Maximun	Mean	S. D.	Minimun	Maximun	Mean	S. D.	Minimun	Maximun
Share of food	0,38	0,16	0,02	0,92	0,32	0,15	0,01	0,95	0,31	0,14	0,00	0,95
Relative price of food and non-food	1,13	0,20	0,52	1,68	1,06	0,02	0,99	1,16	1,17	0,06	0,99	1,39
Household expenditure	2.031,3	1.670,7	122,8	13.929,3	1.384,9	1.225,9	71,9	12.792,5	1.375,9	1.196,9	52,1	15.337,8
Household income	2.122,0	1.924,8	0,0	23.933,0	1.631,5	1.414,7	99,4	14.980,3	1.490,2	1.521,9	0,0	29.779,5
Household size	3,02	1,44	1	11	2,82	1,68	1	11	2,61	1,46	1	12
Percentage of pop. in Capital Federal	100%	0%	100%	100%	100%	0%	100%	100%	100%	0%	100%	100%
% of members ages 0 to 4	0,05	0,12	0%	67%	3%	10%	0%	67%	4%	11%	0%	67%
% of members ages 5 to 9	0,04	0,11	0%	60%	3%	9%	0%	67%	4%	11%	0%	67%
% of members ages 10 to 15	0,04	0,11	0%	67%	3%	10%	0%	67%	4%	10%	0%	75%
% of members ages 15 to 19	0,05	0,13	0%	67%	5%	13%	0%	100%	4%	12%	0%	100%
Male head	77%	42%	0%	100%	66%	47%	0%	100%	64%	48%	0%	100%
Spouse present	71%	45%	0%	100%	58%	49%	0%	100%	55%	50%	0%	100%
Head has a job	72%	45%	0%	100%	63%	48%	0%	100%	72%	45%	0%	100%
Spouse has a job	27%	44%	0%	100%	26%	44%	0%	100%	30%	46%	0%	100%
Head and spouse have both a job	24%	43%	0%	100%	22%	42%	0%	100%	28%	45%	0%	100%
Owner occupied	69%	46%	0%	100%	68%	47%	0%	100%	61%	49%	0%	100%
Free housing occupied	7%	25%	0%	100%	8%	27%	0%	100%	11%	31%	0%	100%
Observations	867				1.321				2.814			
Weigthed sample	1.005.899				966.500				1.127.851			

Table 1b shows that data for the city of Buenos Aires only, which provides an even more striking finding: household income has fallen throughout in spite of declining food shares.

3.2 Estimating biases

In order to estimate the bias in CPI measurement we use equation (11) of Appendix A that allows to estimate the magnitude (as well as the statistical significance) of the bias. The results are shown in Table 2.

Table 2

	Dep. Var.: Share of food					
	Small set of control variables			Extended set of control variables		
	Using Expenditure	Using Income	Using income as instrument of expenditure	Using Expenditure	Using Income	Using income as instrument of expenditure
	(1)	(2)	(3)	(4)	(5)	(6)
Dummy for ENGH 96/97	-0.110***	-0.086***	-0.115***	-0.099***	-0.076***	-0.104***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Dummy for ENGH 04/05	-0.111***	-0.101***	-0.115***	-0.100***	-0.084***	-0.105***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)
Ln of household expenditure	-0.118***		-0.130***	-0.097***		-0.108***
	(0.002)		(0.003)	(0.003)		(0.004)
Ln of household income		-0.101***			-0.072***	
		(0.003)			(0.003)	
Food prices/non-food prices	0.038***	0.050***	0.032**	0.046***	0.061***	0.041***
	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Observations	10,380	10,364	10,364	10,380	10,364	10,364
R-squared	0.407	0.35	0.405	0.424	0.382	0.422
Adj. R-squared	0.406	0.349	0.404	0.421	0.379	0.420
Cumulative Bias in CPI from 85/86 to 96/97	**60.6%**	**57.6%**	**58.6%**	**64.0%**	**65.2%**	**61.9%**
P. 5%	62.5%	60.2%	60.5%	66.4%	68.6%	64.3%
P. 95%	58.4%	54.7%	56.5%	61.7%	61.5%	59.3%
Annual Implicit Bias from 85/86 to 96/97	**8.11%**	**7.51%**	**7.71%**	**8.88%**	**9.16%**	**8.40%**
P. 5%	8.53%	8.04%	8.10%	9.44%	9.98%	8.95%
P. 95%	7.67%	6.95%	7.28%	8.34%	8.31%	7.86%
Cumulative Bias in CPI from 85/86 to 04/05	**61.0%**	**63.5%**	**58.7%**	**64.4%**	**69.0%**	**62.3%**
P. 5%	63.0%	66.3%	61.0%	67.2%	72.4%	65.0%
P. 95%	58.3%	60.2%	56.0%	60.5%	64.5%	58.5%
Annual Implicit Bias from 85/86 to 04/05	**4.59%**	**4.92%**	**4.33%**	**5.03%**	**5.68%**	**4.76%**
P. 5%	4.85%	5.30%	4.60%	5.42%	6.23%	5.11%
P. 95%	4.28%	4.50%	4.02%	4.54%	5.04%	4.30%
Cumulative Bias in CPI from 96/97 to 04/05	**0.95%**	**13.90%**	**0.27%**	**1.07%**	**10.80%**	**1.04%**
P. 5%	7.26%	20.00%	6.11%	8.73%	19.80%	8.14%
P. 95%	-5.70%	7.12%	-5.84%	-8.10%	-0.44%	-7.09%
Annual Implicit Bias from 96/97 to 04/05	**0.11%**	**1.65%**	**0.03%**	**0.12%**	**1.26%**	**0.12%**
P. 5%	0.83%	2.44%	0.70%	1.01%	2.42%	0.94%
P. 95%	-0.62%	0.82%	-0.63%	-0.87%	-0.05%	-0.76%

* significant at 10%; ** significant at 5%; *** significant at 1%

Robust standard errors in parentheses

P. 5% and P. 95% correspond to percentile 5 and percentile 95 of 90 percent bootstrap confidence interval

Small set of control variables includes percentage of members ages 0 to 4, percentage of members ages 5 to 9, percentage of members ages 10 to 15, percentage of members ages 15 to 19, Dummies for Capital Federal, Male head, Spouse present, Head has a job, Spouse has a job,Head and spouse have both a job, Owner occupied and Free housing occupied.

Extended set of control variables includes also percentage of members ages 20 to 35, percentage of members ages 35 to 60, Number of income perceptors, Dummies for Head self emploied, Head employer, Household has a last one car, Head is married, Head is single, Head unmarried with spouse, educational levels of Heads, and Head's job Sectors.

Columns (1) and (4), use expenditures as a proxy for permanent income. Columns (2) and (5) use current income. Columns (3) and (6) use current income as an instrument

for expenditure. The second set of regressions, add a number of additional control variables.

The table shows that if we compare the 85/86 – 96/97 periods, we see similar measured biases across the estimations, with a cumulative bias of the order of between 58% and 65%. The large bias indicates an overestimation of the CPI of a whopping range between 7.5% and 9.2% per year. Considering that it is likely that the bias may not have occurred uniformly across years, this suggests a massive overestimation in particular years. On the contrary, when comparing the 96/97 and 04/05 periods, we find a relatively small bias, which is also, typically, not significant.

Considering the whole sample, spanning the entire democratic period, we find an average bias of between 4.3% and 5.7%, indicating that real earnings may have grown by this additional amount during the period, similar to the numbers found for Brazil, and much larger than the numbers found for the US.

The fact that the overestimation of the CPI takes place in the first part of the sample, has to do, in our view, to the massive change occurred in Argentina as a result of the opening up of the economy in the late 80´s and early 90´s. While this time dimension will have to be tested and evaluated in future work, we present here an "illustration" of the effect by showing the change in varieties in commercial retailing in Argentina between the 1980s and the 1990s. In the 1980s varieties were minimal and quality relatively poor. We believe that visualizing the difference may help in understanding the magnitude of the potential gain. Figure 3, shows three pictures. One corresponds to the typical grocery store in the 1980s. The shelves show how limited the variety offered was. The two other pictures show a minimarket and a large chain store supermarket ("hipermercado" as is known in Argentina) in the 1990s. While the change depicts the food component, similar changes were observed throughout this period across all consumption baskets.

Figure 3. Variety in food retailing

Grocery store in the 80's

Grocery store in the 2000's

Super market in the 2000's

One potential criticism of our results is that the food item is composed of products consumed both inside and outside the household. Since goods consumed outside home may include some service component and thus not be entirely subject to the pattern of the typical Engel curve, Table 3 shows the results using only the share of food at home, as the dependent variable. As can be seen, the results are similar to those obtained previously.

Table 3

	Dep. Var.: Share of food at home					
	Small set of control variables			Extended set of control variables		
	Using Expenditure	Using Income	Using income as instrument of expenditure	Using Expenditure	Using Income	Using income as instrument of expenditure
	(1)	(2)	(3)	(4)	(5)	(6)
Dummy for ENGH 96/97	-0.126*** (0.004)	-0.101*** (0.004)	-0.134*** (0.004)	-0.113*** (0.004)	-0.088*** (0.004)	-0.123*** (0.004)
Dummy for ENGH 04/05	-0.135*** (0.005)	-0.126*** (0.005)	-0.142*** (0.005)	-0.124*** (0.005)	-0.108*** (0.005)	-0.134*** (0.005)
Ln of household expenditure	-0.131*** (0.002)		-0.151*** (0.003)	-0.110*** (0.003)		-0.131*** (0.004)
Ln of household income		0.052*** (0.016)			0.056*** (0.015)	
Food prices/non-food prices	0.079*** (0.005)	0.091*** (0.005)	0.088*** (0.005)	0.094*** (0.006)	0.091*** (0.007)	0.100*** (0.007)
Observations	10,380	10,364	10,364	10,380	10,364	10,364
R-squared	0.483	0.432	0.478	0.503	0.463	0.499
Adj. R-squared	0.482	0.431	0.478	0.500	0.460	0.497
Cumulative Bias in CPI from 85/86 to 96/97	**61.6%**	**58.0%**	**58.9%**	**64.2%**	**63.7%**	**60.8%**
P. 5%	63.2%	60.3%	60.5%	66.2%	66.7%	62.9%
P. 95%	59.8%	55.6%	57.1%	62.2%	60.8%	58.9%
Annual Implicit Bias from 85/86 to 96/97	**8.33%**	**7.59%**	**7.77%**	**8.91%**	**8.81%**	**8.17%**
P. 5%	8.69%	8.05%	8.09%	9.39%	9.52%	8.61%
P. 95%	7.94%	7.11%	7.40%	8.46%	8.15%	7.76%
Cumulative Bias in CPI from 85/86 to 04/05	**64.2%**	**66.1%**	**61.0%**	**67.6%**	**71.2%**	**64.1%**
P. 5%	66.3%	68.5%	63.1%	70.2%	74.3%	66.7%
P. 95%	61.9%	63.5%	58.8%	64.9%	67.9%	61.6%
Annual Implicit Bias from 85/86 to 04/05	**5.00%**	**5.26%**	**4.60%**	**5.48%**	**6.03%**	**5.00%**
P. 5%	5.29%	5.62%	4.86%	5.87%	6.58%	5.35%
P. 95%	4.72%	4.91%	4.34%	5.11%	5.53%	4.67%
Cumulative Bias in CPI from 96/97 to 04/05	**6.69%**	**19.20%**	**5.03%**	**9.62%**	**20.60%**	**8.42%**
P. 5%	11.50%	24.20%	9.20%	16.40%	27.90%	14.40%
P. 95%	0.80%	13.60%	-0.26%	2.05%	12.00%	2.12%
Annual Implicit Bias from 96/97 to 04/05	**0.77%**	**2.34%**	**0.57%**	**1.12%**	**2.53%**	**0.97%**
P. 5%	1.35%	3.03%	1.07%	1.97%	3.57%	1.71%
P. 95%	0.09%	1.61%	-0.03%	0.23%	1.41%	0.24%

* significant at 10%; ** significant at 5%; *** significant at 1%

Robust standard errors in parentheses

P. 5% and P. 95% correspond to percentile 5 and percentile 95 of 90 percent bootstrap confidence interval

Small set of control variables includes percentage of members ages 0 to 4, percentage of members ages 5 to 9, percentage of members ages 10 to 15, percentage of members ages 15 to 19, Dummies for Capital Federal, Male head, Spouse present, Head has a job, Spouse has a job,Head and spouse have both a job, Owner occupied and Free housing occupied.

Extended set of control variables includes also percentage of members ages 20 to 35, percentage of members ages 35 to 60, Number of income perceptors, Dummies for Head self emploied, Head employer, Household has a last one car, Head is married, Head is single, Head unmarried with spouse, educational levels of Heads, and Head's job Sectors.

Table 4 shows the results including the specification suggested by Trebon (2008) which introduces a term to take into account the effect on food shares of household size. A quick inspection of the table, however, reveals that in the case of Argentina this also does not modify the numbers in any significant manner.

Table 4. The Trebon critique

	Dep. Var.: Share of food					
	Small set of control variables			Extended set of control variables		
	Using Expenditure	Using Income	Using income as instrument of expenditure	Using Expenditure	Using Income	Using income as instrument of expenditure
	(1)	(2)	(3)	(4)	(5)	(6)
Dummy for ENGH 96/97	-0.111***	-0.093***	-0.114***	-0.101***	-0.082***	-0.104***
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Dummy for ENGH 04/05	-0.123***	-0.112***	-0.125***	-0.113***	-0.097***	-0.116***
	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.009)
Ln of per capita expenditure	-0.118***		-0.130***	-0.097***		-0.107***
	(0.002)		(0.003)	(0.003)		(0.004)
Ln of per capita income		-0.100***			-0.071***	
		(0.003)			(0.003)	
Food prices/non-food prices	0.037**	0.048***	0.032**	0.045***	0.058***	0.040***
	(0.015)	(0.016)	(0.015)	(0.015)	(0.016)	(0.015)
(Dummy for ENGH 96/07) *	0.001	0.006	(0.001)	0.002	0.006	0.000
(Ln household size)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
(Dummy for ENGH 04/05) *	0.015**	0.012	0.012*	0.016**	0.016**	0.014*
(Ln household size)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Observations	10,380	10,364	10,364	10,380	10,364	10,364
R-squared	0.407	0.35	0.405	0.424	0.382	0.423
Adj. R-squared	0.406	0.349	0.404	0.421	0.379	0.420
Cumulative Bias in CPI from 85/86 to 96/97	**61.2%**	**60.3%**	**58.2%**	**65.0%**	**68.4%**	**62.2%**
P. 5%	65.9%	66.0%	62.9%	70.3%	74.6%	67.2%
P. 95%	56.5%	54.3%	53.6%	59.9%	61.4%	56.9%
Annual Implicit Bias from 85/86 to 96/97	**8.24%**	**8.06%**	**7.63%**	**9.11%**	**9.94%**	**8.46%**
P. 5%	9.33%	9.34%	8.62%	10.50%	11.70%	9.63%
P. 95%	7.28%	6.88%	6.74%	7.96%	8.30%	7.36%
Cumulative Bias in CPI from 85/86 to 04/05	**64.9%**	**67.2%**	**61.8%**	**69.1%**	**74.4%**	**66.2%**
P. 5%	68.7%	71.6%	65.7%	73.4%	79.2%	70.6%
P. 95%	60.8%	61.9%	57.6%	64.2%	67.7%	61.0%
Annual Implicit Bias from 85/86 to 04/05	**5.10%**	**5.42%**	**4.70%**	**5.70%**	**6.58%**	**5.28%**
P. 5%	5.64%	6.10%	5.21%	6.40%	7.56%	5.93%
P. 95%	4.57%	4.71%	4.20%	5.01%	5.49%	4.60%
Cumulative Bias in CPI from 96/97 to 04/05	**9.70%**	**17.30%**	**8.62%**	**11.60%**	**18.90%**	**10.60%**
P. 5%	16.50%	25.10%	14.90%	20.60%	30.00%	18.70%
P. 95%	-1.43%	4.99%	-1.33%	-2.25%	0.61%	-1.89%
Annual Implicit Bias from 96/97 to 04/05	**1.13%**	**2.09%**	**1.00%**	**1.36%**	**2.30%**	**1.23%**
P. 5%	1.99%	3.16%	1.78%	2.54%	3.88%	2.28%
P. 95%	-0.16%	0.57%	-0.15%	-0.25%	0.07%	-0.21%

* significant at 10%; ** significant at 5%; *** significant at 1%

Robust standard errors in parentheses

P. 5% and P. 95% correspond to percentile 5 and percentile 95 of 90 percent bootstrap confidence interval

Small set of control variables includes percentage of members ages 0 to 4, percentage of members ages 5 to 9, percentage of members ages 10 to 15, percentage of members ages 15 to 19, Dummies for Capital Federal, Male head, Spouse present, Head has a job, Spouse has a job,Head and spouse have both a job, Owner occupied and Free housing occupied.

Extended set of control variables includes also percentage of members ages 20 to 35, percentage of members ages 35 to 60, Number of income perceptors, Dummies for Head self emploied, Head employer, Household has a last one car, Head is married, Head is single, Head unmarried with spouse, educational levels of Heads, and Head's job Sectors.

An additional robustness test includes using only the data for city of Buenos Aires. The results are similar to those estimated previously and for brevity are not shown here.

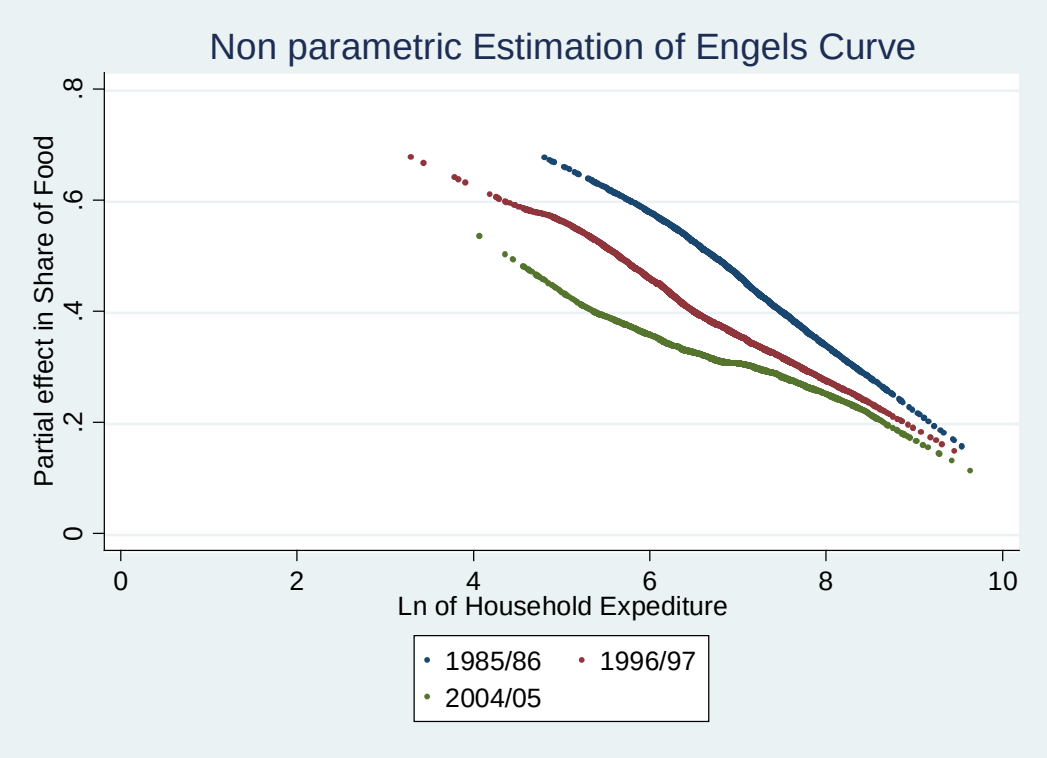
3.3 Income distribution effects

The Engel curve that we estimate in the parametric version of equations (11) and (12) of Appendix A, assumes that the bias is the same across all income levels. If so, the bias is by definition constrained to be neutral from an income distribution point of view. But this may not be the case. Thus the more flexible estimation procedure such as the nonparametric estimation of Yatchew (1997), explained in Section 2.2 of Appendix A allows to test the validity of this assumption, allowing for an estimation of an Engel curve shift that may differ at different income levels.

The result of this more flexible estimation procedure, shown in Figures 5 and 6, confirms that, in fact, the biases are dramatically different across income levels, being much larger at lower income levels, as shown by the much larger movement in the curve at low income levels. Figure 5 shows the estimated Engel curves in log terms, whereas Figure 6 relates the bias to income levels directly.

Figure 5. Individual effects (log version)

Using share of Food



Using share of Food at home

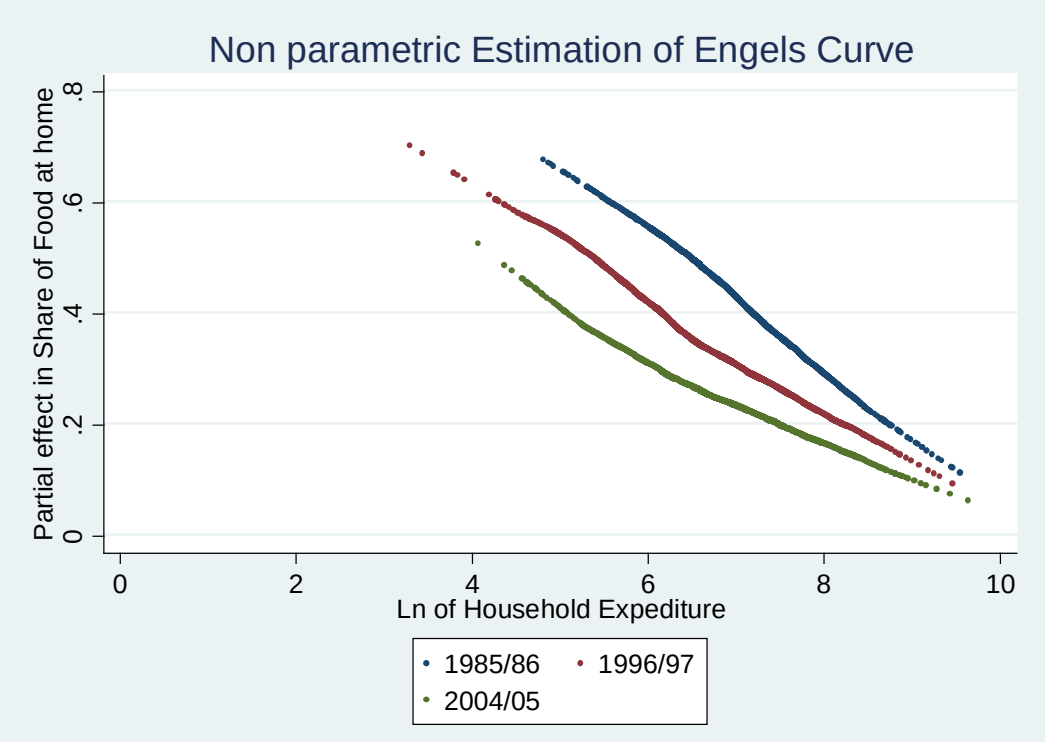
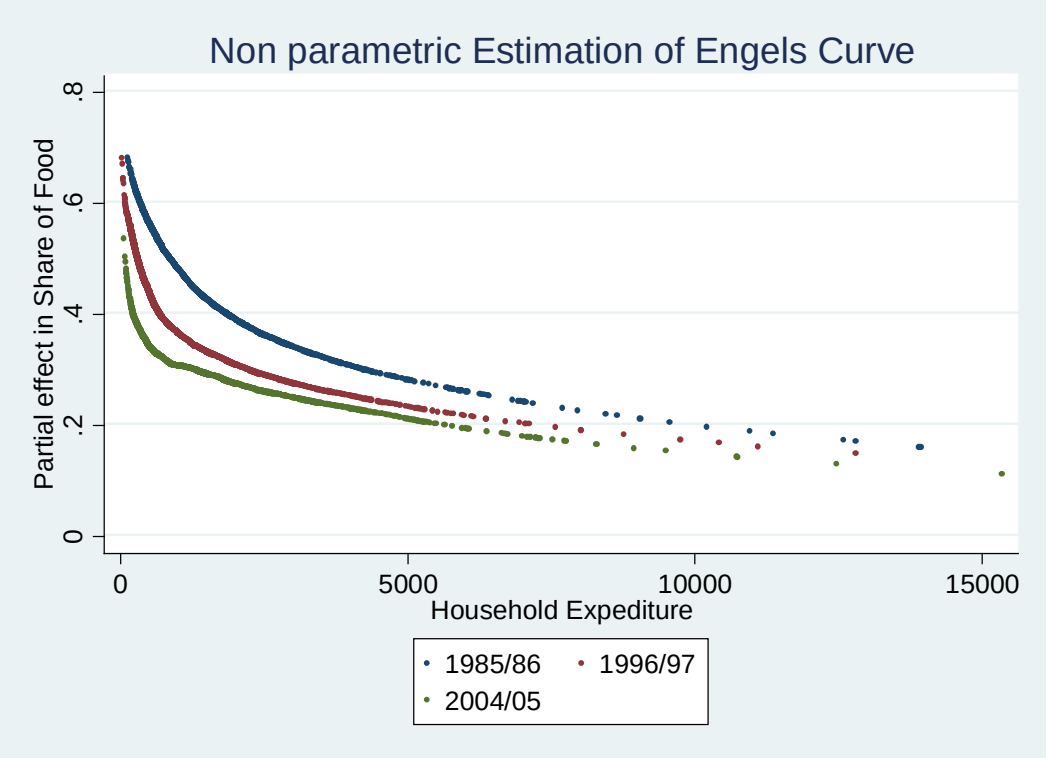
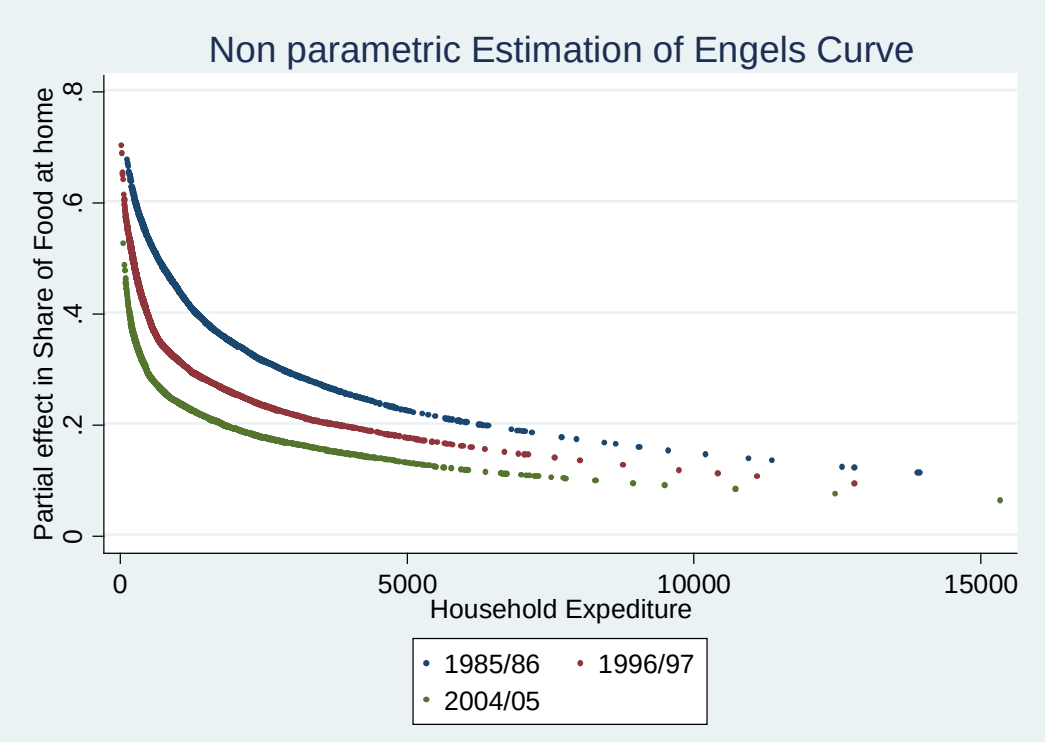


Figure 6. Individual Effects

Using share of Food



Using share of Food at home



This result is similar to the one obtained by Carvalho Filho and Chamon (2006) for Brazil.

As we mention in the methodological section, once we compute the bias at different income levels we can estimate an adjusted income (see equation 15). Table 5 shows

basic statistics for the bias in real income measures, at each income level, when comparing the base year with the two following periods.

Table 5. Biases by income level

Bias using share of food			
1996/97		2004/05	
Mean	59.7%	Mean	72.4%
Std. Dev.	7.9%	Std. Dev.	11.0%
Minimun	78.8%	Minimun	90.5%
Maximun	16.2%	Maximun	39.1%
Percentiles		Percentiles	
5	67.8%	5	87.2%
10	66.6%	10	85.2%
25	64.3%	25	81.5%
50	62.6%	50	74.3%
75	56.2%	75	64.7%
90	48.4%	90	57.8%
95	44.5%	95	51.8%

Bias using share of food at home			
1996/97		2004/05	
Mean	60.0%	Mean	76.0%
Std. Dev.	7.2%	Std. Dev.	7.2%
Minimun	71.6%	Minimun	89.0%
Maximun	27.2%	Maximun	51.4%
Percentiles		Percentiles	
5	66.8%	5	86.1%
10	66.5%	10	84.7%
25	64.5%	25	81.9%
50	63.2%	50	76.8%
75	56.8%	75	71.0%
90	49.2%	90	66.7%
95	45.3%	95	62.4%

On average, the bias estimated is fairly similar, though somewhat larger, to that obtained in Tables 2 to 4. But as can be seen in Table 5, this average hides a large heterogeneity across income levels.

Once we compute the bias we can correct individual income levels using individual biases. Thus, we re-estimate the corrected income using the formula:

$$RY^*_{it} = \frac{RY_{it}}{(1+E_{it})},$$

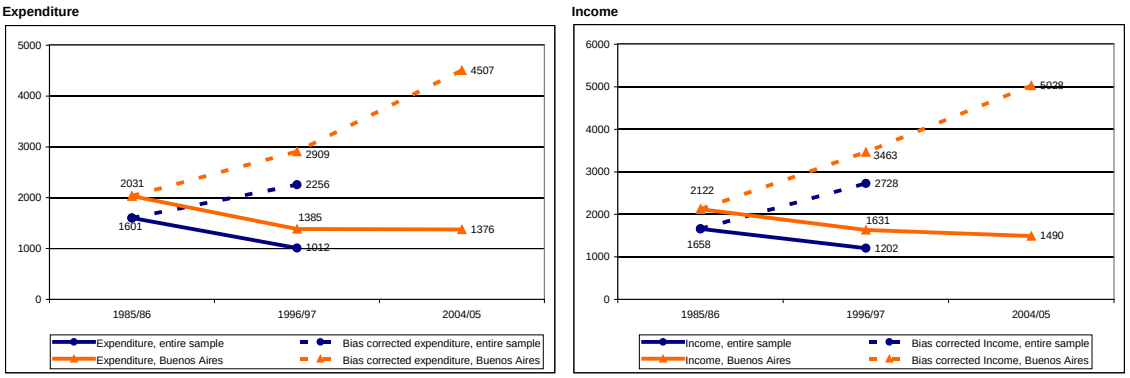
where $RY_{it} = \frac{Y_{it}}{(1+\prod_{Gt})}$ is the real income and RY^*_{it} is the real income bias-corrected.

While we can compute E_{it} only for the common support area[9], we use the minimum (maximum) value of E_{it} to correct real income in observations at time *t* that have a real income higher (lower) than the maximum (minimum) real income in the common support area[10].

Figure 7 shows the mean values for income and expenditure deflated after correcting for the bias in the CPI[11]. In the figure we show the numbers taking 85-86 as base years. While the official data shows a declining real income, adjusting for real purchasing power shows a significant increase in average real expenditure and income.

Figure 7. Corrected income levels (mean values)

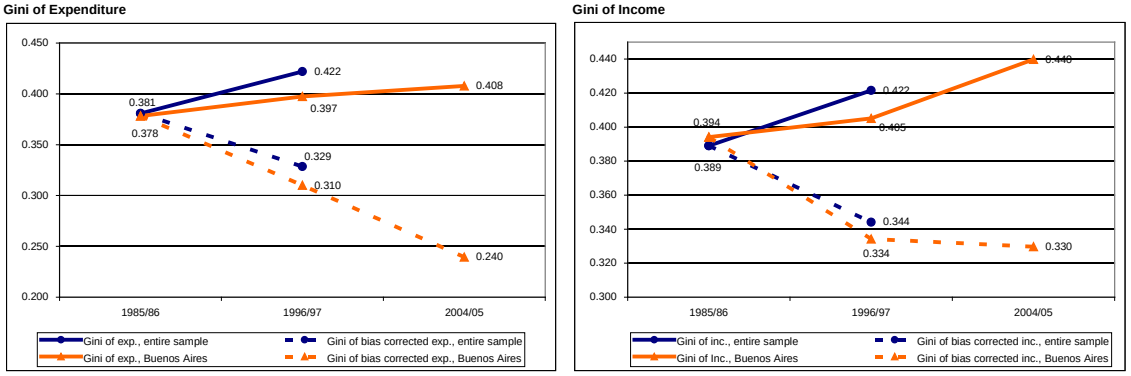
[9] That is, the range that we have observations at time 0 and *t*.
[10] This procedure can underestimate the effect of bias correction in incomes because we have seen that the bias is decreasing in income. However, there are only a few observations outside the common support area, so we do not expect this to change the results in any significant way.
[11] The bias used to correct incomes and expenditures is the one that uses expenditure as approximation to permanent income in the semi-parametric estimation.



Note: values are obtained taking 1985-1986 as bench mark and adjusting 1996-97 and 2004-05 incomes by the corrected increase in purchasing power

Figure 8 shows the Gini coefficients both for the official numbers and for those computed using the corrected real income numbers. Again we take as benchmark the 85-86 values. It is important to notice that we are not making a statement on the actual level of inequality (had we taken the 2005-06 period as benchmark the corrected value of the Gini would have coincided with the official numbers for these years), but we are making a statement on the fact that during the 85-2006 period we find a sizable reduction in income inequality in Argentina, which, again, contrasts starkly with official figures.

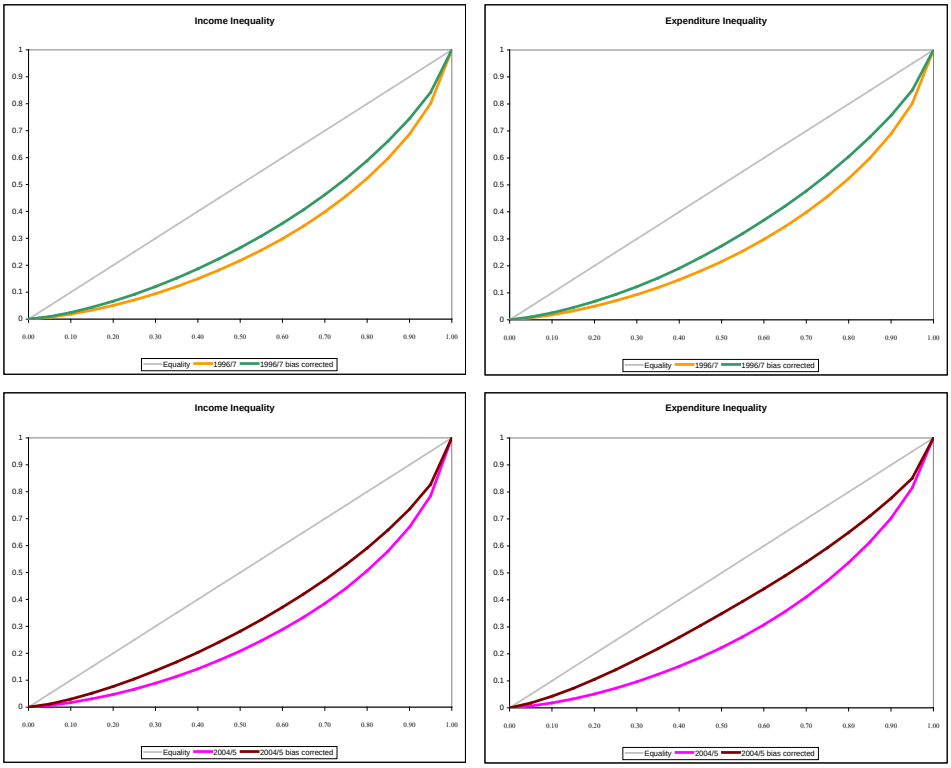
Figure 8. Corrected Gini coefficients



Note: values are obtained taking 1985-1986 as bench mark and adjusting 1996-97 and 2004-05 incomes by the corrected increase in purchasing power.

Figure 9 shows Lorenz Curves and the bias corrected versions for 1996/97 (left column) period and 2004/05 (right column) both for income (first row) and expenditures (second row). We can see that bias corrected curves strictly dominate not corrected curves, so we can reproduce the same results of Figure 8, using any inequality index.

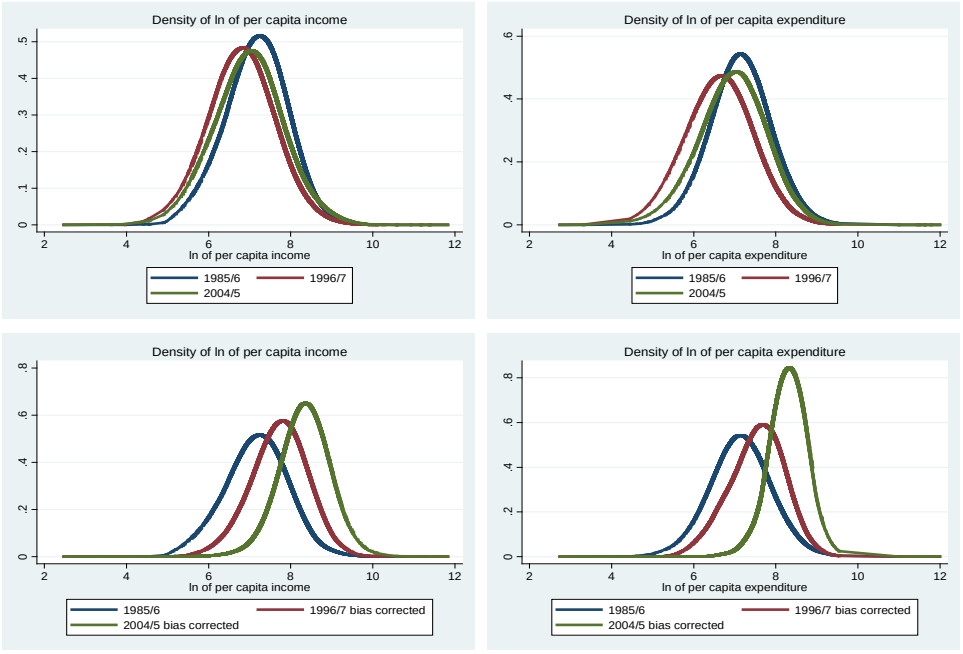
Figure 9. Original and modified Lorenz curves



Note: values are obtained taking 1985-1986 as bench mark and adjusting 1996-97 and 2004-05 incomes by the corrected increase in purchasing power.

To complete our presentation of our findings, Figure 10, mimics the same graphs but for the distribution of income and expenditure levels (left and right columns, respectively), comparing the original data with the bias corrected data (upper and lower rows respectively).

Figure 10. Income distribution



Note: values are obtained taking 1985-1986 as bench mark and adjusting 1996-97 and 2004-05 incomes by the corrected increase in purchasing power.

4. Conclusions

This paper has estimated the CPI measurement bias for Argentina during its recent democratic period. While we use a methodology that unveils the bias from the inconsistencies between the assumption of stable Engel curves and the evolution of the share of food in expenditures, we innovate in that we obtain identification from individual differences in the consumption bundles and price indexes at the household level, thus being able to estimate the bias with data from only one region, something that had not been done in previous work.

The findings are striking. Argentina's democracy has experienced a larger (much larger) raise in real expenditure levels than previously thought, and has improved its income distribution.

The bias in expenditure levels arises primarily between 84/85 and 96/97. It is difficult with further data to estimate when the bias may be originating. 84/85 were years of very high inflation, thus the data may be underestimating the level of regressivity in the income distribution those years. Additionally, the late eighties and early nineties showed a period of significant opening up of the economy that led to a significant increase in income levels. Because openness comes with large changes in the quantity and quality of available products it is not surprising that during these period we may have experienced substantial increases in economic well being not fully reflected in standard statistics.

The second period is a bit more puzzling. While the data suggests an overestimation of the CPI, the level of this overestimation appears to be small. However, the bias in income distribution appears to be larger. This is puzzling because the later period sees a rising inflation, indicating, a priori, that there should be deterioration in the income distribution levels.

All in all, our conclusion, however, is that Argentina's democracy has allowed for a much brighter performance in economic terms than it is usually credited for. Far from the typically pessimism that permeates the recollection of Argentina's history and Argentina's present, we provide an optimistic view of the last 25 years, which we hope will be the beginning of a brighter XXIst century for the country and the region.

Appendix A: Estimation strategy

Estimating CPI biases

Following Costa (2001) the estimation strategy starts formally form the following equation:

$$w_{ijt} = \phi + \gamma\left(\ln P_{Fjt} - \ln P_{Njt}\right) + \beta\left(\ln Y_{ijt} - \ln P_{Gjt}\right) + \sum_x \theta_x X_{ijt} + \mu_{ijt}, \qquad (1)$$

where w_{ijt} is the ratio of food to nonfood of household *i*, in region *j* at time *t* ;
P_{Fjt} is the true unobservable price of food in region *j* at time *t* ;
P_{Njt} is the true and unobservable price of non food in region *j* at time *t* ;
Y_{ijt} is nominal income for household *i*, in region *j* at time *t* ;
P_{Gjt} is the true and unobservable general price level in region *j* at time *t*;
X_{ijt} is a set of control variables for household *i*, in region *j* at time *t* ;
μ_{ijt} is a random term;
ϕ , γ , β , and the different θ_x are parameters.

If we call

$\prod_{Gjt}$ the cumulative percentage growth of the observable CPI in region *j*, since time 0 and time *t* ;
$\prod_{Fjt}$ the cumulative percentage growth of the price of food, in region *j*, between time 0 and time *t* ;
$\prod_{Njt}$ the cumulative percentage growth of the price of nonfood, in region *j*, between time 0 and time *t* ;
E_{Gjt} the cumulative percentage increase in the measurement error in the CPI in region *j*, between time 0 and time *t* ;
E_{Fjt} the cumulative percentage increase in the measurement error in the price of food, in region *j*, between time 0 and time *t* ;
E_{Njt} the cumulative percentage increase in the measurement error in the price of nonfood, in region *j*, between time 0 and time *t* ;

we can rewrite (1) as:

$$\begin{aligned} w_{ijt} = \phi &+ \gamma\left[\ln\left(1+\prod_{Fjt}\right) - \ln\left(1+\prod_{Njt}\right)\right] + \beta\left[\ln Y_{ijt} - \ln\left(1+\prod_{Gjt}\right)\right] \\ &+ \gamma\left[\ln P_{Fj0} - \ln P_{Nj0}\right] - \beta \ln P_{Gj0} \\ &+ \gamma\left[\ln\left(1+E_{Fjt}\right) - \ln\left(1+E_{Njt}\right)\right] - \beta \ln\left(1+E_{Gjt}\right) \\ &+ \sum_x \theta_x X_{ijt} + \mu_{ijt} \quad . \end{aligned} \qquad (2)$$

If we assume that the mismeasurement does not change across regions, we can rewrite (2) as:

$$w_{ijt} = \phi + \gamma\left[\ln\left(1+\prod_{Fjt}\right) - \ln\left(1+\prod_{Njt}\right)\right] + \beta\left[\ln Y_{ijt} - \ln\left(1+\prod_{Gjt}\right)\right] + \sum_j \delta_j D_j + \sum_t \delta_t D_t + \sum_x \theta_x X_{ijt} + \mu_{ijt}, \quad (3)$$

where D_j y D_t are dummies by regions and period, and:

$$\delta_j = \gamma\left(\ln P_{Fj0} - \ln P_{Nj0}\right) - \beta \ln P_{Gj0} \quad (4)$$

$$\delta_t = \gamma\left[\ln\left(1+E_{Ft}\right) - \ln\left(1+E_{Nt}\right)\right] - \beta \ln\left(1+E_{Gt}\right). \quad (5)$$

Notice that δ_t is a function only of time. If we additionally assume that the biases for food and nonfood items are similar we can computed a measure of the general CPI bias from:

$$\ln\left(1+E_{Gt}\right) = -\frac{\delta_t}{\beta}. \quad (6)$$

From (6) we can compute $E_{Gt} = e^{-\frac{\delta_t}{\beta}} - 1$ which is the measurement error between real inflation and CPI inflation. $-E_{Gt}$ is the cumulative bias.

The assumption that the bias for food and non food are the same is not necessarily very realistic. However, under reasonable assumptions our measure can be considered a lower bound for the estimate. From (5):

$$\ln\left(1+E_{Gt}\right) = \frac{\gamma\left[\ln\left(1+E_{Ft}\right) - \ln\left(1+E_{Nt}\right)\right]}{\beta} - \frac{\delta_t}{\beta}. \quad (7)$$

If food is a basic good with an income elasticity less than one (β <0) and if the income effect is larger than substitution effect for food consumption (γ <0)[12], and under the reasonable assumption that the mismeasurement in nonfood is larger than in food products, the first term in (7) is negative and our bias can be considered a lower bound. In other words our measure would be underestimating the bias in the CPI.

So far we have just described the estimation methodology used in previous works. However, due to data limitations, we need to introduce some changes in the estimation procedure. Argentina has relatively few consumption expenditures that are publicly available and, as we mentioned above, we only had access to the Survey of Household Expenditures of 1985/1986 (Encuesta de Gasto de los Hogares 1985/86, EGH85/86), the National Survey of Household Expenditures 1996/1997 (Encuesta Nacional de Gasto de los Hogares 1996/97, ENGH 96/97) and National Survey of Household Expenditures 2004/2005 (Encuesta Nacional de Gasto de los Hogares 2004/05, ENGH 04/05). The EGH 85/86 took place in the city of Buenos Aires and its metropolitan area. For the ENGH 2004/05 we only have data for the city of Buenos Aires.

As a result our data includes only two regions, thus equation (3) becomes:

[12] While these are here arbitrary assumptions, they are consistent with the values estimated in section 3.

$$w_{ijt} = \phi + \gamma\left[\ln\left(1+\prod_{Fjt}\right) - \ln\left(1+\prod_{Njt}\right)\right] + \beta\left[\ln Y_{it} - \ln\left(1+\prod_{Gt}\right)\right] + \delta_j D_j + \sum_t \delta_t D_t + \sum_x \theta_x X_{ijt} + \mu_{ijt}, \quad (8)$$

where D_j equals one for households belonging to the city of Buenos Aires.

In the literature, identification is obtained from regional variations, thus P_{Fjt} is the food price in region *j*, and P_{Gjt} is the general price index in region *j*. This gives several observations for each moment in time allowing estimating the coefficient on the time dummy. Unfortunately, we can't follow this procedure here because we only have price indexes for the entire sample (Buenos Aires and its metropolitan area). Even if we would have the regional price indexes, that of only two neighbor regions is clearly not good enough to identify the price relative effect and time dummy.

Fortunately, while the specification assumes two types of goods, food and nonfood, in reality there are many goods within each of those categories. In the data it is not feasible to compute a family specific food price index, but this is feasible for the non food bundle. Thus we construct a relative price between the food and non food baskets at the household level. More precisely we have that :

$$P_{Fit} = P_{Ft} \quad (9)$$

$$P_{Nit} = \sum_k \lambda_{ik} P_{kt} \ , \quad (10)$$

where λ_{ik} is the ratio of expenditure in item *k* over overall spending on non food items, for household *i* at time *t*.

Considering that λ_{ik} can be estimated from the individual data from the surveys, we can now rewrite (3) as:

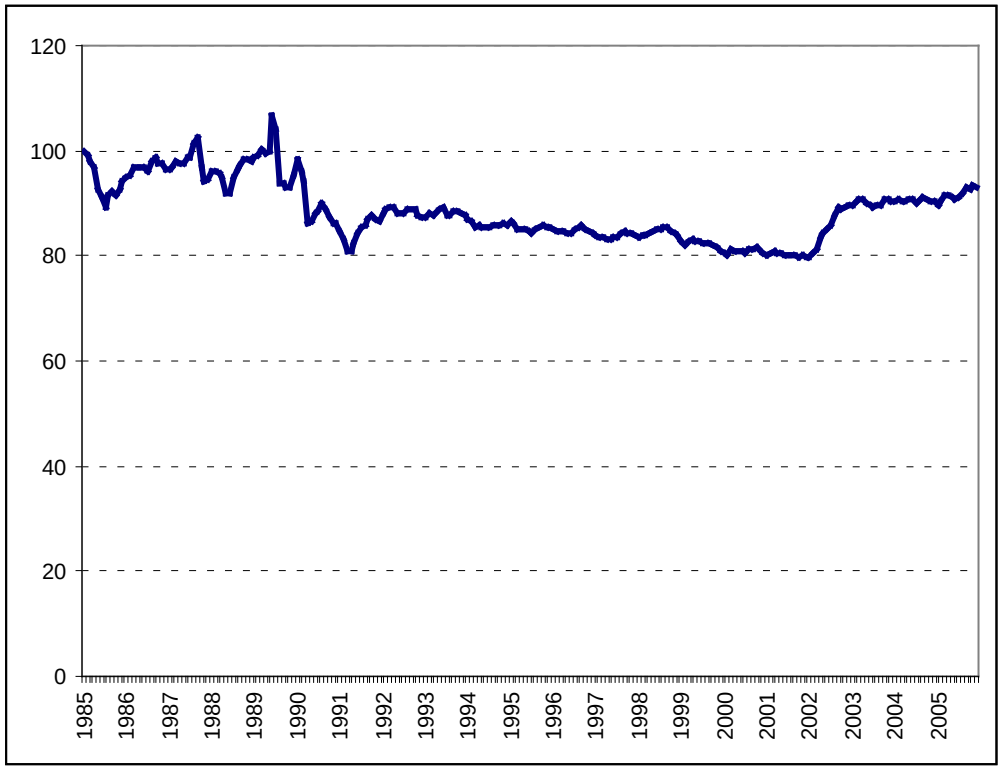
$$w_{ijt} = \phi + \gamma\left[\ln\left(1+\prod_{Ft}\right) - \ln\left(1+\prod_{Nit}\right)\right] + \beta\left[\ln Y_{it} - \ln\left(1+\prod_{Gt}\right)\right] + \delta_j D_j + \sum_t \delta_t D_t + \sum_x \theta_x X_{ijt} + \mu_{ijt}, \quad (11)$$

where ($\prod_{Nit}$) is the cumulative percentage growth of the price of nonfood between time 0 and time *t* at the household level. This equation provides the estimates shown in Table 2.

A consequence of this strategy, however, is that the price index estimated at the family level may be correlated with the error term of the equation, and may pose an endogeneity problem. For example, if this price level is correlated with the taste for food. To deal with this problem, an alternative is to assign an arbitrary value for γ and then compute $w_{ijt} - \gamma\left[\ln\left(1+\prod_{Ft}\right) - \ln\left(1+\prod_{Nt}\right)\right]$ as the dependent variable to estimate the bias. This circumvents the need to use the individual price level altogether. But where could we take this coefficient from? If we use the coefficient estimated in equation (1) from Table 2 (0.038) the total cumulative bias reaches 59.5%, which is very similar to the 61% from Table 2. But better still is to use an exogenous measures of this coefficient. Costa (2001) obtains a coefficient of 0.046 for the United States, when

identifying the effect of relative prices from differences in regions. Repeating the exercise with 0.046, the cumulative bias reaches 59.4%. Using twice the coefficient for the United States (0.092) the cumulative bias reaches 58.9%. The main reason why changes in the γ coefficient do not significantly alter the results is that relative prices have not changed too much. Figure 4 shows the evolution of the relative price of food in terms of the general level between 1985 and 2005.

Figure 4. Relative price of food in terms of CPI (jan-1985=100)



Because the price of food in terms of the CPI has fallen about 10% between the first and second surveys, and only 4% between the first and the third, to significantly alter the results, the coefficient should be extremely large. For example, to reduce the cumulative bias to half (i.e. to about 30%) the coefficient should be more than 40 times the estimated coefficient for United States. In short, our results appear to be extremely robust, independently of the methodology adopted.

Trebon (2008) has suggested that economies of scale in each household may affect the share of food to non food and suggests a correction based on introducing the household size interacted with the time dummies (that identify the bias). In other words he suggests estimating:

$$w_{ijt} = \phi + \gamma\left[\ln\left(1+\prod_{Ft}\right) - \ln\left(1+\prod_{Nit}\right)\right] + \beta\left[\ln Y^{pc}{}_{it} - \ln\left(1+\prod_{Gt}\right)\right] + \delta_j D_j + \sum_t \delta_t D_t + \sum_t \psi_t (D_t * hhsize) + \sum_x \theta_x X_{ijt} + \mu_{ijt}. \quad (12)$$

While Trebon finds that this correction reduced CPI biases by as much as a half relative to the findings in Costa(2001) and Hamilton(2001) for the US, in section 3 show that in our case this correction does not change things.

2.2 Income distribution effects

Following Carvalho Filho y Chamon (2006) we explore also the possibility that the amount of bias may change along the Engel curve thus allowing estimating different mismeasurements in earnings growth for different income levels. Using a semi-parametric specification and assuming, as before, that the biases are the same for the food and non food bundles, we have that:

$$w_{ijt} = \phi + \gamma\left[\ln\left(1+\prod_{Ft}\right) - \ln\left(1+\prod_{Nit}\right)\right] + f_t\left[\ln Y_{it} - \ln\left(1+\prod_{Gt}\right) - \ln\left(1+E_{Git}\right)\right] + \sum_x \theta_x X_{ijt} + \mu_{ijt}. \quad (13)$$

The function $f_t\left[\ln Y_{it} - \ln\left(1+\prod_{Gt}\right) - \ln\left(1+E_{Git}\right)\right]$ may be estimated non parametrically using the differencing method of Yatchew (1997).

To apply this method we sort observations by income. The difference between two observations can be written as:

$$\begin{aligned} w_{ijt} - w_{i-1jt} = {} & \phi + \gamma\left\{\left[\ln\left(1+\prod_{Ft}\right) - \ln\left(1+\prod_{Nit}\right)\right] - \left[\ln\left(1+\prod_{Ft}\right) - \ln\left(1+\prod_{Ni-1t}\right)\right]\right\} \\ & + f_t\left[\ln Y_{it} - \ln\left(1+\prod_{Gt}\right) - \ln\left(1+E_{Git}\right)\right] - f_t\left[\ln Y_{i-1t} - \ln\left(1+\prod_{Gt}\right) - \ln\left(1+E_{Gi-1t}\right)\right] \\ & + \sum_x \theta_x\left(X_{ijt} - X_{i-1jt}\right) + \mu_{ijt} - \mu_{i-1jt}. \end{aligned} \quad (14)$$

As we have sorted by incomes, incomes are pretty similar so

$$\ln Y_{it} - \ln\left(1+\prod_{Gt}\right) - \ln\left(1+E_{Git}\right) \cong \ln Y_{i-1t} - \ln\left(1+\prod_{Gt}\right) - \ln\left(1+E_{Gi-1t}\right). \quad (15)$$

Assuming that f_t is a smooth function

$$f_t\left[\ln Y_{it} - \ln\left(1+\prod_{Gt}\right) - \ln\left(1+E_{Git}\right)\right] \cong f_t\left[\ln Y_{i-1t} - \ln\left(1+\prod_{Gt}\right) - \ln\left(1+E_{Gi-1t}\right)\right]. \quad (16)$$

So equation (14) becomes:

$$\begin{aligned} w_{ijt} - w_{i-1jt} = {} & \phi + \gamma\left\{\left[\ln\left(1+\prod_{Ft}\right) - \ln\left(1+\prod_{Nit}\right)\right] - \left[\ln\left(1+\prod_{Ft}\right) - \ln\left(1+\prod_{Ni-1t}\right)\right]\right\} \\ & + \sum_x \theta_x\left(X_{ijt} - X_{i-1jt}\right) + \mu_{ijt} - \mu_{i-1jt}. \end{aligned} \quad (17)$$

Note that equation (17) is a linear function (with coefficients identical to those of (13)) so that we can consistently estimate it by OLS, and construct the linear part of the prediction of w_{ijt}, called $\hat{w}_{ijt}$, to arrive to:

$$w_{ijt} - \hat{w}_{ijt} = f_t\left[\ln Y_{it} - \ln\left(1+\prod_{Gt}\right) - \ln\left(1+E_{Git}\right)\right] + \mu_{ijt}. \quad (18)$$

If we take the right side of equation (18) as a dependent variable, we can estimate equation (18) by any common non parametric method, we choose to estimate it by local weighted regression method.

After estimating $\hat{f}_t$, the cumulative bias may then be computed as the value of E_{Git}, that solves for each household *i* at time *t* the following equation:

$$\hat{f}_t\left[\ln Y_{it} - \ln\left(1+\prod_{Gt}\right) - \ln\left(1+E_{Git}\right)\right] = \hat{f}_0\left[\ln Y_{it} - \ln\left(1+\prod_{Gt}\right)\right]. \quad (19)$$

Intuitively we may think that if the function f is constant in time the value of f for a given income level must be the same independently of the time period used for its estimation.

To estimate the cumulative bias for households at time *t* we went through the following steps. First, we selected the real income of households at time 0 that had an $\hat{f}_0$ near the value estimated for each households at time *t* (that is $\hat{f}_t$). In fact, we selected two incomes at time 0 for each household at time *t (*those with income that were immediately higher and lower in terms of $\hat{f}$). Second, we computed the difference in real income between the two selected households. Third, we distributed linearly the difference according to the number of households from time *t* contained between the higher and lower bounds selected above (in terms of $\hat{f}$) from households at time 0. Fourth, we computed the real income from household in time *t* that it should have as per its share of food, adding to the income of lower (in terms of $\hat{f}$) the difference computed before. Fifth, we computed the bias from household *i* at time *t*, using the real income from household at time *t*, and the real income that it should as per its share of food. More precisely what we do is to compute:

$$E_{Git} = \exp\left[\ln Y_{it} - \ln\left(1+\prod_{Gt}\right) - \left[\ln Y_{i0}^{\hat{f}_0^1} + \frac{\left(\ln Y_{i0}^{\hat{f}_0^2} - \ln Y_{i0}^{\hat{f}_0^1}\right)}{H} * h\right]\right] - 1. \quad (20)$$

Given that $Y_{i0}^{\hat{f}_0^1}$ is the income of the household with the lowest closest $\hat{f}_0$ to the household *i* at time *t*, and $Y_{i0}^{\hat{f}_0^2}$ is the income of the household with the highest closest $\hat{f}_0$ to the household *i* at time *t*, H is the number of households at time *t* that has an $\hat{f}_1$ between $\hat{f}_0^1$ y $\hat{f}_0^2$ and $h = 1...H$ is the order of these households sorted by $\hat{f}$.

Appendix B: The data

To run our estimations we use the individual data points for the (EGH 85/68), (ENGH 96/97) and (ENGH 04/05) constructed by the Instituto Nacional de Estadísticas y Censos (INDEC). The EGH 85/86 covers only the city of Buenos Aires and its metropolitan area. As a result we only considered the same region for the ENGH 96/97. For the ENGH 04/05 we only had access to the data for the city of Buenos Aires. This appears to have no fundamental effect on our estimations. Running all the estimates just for data from the city of Buenos Aires gives virtually identical results.

The price index used is the CPI for the greater Buenos Aires area, 1999=100.

The EGH 85/86, ENGH 96/97 and ENGH 04/05 provide data for 2,717, 4,907 y 2,841 households[13] each, reporting income and expenditures (itemized by groups) as well as the typical demographic characteristics.

In order to avoid inconsistent observations we keep out of the analysis a few observations that seem to be inconsistent in expenditure. In particular, we take out households that:
- Do not report total expenditure or report a negative value (1 in EGH 85/86, 6 in ENGH 96/97 and 10 in ENGH 04/05).
- Report a very low total expenditure (lower than 100 pesos of 1999) and a share of food lower than 50% (19 in ENGH 96/97 and 3 in ENGH 04/05).
- Do not report expenditures in food (26 in EGH 85/86, 49 in ENGH 96/97 and 31 in ENGH 04/05).
Additionally, we found 58 households in ENGH 96/97 and 93 households in ENGH 04/05, with negative consumption in at least one expenditure group. We have set at zero the level corresponding to negative expenditure.

The inclusion of inconsistent observations slightly increases the biases estimated, but we prefer to eliminate them from the analysis because they probably correspond to mistakes in the surveys.

The EGH 85/86 was conducted between July 1985 and June 1986. The base indicates the quarter in which each household has been surveyed. Based on this information we have paired the data with the corresponding CPI level (and its categories) corresponding to the average for each quarter.

ENGH 96/97 took place between February 1996 and March 1997, but numbers have been taken relative to the average CPI during the period, as there is no information as to the specific quarter in which the survey was conducted. Fortunately, this is a very low inflation period, and therefore whatever mistake arises from this must necessarily be minimal.[14]

[13] These numbers correspond only to households from Buenos Aires and its Metropolitan Area and to the city of Buenos Aires in the last sample.
[14] Cumulative inflation between February, 1996 and March, 1997 is about 0.4%, instead cumulative inflation between July, 1985 and June, 1986 arise to 41.3%.

ENGH 04/05 took place between October 2004 and December 2005. The base indicates the quarter in which each household was surveyed and therefore the procedure followed is similar that used for EGH 85/86.

Appendix C: Additional tables

C1: Basic statistics of additional variables used for regressions (4) to (6)

	EGH 85 / 86				ENGH 96 / 97				ENGH 04 / 05			
	Mean	Standar Dev.	Minimun	Maximun	Mean	Standar Dev.	Minimun	Maximun	Mean	Standar Dev.	Minimun	Maximun
% of members ages 20 to 35	23%	27%	0%	100%	22%	28%	0%	100%	27%	35%	0%	100%
% of members ages 35 to 60	29%	29%	0%	100%	30%	30%	0%	100%	29%	33%	0%	100%
Number of income perceptors	1.75	0.85	1	7	1.76	0.89	0	7	1.73	0.81	1	6
Head has Public job	12%	33%	0%	100%	7%	26%	0%	100%	11%	31%	0%	100%
Head has Private job	35%	48%	0%	100%	40%	49%	0%	100%	1%	12%	0%	100%
Head self emploied	24%	42%	0%	100%	21%	41%	0%	100%	18%	38%	0%	100%
Head employer	4%	20%	0%	100%	4%	20%	0%	100%	6%	25%	0%	100%
Household has a last one ear	39%	49%	0%	100%	33%	47%	0%	100%	35%	48%	0%	100%
Head is married	71%	45%	0%	100%	55%	50%	0%	100%	43%	49%	0%	100%
Head is single	6%	23%	0%	100%	9%	28%	0%	100%	17%	37%	0%	100%
Head unmarried with spouse	7%	25%	0%	100%	13%	33%	0%	100%	13%	34%	0%	100%
Head has primary complete education	39%	49%	0%	100%	36%	48%	0%	100%	15%	36%	0%	100%
Head has secondary incomplete education	14%	35%	0%	100%	15%	35%	0%	100%	12%	33%	0%	100%
Head has secondary complete education	15%	36%	0%	100%	15%	36%	0%	100%	18%	39%	0%	100%
Head has superior incomplete education	5%	23%	0%	100%	1%	11%	0%	100%	3%	18%	0%	100%
Head has superior complete education	8%	28%	0%	100%	17%	38%	0%	100%	46%	50%	0%	100%
Head has a second job	10%	30%	0%	100%	5%	22%	0%	100%	11%	31%	0%	100%
Spouse has a second job	2%	14%	0%	100%	2%	13%	0%	100%	4%	19%	0%	100%
Sector of Head's job: Agriculture, Fishing, etc.	0.3%	6%	0%	100%	0.5%	7%	0%	100%	0.3%	5%	0%	100%
Sector of Head's job: Mining	0.3%	6%	0%	100%	0.2%	5%	0%	100%	0.2%	4%	0%	100%
Sector of Head's job: Food manufacturing	3%	17%	0%	100%	2%	15%	0%	100%	1%	9%	0%	100%
Sector of Head's job: Textile manufacturing	4%	21%	0%	100%	4%	19%	0%	100%	3%	16%	0%	100%
Sector of Head's job: Other manufacturing	22%	41%	0%	100%	9%	29%	0%	100%	6%	23%	0%	100%
Sector of Head's job: Electricity, Gas and Water	1%	12%	0%	100%	1%	11%	0%	100%	0%	5%	0%	100%
Sector of Head's job: Construction	7%	26%	0%	100%	8%	27%	0%	100%	2%	14%	0%	100%
Sector of Head's job: Wholesale and retail trade	10%	30%	0%	100%	11%	32%	0%	100%	9%	28%	0%	100%
Sector of Head's job: Restaurants and Hotels	1%	11%	0%	100%	2%	12%	0%	100%	3%	17%	0%	100%
Sector of Head's job: Transport, and Communic.	6%	24%	0%	100%	8%	28%	0%	100%	6%	24%	0%	100%
Sector of Head's job: Financing, Insurance, etc.	5%	23%	0%	100%	7%	25%	0%	100%	18%	39%	0%	100%
Sector of Head's job: Education, Health, etc	6%	23%	0%	100%	8%	27%	0%	100%	18%	39%	0%	100%
Sector of Head's job: Repair services	4%	19%	0%	100%	2%	15%	0%	100%	1%	9%	0%	100%
Sector of Head's job: Other sectors	6%	24%	0%	100%	7%	25%	0%	100%	3%	17%	0%	100%

C2: Table 2 coefficients

	Dep. Var.: Share of food					
	Small set of control variables			Extended set of control variables		
	Using Expenditure	Using Income	Using income as instrument of expenditure	Using Expenditure	Using Income	Using income as instrument of expenditure
	(1)	(2)	(3)	(4)	(5)	(6)
Dummy for ENGH 96/97	-0.110***	-0.086***	-0.115***	-0.099***	-0.076***	-0.104***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Dummy for ENGH 04/05	-0.111***	-0.101***	-0.115***	-0.100***	-0.084***	-0.105***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)
Ln of household expenditure	-0.118***		-0.130***	-0.097***		-0.108***
	(0.002)		(0.003)	(0.003)		(0.004)
Ln of household income		-0.101***			-0.072***	
		(0.003)			(0.003)	
Food prices/non-food prices	0.038***	0.050***	0.032**	0.046***	0.061***	0.041***
	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Ln household size	0.088***	0.097***	0.094***	0.082***	0.078***	0.086***
	(0.005)	(0.005)	(0.005)	(0.007)	(0.007)	(0.007)
Dummy for Capital Federal	-0.032***	-0.042***	-0.026***	-0.027***	-0.034***	-0.024***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
% of members ages 0 to 4	-0.088***	-0.115***	-0.096***	-0.070***	-0.075***	-0.075***
	(0.014)	(0.015)	(0.014)	(0.016)	(0.017)	(0.016)
% of members ages 5 to 9	-0.042***	-0.075***	-0.049***	-0.038**	-0.050***	-0.042***
	(0.013)	(0.014)	(0.013)	(0.016)	(0.016)	(0.016)
% of members ages 10 to 15	-0.027**	-0.065***	-0.035***	-0.029*	-0.044**	-0.032**
	(0.013)	(0.014)	(0.013)	(0.016)	(0.017)	(0.016)
% of members ages 15 to 19	-0.020	-0.050***	-0.024*	-0.029**	-0.045***	-0.030**
	(0.012)	(0.013)	(0.012)	(0.014)	(0.014)	(0.014)
% of members ages 20 to 35				-0.015**	-0.014*	-0.015**
				(0.007)	(0.008)	(0.007)
% of members ages 35 to 60				0.005	0.004	0.005
				(0.007)	(0.007)	(0.007)
Male head	0.028***	0.027***	0.028***	0.031***	0.033***	0.030***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)
Spouse present	-0.011*	-0.019***	-0.011*	-0.024	-0.035	-0.023
	(0.006)	(0.006)	(0.006)	(0.027)	(0.029)	(0.027)
Head has a job	-0.003	-0.001	0.002	0.007	0.007	0.009
	(0.004)	(0.004)	(0.004)	(0.007)	(0.007)	(0.007)
Spouse has a job	0.006	0.009	0.007	0.008	0.008	0.009
	(0.008)	(0.009)	(0.008)	(0.008)	(0.009)	(0.008)
Head and spouse have both a job	-0.016*	-0.012	-0.016*	-0.015*	-0.012	-0.015*
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Owner occupied	0.058***	0.071***	0.057***	0.070***	0.085***	0.067***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Free housing occupied	0.068***	0.084***	0.063***	0.076***	0.092***	0.071***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Head has Public job				-0.011*	-0.004	-0.011*
				(0.007)	(0.007)	(0.007)
Head has Private job				-0.008	-0.003	-0.007
				(0.006)	(0.006)	(0.006)
Head self emploied				-0.012**	-0.007	-0.013**
				(0.006)	(0.006)	(0.006)
Head employer				-0.024***	-0.027***	-0.021***
				(0.008)	(0.008)	(0.008)
Household has a last one car				-0.034***	-0.048***	-0.029***
				(0.004)	(0.004)	(0.004)
Number of income perceptors				0.000	0.002	0.000
				(0.003)	(0.003)	(0.003)
Head is married				0.018	0.026	0.017
				(0.027)	(0.029)	(0.027)
Head is single				0.017***	0.017**	0.015**
				(0.007)	(0.007)	(0.007)
Head unmarried with spouse				0.025	0.036	0.022
				(0.027)	(0.029)	(0.027)
Head has primary complete education				-0.008	-0.013**	-0.007
				(0.005)	(0.005)	(0.005)
Head has secondary incomplete education				-0.027***	-0.037***	-0.023***
				(0.006)	(0.006)	(0.006)
Head has secondary complete education				-0.026***	-0.040***	-0.022***
				(0.006)	(0.006)	(0.006)
Head has superior incomplete education				-0.050***	-0.068***	-0.043***
				(0.009)	(0.009)	(0.009)
Head has superior complete education				-0.043***	-0.062***	-0.035***
				-0.006	-0.007	-0.007
Head has a second job				(0.003)	(0.006)	(0.001)
				-0.006	-0.006	-0.006
Spouse has a second job				(0.014)	-0.015*	(0.013)
				-0.009	-0.009	-0.009
Sector of Head's job: Agriculture, Fishing, etc.				0.001	(0.001)	0.002
				-0.024	-0.028	-0.024
Sector of Head's job: Mining				(0.011)	(0.011)	(0.009)
				-0.034	-0.034	-0.033
Sector of Head's job: Food manufacturing				(0.003)	(0.004)	(0.002)
				-0.011	-0.012	-0.011
Sector of Head's job: Textile manufacturing				0.008	0.010	0.008
				-0.009	-0.009	-0.009
Sector of Head's job: Other manufacturing				(0.001)	(0.004)	0.000
				-0.006	-0.006	-0.006
Sector of Head's job: Electricity, Gas and Water				0.008	0.015	0.008
				-0.014	-0.014	-0.014
Sector of Head's job: Construction				0.015**	0.016**	0.014**
				-0.007	-0.007	-0.007
Sector of Head's job: Wholesale and retail trade				0.000	(0.004)	0.000
				-0.007	-0.007	-0.007
Sector of Head's job: Restaurants and Hotels				0.032***	0.031**	0.031**
				-0.012	-0.013	-0.012
Sector of Head's job: Transport, and Communic.				0.016**	0.017**	0.016**
				-0.007	-0.007	-0.007
Sector of Head's job: Financing, Insurance, etc.				-0.002	-0.006	0.000
				(0.007)	(0.007)	(0.007)
Sector of Head's job: Education, Health, etc				0.001	0.000	0.001
				(0.007)	(0.007)	(0.007)
Sector of Head's job: Repair services				0.015	0.016	0.014
				(0.011)	(0.012)	(0.011)
Sector of Head's job: Other sectors				0.007	0.007	0.007
				(0.008)	(0.009)	(0.008)
Constant	1.148***	1.020***	1.225***	1.012***	0.838***	1.080***
	(0.016)	(0.019)	(0.020)	(0.019)	(0.022)	(0.028)
Observations	10,380	10,364	10,364	10,380	10,364	10,364
R-squared	0.407	0.35	0.405	0.424	0.382	0.422
Adj. R-squared	0.406	0.349	0.404	0.421	0.379	0.420

C3: Table 3 coefficients

	Dep. Var.: Share of food at home					
	Small set of control variables			Extended set of control variables		
	Using Expenditure	Using Income	Using income as instrument of expenditure	Using Expenditure	Using Income	Using income as instrument of expenditure
	(1)	(2)	(3)	(4)	(5)	(6)
Dummy for ENGH 96/97	-0.126***	-0.101***	-0.134***	-0.113***	-0.088***	-0.123***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Dummy for ENGH 04/05	-0.135***	-0.126***	-0.142***	-0.124***	-0.108***	-0.134***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Ln of household expenditure	-0.131***		-0.151***	-0.110***		-0.131***
	(0.002)		(0.003)	(0.003)		(0.004)
Ln of household income	0.040***	0.052***	0.031**	0.041***	0.056***	0.031**
	(0.015)	(0.016)	(0.015)	(0.015)	(0.015)	(0.015)
Food prices/non-food prices	0.079***	0.091***	0.088***	0.094***	0.091***	0.100***
	(0.005)	(0.005)	(0.005)	(0.006)	(0.007)	(0.007)
Ln household size	-0.035***	-0.045***	-0.026***	-0.031***	-0.038***	-0.026***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Dummy for Capital Federal	-0.059***	-0.093***	-0.071***	-0.076***	-0.082***	-0.082***
	(0.013)	(0.014)	(0.013)	(0.016)	(0.017)	(0.016)
% of members ages 0 to 4	-0.006	-0.047***	-0.017	-0.053***	-0.067***	-0.057***
	(0.013)	(0.014)	(0.013)	(0.016)	(0.016)	(0.016)
% of members ages 5 to 9	0.020	-0.025*	0.010	-0.037**	-0.055***	-0.041**
	(0.013)	(0.014)	(0.013)	(0.016)	(0.017)	(0.016)
% of members ages 10 to 15	-0.002	-0.038***	-0.008	-0.051***	-0.070***	-0.052***
	(0.012)	(0.013)	(0.012)	(0.014)	(0.014)	(0.014)
% of members ages 15 to 19				-0.058***	-0.056***	-0.056***
				(0.007)	(0.007)	(0.007)
% of members ages 20 to 35				-0.018***	-0.017**	-0.015**
				(0.007)	(0.007)	(0.007)
% of members ages 35 to 60	0.006	0.006	0.007	0.011**	0.013**	0.010**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Male head	0.027***	0.017***	0.026***	0.008	-0.005	0.010
	(0.006)	(0.006)	(0.006)	(0.031)	(0.032)	(0.031)
Spouse present	-0.033***	-0.030***	-0.026***	-0.013*	-0.011	-0.008
	(0.004)	(0.005)	(0.004)	(0.007)	(0.007)	(0.007)
Head has a job	-0.027***	-0.023***	-0.025***	-0.009	-0.009	-0.009
	(0.008)	(0.009)	(0.008)	(0.009)	(0.009)	(0.009)
Spouse has a job	0.005	0.010	0.006	0.001	0.004	0.001
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Head and spouse have both a job	0.056***	0.071***	0.054***	0.057***	0.073***	0.052***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Owner occupied	0.059***	0.076***	0.051***	0.062***	0.079***	0.055***
	(0.005)	(0.006)	(0.006)	(0.005)	(0.006)	(0.006)
Free housing occupied				-0.012*	-0.005	-0.013**
				(0.006)	(0.007)	(0.007)
Head has Public job				-0.018***	-0.013**	-0.018***
				(0.006)	(0.006)	(0.006)
Head has Private job				-0.003	0.002	-0.005
				(0.005)	(0.006)	(0.005)
Head self emploied				-0.015**	-0.017**	-0.009
				(0.007)	(0.008)	(0.007)
Head employer				-0.031***	-0.045***	-0.022***
				(0.004)	(0.004)	(0.004)
Household has a last one car				-0.009***	-0.005*	-0.007**
				(0.003)	(0.003)	(0.003)
Number of income perceptors				0.008	0.017	0.007
				(0.030)	(0.031)	(0.030)
Head is married				0.006	0.006	0.004
				(0.006)	(0.007)	(0.006)
Head is single				0.004	0.016	0.000
				(0.030)	(0.032)	(0.031)
Head unmarried with spouse				-0.003	-0.008	0.000
				(0.005)	(0.005)	(0.005)
Head has primary complete education				-0.021***	-0.031***	-0.014**
				(0.006)	(0.006)	(0.006)
Head has secondary incomplete education				-0.026***	-0.039***	-0.017***
				(0.006)	(0.006)	(0.006)
Head has secondary complete education				-0.056***	-0.073***	-0.042***
				(0.009)	(0.010)	(0.009)
Head has superior incomplete education				-0.044***	-0.062***	-0.029***
				(0.006)	(0.007)	(0.007)
Head has superior complete education				-0.003	-0.007	-0.001
				-0.005	-0.005	-0.005
Head has a second job				(0.013)	-0.014*	(0.012)
				-0.009	-0.008	-0.009
Spouse has a second job				0.010	0.008	0.011
				-0.024	-0.030	-0.023
Sector of Head's job: Agriculture, Fishing, etc.				(0.040)	(0.038)	(0.036)
				-0.029	-0.029	-0.028
Sector of Head's job: Mining				0.003	0.002	0.004
				-0.011	-0.012	-0.011
Sector of Head's job: Food manufacturing				0.009	0.010	0.008
				-0.009	-0.009	-0.009
Sector of Head's job: Textile manufacturing				0.004	0.001	0.005
				-0.006	-0.006	-0.006
Sector of Head's job: Other manufacturing				0.001	0.009	0.000
				-0.013	-0.013	-0.013
Sector of Head's job: Electricity, Gas and Water				0.010	0.011	0.008
				-0.007	-0.007	-0.007
Sector of Head's job: Construction				0.004	(0.001)	0.005
				-0.006	-0.007	-0.006
Sector of Head's job: Wholesale and retail trade				(0.007)	(0.011)	(0.010)
				-0.012	-0.012	-0.012
Sector of Head's job: Restaurants and Hotels				0.018***	0.019***	0.019***
				-0.007	-0.007	-0.007
Sector of Head's job: Transport, and Communic.				0.000	(0.005)	0.002
				-0.007	-0.007	-0.007
Sector of Head's job: Financing, Insurance, etc.				0.009	0.008	0.009
				(0.006)	(0.007)	(0.006)
Sector of Head's job: Education, Health, etc				0.014	0.015	0.012
				(0.011)	(0.012)	(0.011)
Sector of Head's job: Repair services				0.002	0.000	0.000
				(0.008)	(0.008)	(0.008)
Sector of Head's job: Other sectors		-0.116***			-0.087***	
		(0.003)			(0.003)	
Constant	1.224***	1.111***	1.348***	1.113***	0.951***	1.246***
	(0.016)	(0.019)	(0.020)	(0.019)	(0.022)	(0.027)
Observations	10,380	10,364	10,364	10,380	10,364	10,364
R-squared	0.483	0.432	0.478	0.503	0.463	0.499
Adj. R-squared	0.482	0.431	0.478	0.500	0.460	0.497

C4: Table 4 coefficients

	Dep. Var.: Share of food					
	Small set of control variables			Extended set of control variables		
	Using Expenditure	Using Income	Using income as instrument of expenditure	Using Expenditure	Using Income	Using income as instrument of expenditure
	(1)	(2)	(3)	(4)	(5)	(6)
Dummy for ENGH 96/97	-0.111***	-0.093***	-0.114***	-0.101***	-0.082***	-0.104***
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Dummy for ENGH 04/05	-0.123***	-0.112***	-0.125***	-0.113***	-0.097***	-0.116***
	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.009)
Ln of per capita expenditure	-0.118***		-0.130***	-0.097***		-0.107***
	(0.002)		(0.003)	(0.003)		(0.004)
Ln of per capita income		-0.100***			-0.071***	
		(0.003)			(0.003)	
Food prices/non-food prices	0.037**	0.048***	0.032**	0.045***	0.058***	0.040***
	(0.015)	(0.016)	(0.015)	(0.015)	(0.016)	(0.015)
(Dummy for ENGH 96/07) * (Ln household size)	0.001	0.006	(0.001)	0.002	0.006	0.000
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
(Dummy for ENGH 04/05) * (Ln household size)	0.015**	0.012	0.012*	0.016**	0.016**	0.014*
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Ln household size	-0.033***	-0.009	-0.037***	-0.019**	0.001	-0.024***
	(0.007)	(0.007)	(0.007)	(0.009)	(0.009)	(0.009)
Dummy for Capital Federal	-0.032***	-0.043***	-0.027***	-0.028***	-0.035***	-0.025***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
% of members ages 0 to 4	-0.087***	-0.113***	-0.095***	-0.069***	-0.074***	-0.075***
	(0.014)	(0.015)	(0.014)	(0.016)	(0.017)	(0.016)
% of members ages 5 to 9	-0.040***	-0.073***	-0.048***	-0.037**	-0.047***	-0.040**
	(0.013)	(0.014)	(0.013)	(0.016)	(0.016)	(0.016)
% of members ages 10 to 15	-0.026*	-0.063***	-0.034**	-0.028*	-0.042**	-0.031*
	(0.013)	(0.014)	(0.013)	(0.016)	(0.017)	(0.016)
% of members ages 15 to 19	-0.020	-0.050***	-0.023*	-0.028**	-0.045***	-0.030**
	(0.012)	(0.013)	(0.012)	(0.014)	(0.015)	(0.014)
% of members ages 20 to 35				-0.015**	-0.014*	-0.014**
				(0.007)	(0.008)	(0.007)
% of members ages 35 to 60				0.004	0.004	0.005
				(0.007)	(0.007)	(0.007)
Male head	0.028***	0.027***	0.028***	0.032***	0.033***	0.031***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)
Spouse present	-0.012**	-0.019***	-0.011**	-0.025	-0.036	-0.024
	(0.006)	(0.006)	(0.006)	(0.027)	(0.029)	(0.027)
Head has a job	-0.003	-0.001	0.002	0.007	0.007	0.008
	(0.004)	(0.004)	(0.004)	(0.007)	(0.007)	(0.007)
Spouse has a job	0.006	0.008	0.008	0.008	0.008	0.009
	(0.008)	(0.009)	(0.008)	(0.008)	(0.009)	(0.008)
Head and spouse have both a job	-0.017**	-0.012	-0.016*	-0.015*	-0.012	-0.015*
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Owner occupied	0.058***	0.071***	0.057***	0.070***	0.085***	0.068***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Free housing occupied	0.068***	0.084***	0.063***	0.076***	0.091***	0.072***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Head has Public job				-0.010	-0.003	-0.010
				(0.007)	(0.007)	(0.007)
Head has Private job				-0.006	-0.002	-0.006
				(0.006)	(0.006)	(0.006)
Head self emploied				-0.011*	-0.006	-0.011**
				(0.006)	(0.006)	(0.006)
Head employer				-0.023***	-0.027***	-0.020***
				(0.008)	(0.008)	(0.008)
Household has a last one car				-0.034***	-0.048***	-0.029***
				(0.004)	(0.004)	(0.004)
Number of income perceptors				0.000	0.002	0.000
				(0.003)	(0.003)	(0.003)
Head is married				0.018	0.026	0.018
				(0.027)	(0.029)	(0.027)
Head is single				0.018***	0.018***	0.016**
				(0.007)	(0.007)	(0.007)
Head unmarried with spouse				0.025	0.036	0.023
				(0.027)	(0.029)	(0.027)
Head has primary complete education				-0.008	-0.013**	-0.006
				(0.005)	(0.005)	(0.005)
Head has secondary incomplete education				-0.027***	-0.037***	-0.024***
				(0.006)	(0.006)	(0.006)
Head has secondary complete education				-0.027***	-0.040***	-0.022***
				(0.006)	(0.006)	(0.006)
Head has superior incomplete education				-0.050***	-0.069***	-0.043***
				(0.009)	(0.009)	(0.009)
Head has superior complete education				-0.043***	-0.062***	-0.035***
				-0.006	-0.007	-0.007
Head has a second job				(0.003)	(0.006)	(0.001)
				-0.006	-0.006	-0.006
Spouse has a second job				(0.014)	-0.015*	(0.013)
				-0.009	-0.009	-0.009
Sector of Head's job: Agriculture, Fishing, etc.				0.000	(0.002)	0.002
				-0.024	-0.028	-0.024
Sector of Head's job: Mining				(0.011)	(0.010)	(0.009)
				-0.034	-0.034	-0.033
Sector of Head's job: Food manufacturing				(0.003)	(0.004)	(0.003)
				-0.011	-0.012	-0.011
Sector of Head's job: Textile manufacturing				0.008	0.009	0.007
				-0.009	-0.009	-0.009
Sector of Head's job: Other manufacturing				(0.001)	(0.004)	(0.001)
				-0.006	-0.006	-0.006
Sector of Head's job: Electricity, Gas and Water				0.008	0.014	0.008
				-0.013	-0.014	-0.014
Sector of Head's job: Construction				0.015**	0.016**	0.014**
				-0.007	-0.007	-0.007
Sector of Head's job: Wholesale and retail trade				(0.001)	(0.005)	0.000
				-0.007	-0.007	-0.007
Sector of Head's job: Restaurants and Hotels				0.032***	0.031**	0.031**
				-0.012	-0.013	-0.012
Sector of Head's job: Transport, and Communic.				0.016**	0.017**	0.016**
				-0.007	-0.007	-0.007
Sector of Head's job: Financing, Insurance, etc.				-0.002	-0.006	-0.001
				(0.007)	(0.007)	(0.007)
Sector of Head's job: Education, Health, etc				0.001	0.000	0.001
				(0.007)	(0.007)	(0.007)
Sector of Head's job: Repair services				0.015	0.017	0.014
				(0.011)	(0.012)	(0.011)
Sector of Head's job: Other sectors				0.007	0.006	0.006
				(0.008)	(0.009)	(0.008)
Constant	1.151***	1.025***	1.226***	1.015***	0.843***	1.080***
	(0.017)	(0.019)	(0.021)	(0.020)	(0.023)	(0.029)
Observations	10,380	10,364	10,364	10,380	10,364	10,364
R-squared	0.407	0.350	0.405	0.424	0.382	0.423
Adj. R-squared	0.406	0.349	0.404	0.421	0.379	0.420

CONCLUSION

20th century Argentina remains a potent warning that countries can readily move from relative economic success to stagnation. At the start of the 21st century, many nations, including the United States and much of the European Union, remain anxious about their own economic futures. We end this volume with a few tentative conclusions about the implications of Argentina for other countries today.

Perhaps the most obvious lesson is that even an enormous abundance of natural resources and a seemingly solid political structure are no guarantee of success. The risks associated with natural resources are relatively well known. A long literature documents the potential downsides of natural resources abundance, including high real exchange rates that limit the competitiveness of more dynamic sectors (the "Dutch Disease"). Perhaps even more problematically, abundant natural resources may attract kleptocratic regimes or sustain autocrats who have few other sources of revenues. And they may confuse people into thinking that they are productive, instead of just rich.

But the chapters in this volume do not argue that Argentina's rich agricultural land actually hurt the country, but rather that agrarian success was insufficient to maintain growth and that external conditions during periods like the 1930s made Argentina's agricultural productivity less valuable. Any country that bases its prosperity on a narrow range of products faces the risk that the market value of those products will decline. And voters in these countries are presented with a challenge: how to interpret changes in their spending power. A more educated population may understand the downturns as inevitable aspects of their economic strategy. Others may come to the conclusion that the elites running the country have taken advantage of their power. Political entrepreneurs participate in these exercises in collective interpretation, often fueling populist conclusions.

This lesson is less relevant for most of the world's developed countries today, which typically export a range of goods and services that are consistently evolving, but it is more significant for world's resource dependent economies. Current energy market conditions have made some of the OPEC nations among the wealthiest in the world, but Argentina's experience emphasizes that to be rich, but not modern, is a precarious position. The 20th century comparison between Argentina and other more successful, new world economies including the United States, suggests the value of investing in human capital and institutions that foster political trust.

One question that Argentina's 20th century experience poses for the developed world is whether skilled post-industrial economies can also be subject to long-term downturns due to terms-of-trade or fiscal shocks. In the second half of the 20th century, human capital levels were strongly correlated with economic success. But in the 21st century, it may become more apparent that

certain forms of human capital are more valuable than others, or human capital may no longer prove to be enough to guarantee flexibility in the face of changing conditions. Given the dominant role that land quality had played in determining economic success for millennia prior to 1900, it surely was not obvious in that year that land quality would be insufficient to guarantee prosperity in the 20th century. A productive interpretation of the shocks that hit a nation not only requires education and trust but also, it seems, a bit of luck.

Argentina's experience also seems like a parable illustrating the value of economic openness. A period of economic isolation following the great depression then led to sixty years of solitude, during which the Argentine economy stagnated. The more recent period since Argentina opened up has seen more success. These facts do not prove that some temporary protection is always bad or that openness needs to be imposed by shock therapy, but they do illustrate the costs that economic isolation can have, not least because isolation seems, at least in Argentina's case, to be linked with slow technological growth and political problems.

In 1900, Argentina was not just prosperous, it also seemed to have a stable political system that protected property rights and encouraged long run growth. Over the next thirty years, the country would embrace universal male suffrage and the secret ballot and move towards a more egalitarian state, like much of Europe. Until 1929, Argentina's political institutions seemed strong, but the military coup during that year eliminated the appearance of stability. Since 1929, Argentine politics has been far less stable and far more likely to put economic populism ahead of economic growth, with seemingly adverse consequences for rich and poor alike. Successive governments have nationalized and closed the economy. In part, this was a demand of voters who did not trust they were getting their fair share of the "Argentine dream." But another part was surely the result of the particular interpretations peddled by political actors, notably Juan Perón. Populism gradually became the law of the land. It is interesting to note that, as a growing portion of the electorate accepted this particular populist narrative, Perónism remained attractive offering interpretations that were often on the other end of the ideological spectrum. Indeed, the market-oriented reforms of the 1990s were undertaken by a Perónist administration with widespread political support, particularly amongst lower income groups. Perhaps the broader lesson here is that, having once gained the trust of the poor, Perónists could continue to push their own interpretations of reality unconstrained by ideology.

The lesson of the political side of Argentine history is relevant everywhere—past political stability is no guarantee of future stability. Political institutions are impermanent and can be uprooted, especially if the military intervenes. It is possible that national characteristics, such as a long democratic tradition or a high level of human capital, may help protect against undesirable political shocks, but there is always a chance of political decline.

We certainly do not expect a military coup in the U.S. or France (although France faced that prospect as recently as 1961), but other forms of political duress remain quite possible. Political extremism, public dysfunction and large national debts have appeared in many nations, and these

can be harbingers of worse things to come. Argentina reminds us never to take solid political institutions for granted.

Argentina itself has experienced somewhat more success over the past thirty years, and that is a hopeful sign. Growth rates have increased and political transitions have been peaceful and constitutional. Even the more populist governments of recent date have embraced fiscal conservatism, which appears to be a potent tool for progress in an underdeveloped country. While Argentina is far from an overwhelming success today, it is much better off than it once was, and that is a reason for hope. With much effort and sacrifice, even troubled nations can find their way towards greater stability and prosperity. We both hope and believe that Argentina's 21st century can be model of economic resurgence, just as its 20th century was a model of relative decline.

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