DISTRIBUTIVE IMPACT OF PRIVATIZATION IN LATIN AMERICA: AN OVERVIEW OF EVIDENCE FROM FOUR COUNTRIES[*]

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1. Introduction

The 'failure' of privatization in Latin America has recently become the source of street riots, protest demonstrations and adverse news coverage. Riots in Arequipa, Peru erupted in June 2002 following announcement of a proposal to privatize power plants, while Cochabamba, Bolivia witnessed a 'Water War' in the streets in April 2000. Antiprivatization protests also occurred recently in Ecuador and Paraguay, while water

privatizations in Lima and Rio de Janeiro had to be cancelled owing to popular opposition.[1] Street protests by anti-globalization activists have included privatization as a prime target, objecting on the ground that national values should not be overtaken by the profit calculus of global capitalism. News articles have pointed to popular objections to private enterprise making a profit on basic services such as water, the failures of water privatization in Bolivia, besides problems with quality, price increases and large scale employee layoffs.[2] Owing to popular opposition the National Assembly in Nicaragua passed a law forbidding the privatization of any enterprise related to the provision of water services (a law later vetoed by the country's President). These adverse opinions are not restricted to a handful of protesters. Latinobarometer opinion polls for 2000 showed a clear majority disapproved of the privatization process, a pattern uniform across countries, age, gender and socioeconomic class. The opinions appear to becoming increasingly adverse over time, with disapproval ratings higher in 2001 higher than 2000, and the latter higher in turn than 1998 (see Table A1).[3]

Yet the evaluation of privatizations by economists tends to be typically favorable.[4] The criteria for evaluation typically include profitability, labor productivity, firm growth and market valuation. Part of the discrepancy may arise from the fact that most of the empirical studies have pertained to transition countries in Eastern Europe and the former Soviet Union, while the public disaffection seems pronounced in Latin America. But a

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[1] See "Turmoil in Latin America threatens decades of reform", Boston Globe, page A12, August 18, 2002, Finnegan (2002) and The Democracy Center (2002).

[2] See "As Multinational Run the Taps, Anger Rises Over Water For Profit", New York Times, August 26 2002.
[3] See also "An alarm call for Latin America's democrats", The Economist, July 26, 2001.
[4] For instance see the survey of empirical studies on privatization in Megginson and Netter (2001).

large part of it stems from the difference in criteria used in evaluation. Increases in profitability and efficiency can come at the expense of customers, workers and other social groups as a result of increased prices, lower levels of employment, longer work hours, worsening service conditions, and neglect of environmental effects.[5] It is clear, however, that a more comprehensive welfare evaluation of privatization must incorporate the effects on consumers and workers besides firm profitability. Particular attention needs to be devoted to effects on inequality and poverty, which underlie perceptions of unfairness among critics of privatization, and which may have functional effects on economic efficiency in the long run via effects on human capital investment, entrepreneurship, crime, and governance.[6]

The purpose of this paper is to provide an overview of the results of a project which seeks to evaluate the distributive impact of privatization in four Latin America countries. The aim was to estimate the effects of privatization on customers and workers, based on existing household and employment surveys. Four countries of varying size and per capita income were chosen for the study: two large middle income countries (Argentina, Mexico) and two small poor countries (Bolivia, Nicaragua). This paper provides an overview of the methodology and results of the individual country papers (Ennis and Pinto (2002) for Argentina, Barja, McKenzie and Urquiola (2002) for Bolivia, López-Calva and Rosellón (2002) for Mexico, and Freije and Rivas (2002) for Nicaragua) which contain further details concerning the privatization process and data sources used for each

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[5] La Porta and Lopez-de-Silanes (1999) estimate the fraction of increased profitability of privatized Mexican enterprises that can be attributed to losses suffered by consumers at 5%, transfers from laid-off workers at 31%, with productivity gains accounting for the remainder.

specific country. All these countries have undergone significant privatization since the late 1980s, and have similar data sources that permit application of a common methodology. The Nicaraguan experience was however qualitatively different from the other three countries, transiting from a socialist economy in a process in which large parts of the economy (including agriculture) were privatized, while utilities which remained in the state sector throughout the 1990s were exposed to greater liberalization.

The most significant component of this project focused on utilities that were privatized (primarily electricity, telecom, water and gas), and estimates effects of changes in price and access on welfare of households located in different expenditure categories.[7] First and second order approximations to consumer surplus changes were calculated on the basis of estimated budget shares and price elasticities. Particular attention was devoted by each country paper to valuing changes in access gained by different groups. Some data was available concerning quality attributes, but was not rich enough to be incorporated into the welfare calculatons.   Section 3 of the paper explains the methodology employed in more detail, before presenting the main results.

The second component of the project documents the effects on workers, especially the extent of employment changes that accompanied the privatization and the possible impact on wage levels and earnings inequality. The changes in employment are assessed by each of the country papers relative to overall levels of employment and unemployment in the

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[6] For an exposition of efficiency effects of lower inequality, see Aghion et al (1999), and Bardhan et al (2000).
[7] In the case of Nicaragua, this exercise is carried out only for the electricity sector which saw entry of a number of private firms in the late 90s, while the main state firms were being prepared for privatization.

economy. Upper bound estimates of the extent to which earnings inequality may have increased as a result of the layoffs are estimated on the basis of employment surveys by Ennis and Pinto (2002) for Argentina and López-Calva and Rosellón (2002) for Mexico. These are based on the assumption that those who lost their jobs have subsequently failed to find any employment. The rotating panel feature of the Mexican employment surveys permits López-Calva and Rosellón to explore the validity of this assumption, by tracking those who lost their jobs for one subsequent year. Finally effects on wage rates, working conditions and wage inequality for employed workers are discussed in the context of Argentina and Nicaragua by Ennis and Pinto (2002) and Freije and Rivas (2002) respectively.

The third component gathers facts concerning the fiscal impact of the privatization. Here one can only speculate about possible implications for public debt, budget deficits and social spending, short of any attempt to simulate a structural macro model. Nevertheless these facts do help to put into perspective some of the wider implications of the privatization.

It is important to qualify the inference that can be drawn from the results owing to severe data limitations. The privatizations were very far from constituting a natural experiment. Instead they were part of a wider set of market oriented reforms such as trade liberalization, fiscal reform, macroeconomic stabilization and changes in regulatory institutions. Some sectors such as telecom witnessed significant technological change, with the introduction of new products and reduction in costs of traditional services. Most

of these countries underwent significant macroeconomic changes that affected all sectors of the economy. It is almost futile to try to assess the effect of privatization *per se*, which would require predictions of how the industries would have performed had they not been privatized, while all the other changes occurred. Consequently it is only feasible to calculate the effect of observed changes before and after the privatization, while comparing the effects in the privatized sectors with other sectors in order to control for macro changes in the economy.

Other limitations in the nature of the household surveys include lack of information concerning quality or prices paid by the household. We therefore use data from the firms or regulators concerning price and quality and are forced to assume that all households were sold the same product at the same price. Take-up decisions are also not directly recorded, so access had to be estimated indirectly from availability of the service in the same building or neighborhood in combination with reported expenditures by households. On the employment side, little is known about consequences of layoffs on income distribution, owing to lack of data on subsequent earnings experience of laid off workers, or on other forms of transfers (such as unemployment assistance or transfers from friends and family) that may have cushioned the income impact of layoffs. Accordingly only upper bounds to income losses can be computed, by assuming that laid off workers lost their incomes entirely thereafter.

Only the short-run impact of most of these privatizations can be gauged; the experience available so far suggests that the impact three or four years following privatization can be

very different from the immediate impact one or two years hence.[8] Environmental effects are not incorporated. Finally, the data does not permit any assessment of the distributive changes resulting from the change in the ownership *per se* (e.g., through changes in value of these firms subsequent to the privatization), nor their impact on non-privatized parts of the economy (via changes in prices or competition). Our assessment of the distributive impact must therefore be viewed as a rough approximation to some of the first-order effects of the privatization on the bottom half of the distribution, assuming that the changes in prices, access or employment levels that occurred at the time of the privatization could be attributed to that process itself.

Section 2 provides a brief overview of the privatization process in the four countries. Sections 3 and 4 respectively deal with the effects on consumers and workers, while Section 5 discusses the fiscal implications. Finally Section 6 concludes.

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[8] This will become evident in some of the evidence concerning employment changes. In the context of Bangladesh jute mills privatized in the 1980s, Bhaskar, Gupta and Khan (2001) find that the employment impact fifteen years hence differs markedly from that for the first few years following privatization.

2. The Privatization Process: A Brief Description

In this section we provide a brief summary of the main elements of the privatization process in the four countries that are described in the respective country papers, which can be consulted for additional details. Table 1 provides a summary of the main features of the process, which we describe in more detail below.

Starting in 1989, a wide range of state-owned enterprises (SOEs) were privatized in the early 1990s in *Argentina*. These included the main utilities (telecom, electricity, water, gas, air and rail transport), petrochemicals, tankers, natural gas, defense (navigation), and a range of services (including insurance, grain control etc.). The method of privatization involved inviting bids from a set of prequalified international bidders. Approximately $23 billion was realized from the proceeds over the period 1990-97, of which $10 billion was used to retire outstanding public debt. Macroeconomic stabilization and improvement of efficiency were the important objectives of the process, which was carried out as part of a wider program of fiscal contraction, debt reduction and trade liberalization. Many of the privatized firms represented joint ventures between a foreign owned firm and a domestic firm, subject to equity participation rules for foreigners. The process included a complicated system for transfer of debts from the SOE to the new private entities, and a voluntary retirement system negotiated with unions in the large privatizations (such as the railways) which was funded by the World Bank. In the telecom and electricity privatizations 10% of the shares were allocated to workers in

Specifically, the employment difference between the privatized and non-privatized mills found by Bhaskar and Khan (1995) for the first six or seven years disappears entirely in the longer time horizon.

these enterprises. The total fraction of the economy's labor force in the state sector prior to the privatization was approximately 2%.

Bolivia privatized the principal utilities between 1995 and 1997: electricity, telecom, transport and water, besides oil and gas. The novel feature was the widespread use of *capitalization* as an alternative to traditional methods of privatization. The capitalization process involved allocating shares equivalent to 50% of the firm's value to the investor with the winning bid, 45% to an old age welfare and pension fund, and the remaining 5% to the firm's employees. Investors gained the right to manage the firm, but had to commit to investing their capital contribution (i.e., what it offered for its 50 percent share) over a six to eight year period, besides conforming to expansion and quality targets laid down by regulators. Under this scheme, therefore, the government gained no disposable income at all, with the privatization proceeds earmarked mostly for investment and social spending. Of the $2 billion realized from the privatizations (amounting to 30% of GDP), approximately $1.6 billion were realized from capitalization, and the remainder from traditional privatizations. Concessions were a third method used, especially in the case of water.

In electricity, the process was accompanied by a separation between generation and transmission. Three privatized firms were created in 1995 in the generation sector, in a process realizing $140 million. These firms were subject to a 35% limit on market shares. In 1999 the sector was further liberalized, and two new private firms entered. In transmission, two private firms were created in 1997 in a process realizing $90 million.

These firms were subject to tariff regulations and quality controls.   In oil and gas three private firms were capitalized in 1997 (at a value of $834 million), followed by three new privatized firms in 2000 (realizing $125 million). This followed the discovery of new reserves, which multiplied previous reserves almost ten times between 1997 and 2000. These oil and gas firms are primarily oriented towards exporting to Brazil, so the privatizations in this sector are unlikely to have had much impact on domestic consumers. In telecom, the state monopoly firm ENTEL was capitalized (at a value of $610 million) in 1995, with further liberalization of entry in 2001. In transportation, the rail and air sectors were capitalized to the tune of $90 million during 1996-97. The private firms are subject to regulatory controls in each sector, and appear to have fulfilled the investment targets in most cases by the middle of 2000. Attempts to privatize water encountered greater difficulties, resulting in the proliferation of concessions for administration of state assets. Only one municipal firm was transferred to the private sector in 1997. A second attempted transfer of a municipal firm (in Cochabamba) failed. The Bolivian government has been slow in developing the necessary legal framework in this sector, with the required legislation finally approved in 2000. The concession contracts were signed with existing municipal water firms in a number of cities, with a number of stipulations for expansion, internal efficiency and quality goals. Tariff regulation was established under a rate of return mechanism with a five year regulatory lag, designed to permit the firm to comply with its contractual obligations.

In *Mexico* there was large scale privatization of SOEs in a wide range of industries covering mining, manufacturing and services. The first phase of the process lasted from

1982-88, with the second and more significant phase 1988-94 during the Salinas administration. From 1982-94 the number of SOEs fell from 1155 to 219. While a larger number of SOEs were privatized during the first phase, the large firms tended to be privatized in the second phase. Approximately 96% of all assets privatized during 1982—94 were concentrated in the second phase. By 1992, almost the entire sector excluding oil, petrochemicals, gas, water, electricity, highways, railways and ports had been privatized. The telephone sector was privatized in 1990. Most of the utilities were privatized in the third phase, which started in 1994. Water and natural gas were privatized over 1993-98. The 1990s also witnessed ongoing privatization efforts in civil aviation and banks. The method of privatization in most cases (over 90%) was to select a winner from a first price sealed bid auction, and involved sale of control rights or majority stakes. The proceeds during 1989-94 which amounted to $23 billion were used mainly to repay public debt. During the third phase (1994-2000) they amounted to $10 billion. The SOE sector accounted originally for 4.4% of the labor force (in 1982), which shrank to 2% in the 1990s, so the overall scale of the privatization amounted to approximately 2-2.5% of the labor force. The largest employment implications arose in the railways, which halved employment from its figure of 46,000 in 1995 to 23,000 after the privatization. La Porta and Lopez de Silanes (1999) estimated that at most about 30% of the improvement in profitability of enterprises privatized in the second phase arose from the job layoffs.

Nicaragua experienced a qualitatively different process of privatization, involving transition from a socialist, war-ravaged economy. The first phase 1991-96 involved

divestment of SOEs in a large number of areas such as farming, fishing, industry, forestry, mining, commerce, trade, transport, construction and tourism. A parallel process of allowing private participation in banking commenced in 1991, with closure or privatization of state owned banks occurring between 1994 and 2000. The second phase which commenced in 1995 and is still ongoing, included utilities and involved entry of private firms besides award of concessions. Private participation was allowed in electricity since 1997, and in telephones since 1995. Between 1995 and 1998 a comprehensive reform package was implemented and intended to lead to full privatization of utilities. This was slated for electricity distribution in 2000, telephones in 2001, and energy in 2002. Our data however does not cover the year 2000 or later, so our analysis on the consumer side will be restricted to estimating the effect of liberalization in the electricity sector, rather than privatization. On the wage employment side, however, we will report more detailed analysis of impact of the privatization process on wage distribution on an economy-wide scale, in contrast to the other countries where the analysis will be restricted to the utilities sector.

A total of 343 enterprises had been divested in Nicaragua by 1998. Liquidated enterprises aside, three different methods of reorganization were utilized: mergers with existing firms (principally other SOEs), restitution (to previous owners) and sale or lease. During the 1991-96 period, these accounted for respectively 25%, 28% and 36% of the proceeds. 13% of the shares were allocated to workers, and 1.5% to war veterans. There was a lack of fiscal transparency concerning utilization of the proceeds. Despite the proceeds amounting to 2.5% of GDP every year during the first phase, they did not accrue to the

government budget. Part of the proceeds were used to retire outstanding commercial debts of the concerned enterprises, and partly to cover administrative expenses of CORNAP (the state agency responsible for implementing the privatization). Many of the sales involved transfer of credit and liabilities, creating further lack of transparency. The proceeds of the electricity privatization during 2000-02 in contrast have been large (approximately 4.9% of GDP in the year 2000) and more transparent (60% of which accrued to the government budget, with the rest used to retire debt or settle tax arrears).

3. Evaluating the Welfare Impact on Consumers

Privatization of infrastructure can have a direct impact on consumers by affecting their access to the network, the price they pay for the service, and the quality of the service received. There may also be indirect consumer effects if privatization affects the prices of substitute goods, which we do not attempt to measure here. We describe the data available for examining the consumer impact, then detail the impact of privatization on access, price, and quality, and finally calculate the value or cost of these changes for consumers and the resulting consequences for poverty and inequality.

3.1 Data

Household surveys of income and expenditure from each of the four countries studied are used to measure the consumer impact of privatizing utilities.[9] These surveys enable measurement of access to electricity, water, and telephone at the household level, either through a direct question as to whether the household has a connection to the service, or through observation of whether the household has positive expenditure on the service. The surveys report total household expenditure on each service, and not price information, so prices are obtained from a variety of other sources. Furthermore, only two surveys are available for Argentina and Nicaragua, and not many more for Mexico.[10] This places severe restrictions on the extent to which the country studies could determine whether changes occurring over the time of privatization differ from long-term trends. The surveys in Mexico and Nicaragua are nationwide, while only urban areas are surveyed in Argentina (Greater Buenos Aires) and Bolivia (nine departmental capitals and El Alto).

3.2 Access

There are several reasons to expect that access to utility services will improve with their privatization. Firstly, long waiting lists, such as a 2.5 year waiting time for a new phone connection in Mexico in 1990, are often testament to unsatisfied demand under public ownership. Secondly, many privatization agreements include government mandated

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[9] The surveys are the *Encuesta Nacional de Gastos de los Hogares (ENGH)* in Argentina for 1985/86 and 1996/97; the *Encuesta Integrada de Hogares (EIH)* in 1992, 1993, and 1994 and the *Encuesta Continua de Hogares (ECH)* of 1999 in Bolivia; the *Encuesta Nacional de Ingresos y Gastos de los Hogares (ENIGH)* in Mexico for 1984, 1992, 1998 and 2000; and the *Encuesta Nacional de Hogares sobre Medición de Niveles de Vida (EMNV)* in Nicaragua for 1993 and 1998.

[10] Surveys have been taken more frequently in Bolivia, however the format and design varied somewhat in the years immediately following and preceding privatization.

expansion of the network or universal service obligations. For example, Estache et al. (2002) note that the Bolivian government chose to award the water concession in La Paz and El Alto on the basis of bids for the number of new connections to be offered at a predetermined tariff level, while the water concession awarded in Greater Buenos Aires incorporated connection targets intended to increase coverage from 70 percent to 100 percent by the end of the contract period. Finally, private firms may be more apt to innovate and develop new means to reduce the costs of network expansion.[11]

Table 2 shows that, in all cases, privatization resulted in increases in access to infrastructure. A limitation of the household surveys is that in most cases they only provide detail as to whether a given household uses a given service, not whether they have the option of connecting to the network if they so desire. For water and electricity in Bolivia, Mexico and Nicaragua, the surveys directly provide questions on physical usage of the service, while access in Argentina and for telephone services in Bolivia and Mexico is determined by whether the household has positive telecommunications expenditure. However, the 1996/97 household expenditure survey in Argentina does provide this information, and average take-up is found to be 99.88 percent for electricity and 97.39 percent for water.[12] Relying on what the household is actually observed to be using to determine access should therefore not be a bad approximation. A further caveat is that the surveys do not provide information on illegal connections, so that we may be

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[11] See the examples given in Estache et al. (2002, pp. 40-43).
[12] Take-up rates among the poorest decile were 99.4% for electricity and 92.5% for water.

overestimating increases in access if some users merely switch from illegal to legal connections.[13]

The distributional impact of this expansion in access depends heavily on initial levels of access. In general, expansion of the water and electricity networks tends to benefit the poor most, since coverage of the richer deciles is already high. However, in Nicaragua, access to electricity was much lower to begin with than in either Bolivia or Argentina, and the expansion of access has benefited the top half of the per capita expenditure distribution more. In contrast, access to telephones has been much lower in Latin America, and as a consequence, the expansion in access has been directed mainly towards the middle and top of the distribution. Some of the increase in access to telephony is due to the rapid expansion of cellular services, however the surveys do not enable one to separate this from fixed line expansions. The introduction of competition in cellular services was particularly important for access in Bolivia, as local fixed line phone cooperatives charge individuals US $1200-1500 for the fixed line, more than Bolivia's per capita income. The entrance of ENTEL-Movil into cellular in 1996 prompted a price war with the incumbent firm Telecel, and led to access charges in cellular falling below US $10. Cellular penetration increased from 0.27 subscribers per 100 inhabitants in 1996 to 6.96 per 100 in 2000, overtaking fixed line penetration.[14]

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[13] Nevertheless, a formal connection can be less hazardous to health, and can be used by households as evidence of an address for obtaining state benefits, hence the switch from illegal to legal connection is of some benefit to households (see Estache et al., 2002, pages 22-23 for more discussion).

[14] Penetration rates from ITU (2001).

Existing trends make it hard to determine exactly how much of the increases in access were due to privatization in most cases. Table 3 details one attempt made by Barja, McKenzie and Urquiola (2002) to separate increases in access from existing trends in Bolivia by comparing access changes for water in La Paz/El Alto, where a private concession was put in place in 1997, to the other main cities of Santa Cruz and Cochabamba, which remained public. Access increased in both areas between 1992 and 1994, and again between 1994 and 1999. The difference-in-difference compares the change in La Paz/El Alto to the change in the non-privatized areas. This is negative over the period 1992-94, showing that access was growing faster in the other cities, but positive after the privatization. The resulting triple difference (the annual growth in La Paz/El Alto relative to other cities over 1994-99 less the relative annual growth over 1992-94) is positive for all but the bottom quintile, and suggests that privatization increased access to water both relative to the existing trend and compared to non-privatized areas.[15] In Argentina, Galiani , Gertler and Schargrodsky (2002) use surveys from 1991 and 1997 and calculate the difference-in-difference in access to water between the privatized and non-privatized areas, finding an increase in access in privatized municipalities.

As well as the private benefits of access to water, electricity, and telephones which we attempt to measure below, there are many potential additional public benefits. Telecommunications benefits from network externalities, whereby the value of having a telephone depends on how many others are connected to the system. Expansion of access

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[15] Of course since 100% is the maximum for access, one should expect growth rates in access to fall over time as access approaches full coverage. The triple difference should therefore give a lower bound of the

to telephones therefore benefits existing users as well as new users. Access to telephones can also foster trade networks and provide remote areas with enhanced connection to society. Expansion of access to electricity can have positive environmental implications if new users switch from burning wood and fossil fuels. Access to water can provide public health benefits, limiting the spread of disease. In Argentina, Galiani et al. (2002) find that child mortality fell five to nine percent in areas which privatized water, due to a reduction in infectious and parasitic diseases. While these public benefits and externalities are difficult to measure and are not included in our valuation of the consumer impact of privatization, they should be noted when assessing the overall benefits of privatizing utility services.

3.3 Prices

The popular perception is that privatization tends to drive up prices faced by consumers. The public enterprise may have been making a loss, causing the private owner to raise prices to cover costs. Cross-subsidization of prices is also prevalent before privatization. In electricity, Millan et al. (2001) find that industrial users in Latin America were subsidizing residential customers prior to privatization, while in telecommunications, high long distance rates often subsidize local calls. Tariff-rebalancing then serves to increase the prices paid by residential and poorer customers. On the other hand, there are reasons to expect that privatization may lower prices. Birdsall and Nellis (2002) note that if private management is more efficient, lower prices may result. The net result often depends on the amount of competition and regulation the private firm faces. Price changes will also depend on whether the government awards the privatization contract on

privatization effect.

the basis of highest bid (thereby maximizing government revenue) or on the lowest tariff bid (which results in lower consumer prices but less government revenue).

The household surveys used in this study did not collect information on the prices paid by individual households for infrastructure services, but instead only their expenditure. As a consequence, the studies were forced to use aggregate price indices at the city, the state or the national level to assess the changes in prices after privatization.[16] Table 4 summarizes the overall price changes for the privatized industries considered in this study. Clearly the reported changes are sensitive to the base years chosen, and our approach has been to use the prices prevailing in the same years as our surveys. In particular, the studies generally avoid basing these price changes on prices from years of high macroeconomic instability, such as the 1995 peso crisis in Mexico, or the 1988-89 hyperinflation in Argentina. Further context is provided through figures detailing the evolution of prices. Figure 1 shows the evolution of telephone and electricity prices in Argentina in more detail, Figures 2 and 3 show electricity and water prices by city in Bolivia, and Figure 4 shows price indices for a variety of telephone services in Mexico.

Out of the ten cases studied, prices fell in five and increased in the other half. Electricity prices increased in two out of the three countries with reforms. The price decrease in Argentina possibly reflected the fact that prior prices were high by international standards and privatization caused an increase in competition in electricity generation. One should note that Delfino and Casarin (2001) find electricity prices increased in Argentina, using

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[16] Price information, unless noted otherwise, was provided by the national statistics agencies INDEC in Argentina and INE in Bolivia, and by the Banco de Mexico in Mexico.

only post-privatization price data up until 1999. Ennis and Pinto (2002) argue against using 1999 as a comparison point due to the deflation and macroeconomic instability beginning in Argentina at that time and use 1996 instead.[17] Furthermore, Ennis and Pinto compare the price in 1996 with a pre-privatization year 1986, unlike Delfino and Casarin. The sensitivity of the results of Ennis and Pinto to alternate measures of the price change will be discussed when we evaluate the overall poverty and inequality impacts.

Telecommunications prices fell on average in Argentina[18] and Bolivia, but rose in Mexico. Lack of competition and regulatory problems prevented all prices from going down in Mexico, although connection charges fell by 75 percent between 1991 and 1998 and prices of national and international long distance calls fell by more than twenty percent following the introduction of competition in 1995. However, residential subscription rates increased 48% between 1992 and 1998 and local call per unit rates also rose. The increase in local call costs and reduction in long distance was a result of Telmex being required to remove cross-subsidies before the introduction of competition in long distance in 1997. An overall 8 percent decline in telephone prices in Bolivia masks a doubling of the minimum tariff in the city of Santa Cruz, where the local operative moved quickly to raise rates before price regulation was implemented.

The water concession in Buenos Aires lowered prices, and the addition of a universal service fixed fee to all users allowed the concessionaire to reduce access fees to one tenth

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[17] Ennis and Pinto (2002) discuss further their justification for their choice of comparison years and cite research by Urbiztondo et al. (1998) which supports their assertion that prices fell.
[18] Figure 1 shows that prices increased in 1990 in the run-up to privatization, but that this was followed by real price decreases.

of the previous level (Galiani et al., 2002). The successful water concession in La Paz and El Alto resulted in water prices increasing less than elsewhere in Bolivia. However, a second concession issued to Aguas de Tunari for the city of Cochabamba in 1999 resulted in tariffs increasing an average of 43 percent for poor consumers, with some consumers experiencing a more than doubling of their bills.[19] Strikes and demonstrations resulted, followed by the declaration of martial law and eventual expulsion of the private firm. Heavily subsidized water prices in Mexico resulted in water prices increasing 9 percent in privatized areas relative to areas without privatization.

Thus although prices did increase in some instances, they decreased in many others following privatization. While technological advances (particularly in telecommunications) may be partially responsible for these decreases, the experience in Mexico suggests that such gains will not be realized without an appropriate regulatory framework.

3.4 Quality

Estache et al. (2002) remark that consumer concern with the low quality of service from state-owned utilities, especially in terms of service rationing and supply interruptions, has been one of the reasons given for privatization. Figure 5 graphs results from a 1992 consumer poll in Mexico City. A strong negative correlation of -0.55 is found between public support for privatization or private supply of a service and the perceived quality of that service. A 1991 poll in Buenos Aires found that 75 percent of respondents expected

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[19] See The Democracy Center (2002).

the quality of telephone service to improve with privatization, although over half of these thought the improvement would take 3 to 5 years to occur.[20]

Improvements in service quality were not only expected with privatization, but in some cases mandated by the government as part of the conditions for sale of the public enterprise. For example, the privatization of electricity in Bolivia was accompanied by regulations which established a system of measurement of quality, set out dates by which firms had to comply with the quality indicators set, and determined financial penalties in the event of non-compliance.

The household expenditure surveys used in this study do not collect information on the quality of infrastructure services consumed and information from other sources is scarce. In particular, pre-privatization quality indicators are mostly unavailable for the countries studied here. This lack of data means it is not possible to formally measure the value to consumers of changes in quality.

Table 5 reports the changes in quality for which data are available. Privatization is seen to generally be followed by an improvement in quality, with less faults, better quality telephone lines, and shorter waiting times for service. In Mexico the waiting time for a telephone connection fell from 2.5 years in 1990, the year of privatization, to 72 days in 1995 and 30 days in 1997. Not all consumers agree that quality improved, as shown by a 1993 poll finding that one in four Mexicans wanted to jail the telephone company

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[20] Source: EQUAS Poll: LI034, February 1991, obtained from The Roper Center Latin American Databank.

management because of poor service[21], and an GEO (1992) poll showing that 36 percent of Mexicans thought telephone service had worsened with privatization. Nevertheless, the data available do indicate general improvements in quality following privatization.

3.5 Welfare impact of changes

The above has shown that privatization improved access to infrastructure, but had a mixed impact on prices, with both price increases and decreases observed. We next present a methodology for valuing the joint effect of price and access changes on consumers.

Deaton (1989) shows that simple non-parametric estimation of Engel curves can be used to describe the average welfare effects of price changes on consumption. As (almost) all consumers do not privately produce electricity, water, or telephone services, the budget shares of these services provide a first-order approximation of the relative welfare effect of a change in their price. Let x_0 be a household's initial total expenditure per capita, w_{j0} be their initial budget share on service j, p_j be the price of service j, and U be household's utility. Banks, Blundell and Lewbel (1996) then show that the first-order approximation to the change in utility is:

$$\frac{\Delta U}{x_0} = -\left(\Delta \log p_j\right) w_{j0} \; . \tag{1}$$

Intuitively, a change in the price of a service will have the greatest impact on consumers who devote a larger share of their total budget to that service. The approximation in (1) will tend to provide an upper bound on the loss to consumers of a price rise (or lower

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[21] See "Mexico Phone Monopoly at end of the line", Houston Chronicle, August 13, 1996.

bound on the gain from a fall in price) as it assumes that consumers do not adjust the quantity they consume of a service when its price changes.[22] Banks, Blundell and Lewbel (1996) therefore provide a second-order approximation to the change in welfare, which does allow some quantity response to the price change:

$$\frac{\Delta U}{x_0} = -\left(\Delta \log p_j\right) w_{j0} \left[1 + \frac{\Delta \log p_j}{2} \frac{\partial \log w_j}{\partial \log p_j}\right]. \tag{2}$$

Computation of (2) requires estimation of the elasticity $\partial \log w_j / \partial \log p_j$. This term is estimated by γ_{jj}/w_{j0}, where the coefficient γ_{jj} is obtained from estimation of the Engel equation for household h

$$w_{hj} = \alpha_j + \sum_{i=1}^{k} \gamma_{ij} \log p_i + \beta_j \log \frac{x_h}{n_h} + \phi_j \left(\log \frac{x_h}{n_h}\right)^2 + \lambda_j' Z_h. \tag{3}$$

Here n_h is the number of members in household h, Z_h contains other demographic control variables, and p_i for $i \neq j$ is the price of good i. In much of our empirical work there is insufficient time periods and cross-sectional information to allow the prices of substitute goods to be included. This lack of sufficient price variation also precludes estimating a complete demand system in order to calculate welfare changes, as was done in Wolak (1996).

These first- and second-order approximations can be used to measure the change in welfare arising from price changes associated with privatization for consumers who had access to the privatized service both before and after privatization.[23] For consumers who

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[22] The assumption that quantity is fixed is made in Waddams-Price and Hancock (1998) in analyzing utility privatizations in the United Kingdom.
[23] The approach could also be easily modified to incorporate welfare gains from quality improvements by using quality-adjusted prices were sufficient data on quality available.

do not have access either before or after privatization, there is no direct welfare change of a change in the price of the privatized good, and if privatization causes a change in the price of substitute goods, this can be also be valued using the first- and second-order approximations. This leaves the group of consumers who gained access to the service following privatization.[24] To value their change in welfare from privatization, we use the concept of a *virtual price*, pioneered in Neary and Roberts (1980) to examine household behavior under rationing. In our context, the virtual price of the privatized service is the lowest price under which a household would have chosen to consume zero units of the service prior to privatization if they had had access to the service in question. Given this virtual price, the welfare change from privatization is then calculated using (1) and (2), with the change in price being from the virtual price to the post-privatization price and using the post-privatization expenditure share w_{j1} and total expenditure x_1 in place of their pre-privatization counterparts as reference points.[25]

The virtual price, p_v, is obtained from the estimated Engel equation (3) as the price for which the estimated expenditure share is zero. This virtual price will differ across households according to their total expenditure and demographic characteristics – some households are more able and/or willing to pay for access to the utility service than others. A potential concern is that (3) is only estimated for households which do have access to the service, so will result in inconsistent parameter estimates if omitted variables correlated with access also influence demand patterns. For this reason, we carry

[24] We make the empirically plausible assumption that no consumers lost access to the service as a result of privatization. This is not to say that prices may have risen enough so that they now choose to consume zero quantity, but rather that the option of paying for the privatized service remains.

out Heckman's (1979) two-step selection correction, first using a probit to estimate the probability of access, and then adding the inverse Mills ratio obtained from this step to equation (3).

The method outlined above could be applied directly by Freije and Rivas (2002) to assess welfare changes from privatizing electricity in Nicaragua, as the 1998 LSMS survey from this country enables one to tell whether a given household had access both in 1993 and 1998.[26] Other countries in this study were faced with the additional complication that the household surveys are repeated cross-sections, rather than a panel. This means that a given household is interviewed only once, either prior to or after privatization of services, and so it is only possible to identify whether the household has access or not in the year of the survey. Appendix 1 outlines how the method thus far described is adapted to calculate welfare changes when the surveys contain a different sample of individuals each year.

The budget share allocated to each infrastructure category provides a first-order approximation of which households are affected most by price changes. Table 6 gives mean budget shares by expenditure per capita decile. The mean budget shares capture the joint effect of differences in access across groups (those with no access have zero budget share) and income elasticities across those with access. The result is that not all budget shares decrease with total expenditure. Taking mean budget shares only across households with access, one finds water and electricity to be necessities (i.e. budget

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[25] A change in access has no value if one uses the pre-privatization reference point, since the expenditure share w_{j0} is zero in this case.

shares decline with income) in Argentina, Bolivia, and Mexico, and telephone services to be a luxury in Bolivia but a necessity in Argentina and Mexico. Price changes in water and electricity will therefore tend to have the most impact on the poor, except in Nicaragua where low access to electricity means less of the poor are subject to price changes. In contrast, as telephone services constitute a higher fraction of the total budget of richer households, telephone price changes will impact on the upper deciles more than on the poor. It should be noted that in most cases, each infrastructure service constitutes only 1-3 percent of the total household budget, and so one should not expect even large price changes to have dramatic effects.

The joint welfare effect of access changes and price changes obtained by the various country studies (except Mexico) is presented in Table 7, using the methodology outlined above in equations (1) to (3). For electricity reform in Nicaragua, the table presents the effects separately for households that always had access and for households which gained access. Clearly the increase in price impacted negatively on households which already had access, although as budget shares allocated to electricity are low, the welfare loss to these households is less than one percent of their per capita expenditure. In contrast, the value of gaining access can be much larger, reaching 16 percent of per capita expenditure for the lowest deciles. The overall effect on a decile therefore depends on the number of households who gain access relative to those with existing access. In Nicaragua the result was small gains in welfare for deciles 2 to 6, and small welfare losses for the other deciles. In Bolivia Barja, McKenzie and Urquiola (2002) estimate the welfare increase

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[26] The 1998 LSMS survey asks whether electricity service has been installed since 1993.

from gaining access to electricity exceeded one hundred percent for the lowest deciles. Hence although prices rose, the overall effect was positive for all but the top decile.

As prices fell in Argentina, Ennis and Pinto (2002) find that the welfare effects were positive for all deciles for both electricity and telephone. Electricity privatization benefited the poorer deciles relatively more, with an average effect of 2-3 percent of per capita expenditure for the lowest three deciles, whereas telephone privatization had the most benefit for the middle class. As mentioned previously, Delfino and Casarin (2001) suggest that electricity prices rose rather than fell with privatization. Using the results of Ennis and Pinto (2002), we can estimate what the increase in price needs to be to make the overall welfare impact negative, given the increase in access which took place. Prices would need to have risen 32% for the welfare impact to be negative for the first decile, and price rises of over 60% would be necessary for the second and third deciles to have overall negative welfare effects. Delfino and Casarin report a 38% increase in prices for the poor and a 10% decrease in price for consumers with consumption above 150KwH, which must be seen as a maximum possible price increase due to privatization due to the deflation in 1998/99. Such a price increase would still imply overall positive welfare effects for the top nine deciles and a welfare loss of 0.01% of per capita expenditure for the poorest decile. Thus the welfare impact is most likely positive on average.

Telephone privatization also benefited the middle class most in Bolivia, as increases in access were greatest for this group, with deciles 5 to 7 receiving overall gains of five to six percent of per capita expenditure. For the water concession in La Paz/El Alto in

Bolivia, we present results under two scenarios: the first assumes that all of the increases in access are due to privatization, while the second only values the increase in access in La Paz/El Alto relative to other main cities. The effect is positive in both cases, but lower in the second scenario. The benefits of water privatization are relatively larger for the poorer deciles in Bolivia, as access increases were greatest for this decile. The poorest decile benefited by seven percent of per capita expenditure from the increase in access, although perhaps only a gain of 1.5 percent is attributable to privatization.

The failed concession in Cochabamba, Bolivia, resulted in large increases in average water tariffs. Prices for the poorest consumers, for whom water usage consisted of only an indoor toilet and outside water tap, rose 43% on average. The middle class experienced average price increases of 57% and commercial users experienced price increases of 59%.[27] The short-lived nature of the privatization meant that the expansions in the water-network agreed upon under the concession contract were not realized, and consumers clearly experienced immediate welfare losses from these price increases. Nevertheless, our estimates of the average welfare losses are not nearly as large as press reports suggested: Finnegan (2002) reported in *The New Yorker* that "ordinary workers now had water bills that amounted to a quarter of their monthly income". In contrast, in Table 7, our estimated average cost of a 43% price rise is at most one percent of per capita household expenditure. The maximum expenditure share on water observed in Cochabamba in the 1999 household survey was 10.5%, with an average expenditure share of 1.6% and the 95th percentile at 5.4%. For most households then, expenditure shares were simply too low for even a doubling of price to result in the water bill

reaching a quarter of income. The numbers reported in the press therefore represent the possible maximum impact on a very limited number of consumers, whereas the average consumer had much smaller welfare losses.

3.6 Poverty and Inequality

The consumer welfare changes are household level money metric measures of the change in welfare if one assumes there are no income effects (Banks, Blundell and Lewbel, 1996). To evaluate the impact of privatization on inequality, the country studies first calculated the pre-privatization Gini coefficient and Atkinson inequality indices. They then take the pre-privatization household per capita expenditures, for each household add the estimated per capita change in consumer welfare, and recalculate the inequality measures taking account of the consumer impact of privatization. The use of repeated cross-sectional surveys again entails complications associated with not being able to identify the specific households which gained access to the privatized service, and Appendix 2 details the adjustments needed with this data.

One popular approach to poverty measurement is that of unified basic needs measures, which are based directly on the availability of and access to certain essential services.[28] Access to piped water and to electricity are often included in these essential services, in which case the increases in access detailed in Table 2 would directly improve poverty measures.

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[27] See The Democracy Center (2002).
[28] See World Bank (1996) as an example.

Other measures of poverty are based on household income or expenditure, and so the same approach as for inequality can be used to evaluate the consumer impact of privatization on poverty. The Foster, Greer and Thorbecke (1984) measures of poverty are calculated pre-privatization and then again after adjusting for welfare changes, according to the formula:

$$P_\alpha = \frac{1}{N} \sum_{i=1}^{N} \left(1 - \frac{x_i}{z}\right)^\alpha 1(x_i \leq z)$$
(4)

where z is the poverty line, x_i is household expenditure per capita for household i, N is the total number of households, and the parameter α is zero for a headcount measure of poverty, one for the poverty gap ratio, and two for a poverty measure which is sensitive to the distribution among the poor.

The overall results of the consumer effects of privatization on inequality and poverty obtained by the different countries (except Mexico) are given in Table 8. The privatizations of electricity and telephones in Argentina are seen to have reduced inequality by a very small amount, and reduced headcount measures of poverty by 1-1.5 percent. The poor in Argentina have benefited from both increases in access to utilities and a reduction in prices. Privatization of electricity and water in Bolivia had very similar effects, reducing inequality slightly and poverty by 1-1.5 percent. The failed water privatization in Cochabamba is estimated to have increased poverty by two percent and had little impact on inequality. The privatization of telephone services in Bolivia had larger effects. The effect was to increase inequality, due to the increases in access being largest for the middle deciles. However, the privatization is estimated to have resulted in five to six percent fewer households falling below the poverty line. Bolivia has a very

high level of poverty, so that even households in the fifth and sixth deciles lie below the poverty line.[29] The reforms of electricity in Nicaragua are seen to have had essentially no impact on poverty and inequality, with the increases in price counteracting the improvements in access.

The overall findings that emerge from Table 8 are firstly, that, in general, privatization has a very small effect on inequality, with the change in the Gini coefficient from privatization being 0.02 or less. Secondly, in all but one of the cases examined here, privatization either reduces poverty or has no effect on it. That is, the popular perception that privatization is responsible for large increases in inequality and is particularly harsh on the poor is not borne out by the cases considered here.

4. Effects on Workers

For a 'representative' worker of any given category (defined for instance by skill, sector of employment, age and gender) the economic rent or surplus would depend on the wage rate and levels of employment applicable to that category. Accordingly evaluating the implications of privatization on income distribution would have to include effects on wage rates and employment. The latter would ideally include job layoffs, changes in hours of work, and in tenure (i.e., the duration of employment relationships, which would affect the level of economic insecurity, search costs and investments in firm-specific

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[29] The poverty line used is taken from World Bank (1996) and is an overall urban poverty line of 219.9 Bolivianos per person per month in August 1993. Use of city-specific poverty lines is likely to reduce the measured headcount poverty to around 0.52-0.54, but this change would have little effect on the counterfactual comparisons.

relationships). The distributive impact of privatization requires us to assess effects on both (i) average levels of these variables across the entire population of workers, insofar as this pertains to the functional distribution of income between labor and capital, and (ii) the distribution of these impacts across different categories of workers, in order to assess the effect on earnings distributions. The data used for these evaluations is based either on employment or household surveys, which are subject to severe limitations. Our assessment of wage-employment effects will accordingly be of a piecemeal nature, where the available data on different dimensions will be separately evaluated at different levels of (im)precision. In particular the data does not permit any comprehensive assessment of the distributional impact across different categories or income classes analogous to our analysis on the consumer side.

4.1 Employment Effects

The main issue here concerns the impact of privatization on job layoffs. These are typically widely advertised and involve large income changes for those laid off, at least in the short run. Direct data on layoffs is not available for any of the privatized enterprises. Instead data on employment levels have been collected by the authors of the country studies directly from most of the privatized utilities in Argentina, Bolivia and Mexico, supplemented by household/employment surveys for select years at different stages of the privatization process. The discussion of this section therefore excludes the case of Nicaragua where the very large number of privatized enterprises precluded collecting data concerning firm-level employment levels.

We also proceed on the assumption that employment reductions correspond to layoffs, being unable to distinguish quits or voluntary retirements from layoffs, or between layoffs and new hires. Accordingly we shall use the term 'employment reductions' and 'layoffs' interchangeably. In what follows, we summarize the evidence from the country studies concerning employment reductions following the privatization, both in absolute numbers, and in proportion to preexisting levels of employment in these enterprises. One can also estimate the significance of layoffs relative to the overall labor force in the economy, and to changes in unemployment occurring at that time. Upper bounds to the impact of the layoffs on inequality and poverty are available in the case of Argentina; it is possible that such estimates will later become available for some of the other countries as well.

In *Argentina*, Ennis and Pinto (2002) report that the privatized enterprises were subject to a very significant number of job losses: employment fell by about 75%, down from 223,000 jobs to 73,000 between 1987/90 and 1997. Most of these losses were concentrated in the greater Buenos Aires area, whose total labor force is approximately 4.2 million. Since the privatized enterprises tended to be quite capital-intensive, the proportion of the labor force that was affected was not very high, of the order of no more than 2% of the aggregate labor force (and 3.5% of the labor force in the greater Buenos Aires area).

The 1990s were a period of rising unemployment in Argentina, with the urban unemployment rate growing from 7.6% in 1989, to 9.6% in 1993, and 17.4% in 1995, falling somewhat thereafter to 14.9% in 1997. The 150,000 job cutbacks in the privatized enterprises in the utilities (electricity, natural gas, water, telecom, airlines, railways) and oil that occurred between 1987/90 and 1997 are estimated to have constituted 13% of the increased unemployment in the economy. This substantially exceeds the proportion of the economy-wide labor force employed originally in this sector (7% for private and public enterprises combined during 1987/90). Hence the employment cutbacks in the privatized enterprises were greater than those occurring elsewhere in the economy, suggesting that the privatization process itself increased unemployment, over and above the effect of general macro shocks to the economy.

It is important to note that most of the cutbacks were concentrated in the railways, where employment fell from 92,000 in 1987/90 to 17,000 in 1997, alone accounting for 6.6% of the increased unemployment in the economy during this period. The cutbacks were far smaller in the other sectors: 2.57% of the increased unemployment is accounted for by the cutbacks in the oil sector, and less than 1.5% in each of the other sectors. If one focuses only on electricity, telecom, water and gas they together accounted for only 3.6% of the added unemployment.

The effect of the layoffs on income distribution cannot be estimated without knowing the subsequent job experience of the laid off workers, or of the nature of unemployment benefits. Using employment surveys, an upper bound to the impact of these job

reductions is estimated by Ennis and Pinto (2002) assuming that all laid off workers earned zero income. Alternatively, this can be interpreted as the short-run impact if most of the laid off workers were unemployed in the year of the privatization with no fiscal assistance in the form of severance packages or unemployment benefits. For 1989 the year immediately preceding privatization, replacing actual incomes reported by a randomly selected set of workers in the privatized sectors (whose proportion equals the proportion of job contractions in those sectors) increased the Gini coefficient of the earnings distribution from 0.5375 to 0.5545, i.e., by an order of 3%. Not surprisingly, the effect on the proportion below the poverty line is somewhat larger, of the order of 8%: it increased from 29.47% to 31.95%.

However, some of the workers losing jobs in the privatized enterprises might subsequently be re-hired elsewhere in the private sector. There are numerous anecdotal reports of employees in the vertically integrated SOEs who left at the time of privatization to join smaller private enterprises that entered into subcontracting relationships with the privatized enterprises. A lower bound to the extent of such re-hiring can be estimated by focusing only on employment in the sectors in which privatization occurred (i.e., ignoring laid off employees who may have found new jobs in other sectors). The employment surveys allow Ennis and Pinto (2002) to estimate the proportion of Argentine labor force accounted for by the sectors in which privatization occurred over successive years (aggregating across public and private enterprises). It turns out that this proportion declined from 7.32% in 1989 to 5.14% in 1992, as the SOE sector contracted (from 1.95% to 0.58%) and so did private sector employment (from

5.37% to 4.56%). After this, however, private employment grew to almost 7% in 1994, and stayed at that level during 1996 and 1997. As a consequence, the share of these sectors in the economy-wide labor force recovered to nearly its former level (it was 7.06% in 1997, as against 7.32% in 1989). This suggests that the overall employment contractions in the privatized sectors over a longer time horizon (four years, rather than two years following the privatization) were similar to those occurring in other sectors of the economy. In other words, controlling for macroeconomic changes, expanded employment in the private sector eventually absorbed most of the workers laid off in the privatized enterprises.[30] Under this interpretation, the income losses arising due to the layoffs were transitory, lasting a maximum of three years following the privatization. From the standpoint of long run income distribution, the inequality effects therefore seem negligible (as even the 3% increase in the Gini calculated for the year of the privatization would largely disappear by 1994).

The distribution of the employment reductions in the privatized enterprises by different levels of skill revealed that the cutbacks were greater for less skilled employees, but the extent to which this was so seems similar to the skill-bias changes occurring in other sectors of the economy. However, tenure declined disproportionately in the privatized sectors, with duration of employment declining almost 70% (down from an average of 194 months to 57 months) between 1989-95, as against a decline from an average of 96 months to 70 months for the labor force at large. On the other hand, average hours of work increased, principally owing to the fact that privately employed workers work an

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[30] Of course it is also possible that employees shifting in from other sectors or new entrants to the labor force accounted for the rise in private sector employment, rather than reemployment of workers displaced

average of 55 hours per week in the privatized sector, substantially higher than SOEs in these sectors (where the workweek involves about 45 hours).

In *Bolivia* the extent of privatization was much narrower than Argentina, as described in Section 2. Information about employment effects of the water concessions was unavailable, so Barja, McKenzie and Urquiola (2002) focus their analysis on the electricity and telecom privatizations. These two sectors represented less than 0.5% of the economy's labor force prior to the privatization (approximately 5800 jobs out of 1.3 million employed in the capital cities). So they are unlikely to have exerted a significant impact on economy-wide employment or wage levels.

Within the privatized enterprises, employment levels contracted. In electricity generation, the state firm ENDE split into three privatized enterprises, besides leaving an ENDE residual. Data for the residual firm was unavailable, the three enterprises together employed 180 workers, as against 540 workers in ENDE prior to the privatization. In electricity transmission, data limitations do not provide a complete picture, but one can obtain an upper bound of job losses to the tune of 15—20% between 1995 and 1997. In telecom, employment in the long distance segment of ENTEL rose from 1745 in 1995 to over 2000 in 1997 (which probably reflected the growth of the new cellular business), and fell steadily thereafter to about 1000 by the year 2000. In the short distance segment the number of jobs dropped from about 2000 in 1995/96 to 1600 in the year 2000. Aggregating these, there was a total drop of about 1700 jobs in these two sectors

from the public sector.

combined, implying a job contraction rate of about 30% within the privatized enterprises in the five years following privatization.

As a fraction of the total labor force in the capital cities, the job losses in these two sectors seem miniscule: about 0.13% (or one out of every 1000 jobs). This is in contrast to Argentina, where the job losses amounted to 3.5% of the labor force in the greater Buenos Aires area (or 35 out of every 1000 jobs). What about the significance of the job losses as a proportion of changes in unemployment? Data on unemployment rates in the economy as a whole reveal a slight rise from 3% in 1995 to 4.43% in 1997, and then to 7.5% in 2000. Assuming that the unemployment rates in the capital cities was similar to that in the rest of the economy (an assumption which is borne out for the last year, 1995, for which data on unemployment rates in capital cities was available), and using the estimated size of the labor force in the capital cities (1.3 million in 1995), Barja et al. (2002) estimate 58,000 job losses in the economy as a whole between 1995 and 2000. Hence the job losses in the electricity and telecom sectors amounted to approximately 3% of the aggregate job losses in the capital cities. This is comparable to the corresponding contributions of these two sectors in Argentina, and is substantially higher than the proportion of the labor force originally accounted for by these sectors. So the privatization *per se* seems to have had an employment contracting effect even after correcting for overall macro shocks to the economy, but this effect is quite small ---- just as in the case of Argentina.

No further details are available about the likely effect of these layoffs on income distribution, tenure, hours of work or skill distribution of the workforce. The relatively small scale of the employment cutbacks in these sectors relative to the rest of the economy suggests that these effects are unlikely to be significant.

The impact of privatization on employment in *Mexico* appears to be intermediate between Argentina and Bolivia. López-Calva and Rosellón (2002) report that State-owned enterprises employed over 4% of the economy's workforce in 1983 when the privatization started; this dropped slightly below 2% by 1993-94. So the fraction of the labor force involved in enterprises undergoing privatization in the first two phases was of the order of 2% of the entire workforce. The fraction of the workforce laid off in these enterprises during these two phases was of the order of 50% (e.g., based on the firm-based surveys reported in La Porta and Lopez-de-Silanes (1999)) for both white collar and blue collar workers. The employment declines had started prior to the actual dates of privatization and were accentuated thereafter in the subsequent two or three years. Hence the fraction of job losses occurring during a four year window around the privatizations amounted to about 1% of the economy's work force (or 10 jobs out of every 1000 as against 1 in Bolivia and 35 in Argentina).

In contrast to the other two countries, however, unemployment in the economy as a whole fell during the first two phases of privatization. The open (urban) unemployment rate fell from 5% in 1985 to 4% in 1994. If this rate is applied to the entire economy, it is

comparable to the rate of job loss in the privatized enterprises, suggesting that in the absence of privatization the drop in the unemployment rate would have doubled.

The rotating panel feature of the employment surveys in Mexico permits López-Calva and Rosellón (2002) to follow the job experience of the workers laid off from the SOEs for one subsequent year. Approximately 45-50% of those laid off found jobs within the same sector within the next year, without loss of social security or health benefits. This suggests that even the short term impact of the job losses is approximately half of the numbers given above, i.e., about 5 workers out of 1000 were unemployed for a full year following the privatization. And of these workers, some would have gone to the informal sector or self-employment, sectors whose importance grew within the labor market (together accounting for 49% of the labor force in 1980, and 60% in 1996).

Table 9 gathers together the information concerning the scale of employment contractions in the three countries, which summarizes the main points of the discussion above: (i) the proportion of the labor force involved was small, ranging from a low of 0.13% in Bolivia to 2% in Argentina; (ii) the cutbacks were large within the privatized enterprises themselves, ranging between 30% in Bolivia to 75% in Argentina; (iii) their impact on unemployment was larger than other sectors of the economy. In the two countries where the cutbacks were larger (Argentina and Mexico), a significant fraction of the laid off workers were eventually re-employed within the same sector (45--50% within one year in Mexico, and 80--90% within four years in Argentina).

4.2 Wage Effects

In *Argentina,* Ennis and Pinto (2002) find that average (real) wages rose in both private and public sectors between 1989-95, of the order of 50—60%, reflecting recovery owing to macroeconomic stabilization. The impact of privatization on wages, however, depends on the difference in average wage levels in the two sectors. Public sector wage rates were higher on average by about 10% in 1989 and 16% in 1995. So the labor reallocation created by the privatization represented a downward effect on the average wage rate for the workforce as a whole. But this effect is unlikely to be significant, given that only 2% of the workforce was shifted in this manner. Notice also that average hours of work increased for the workers who shifted sectors, by an order of 25%, which more than outweighed the drop in the wage rate. Consequently the effect on average wage *income* was positive for the representative employed worker.

The effect of the reallocation on economy-wide wage inequality is complicated because of two counteracting effects. On the one hand there was greater wage inequality within the private sector compared with the public sector, so this exposed the transferred workers to greater wage dispersion. On the other hand, the deviation between the average public sector wage rate and the mean wage in the economy was greater than the corresponding deviation between the average private sector wage and economy-wide wage rate, so the transferred workers moved closer to the economy-wide average.[31] It

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[31] The economy-wide variance equals the weighted sum of within group variances, added to the variance of the two group means from the economy-wide mean, with the employment shares of the two sectors acting

turns out however that the former effect dominated the latter in the case of Argentina, irrespective of which year is chosen as the base. Hence the labor reallocation did increase wage inequality, but again the extent of this effect is unlikely to be significant given the small proportion of workers transferred across the sectors.

The Gini coefficient of the wage rate fell 16% between 1989 and 1995. This was essentially owing to a drop in the inequality within both public and private sectors. Based on the argument above, it would appear that it would have fallen even faster in the absence of the privatization, but the extent of the difference caused would probably have been negligible. As it turned out the fall in inequality within each sector was similar to the economy-wide fall: 14 and 17% respectively. The within-group changes are thus likely to dominate the effects of the labor reallocation caused by the privatization. Consequently one needs to understand the role that privatization may have played in reducing inequality *within* each sector --- if at all, which requires more detailed information concerning intrafirm wage distributons than are hitherto available for Argentina.

No information is available concerning the wage effects of privatization in Bolivia. In the context of *Mexico,* La Porta and Lopez-de-Silanes (1999) showed using intrafirm data that the wage rates rose in the privatized enterprises subsequent to the privatization, principally owing to rises in worker productivity. The contrast to the general stagnation wage rates in the economy during the period 1983—94 is striking. Even more surprising

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as weights. Hence the effect of a change in the employment shares is the sum of two effects: (i) difference in within group variances, and (ii) difference in variance of group means from the economy wide mean.

is the fact that the rise in wage rates was significantly higher for blue collar workers (approximately 122% between 1983-94) than for white collar workers (which rose by 77% over this period). This suggests that privatization *per se* reduced wage inequality within the privatized enterprises. The full impact will of course have to take into account the effect of the labor reallocation between public and private sectors (i.e., wage implications for those who lose their jobs in the privatized enterprises and are subsequently hired elsewhere in the private sector). The rotating panel analysis carried out by Lopez-Calva and Rosellon (2002) suggests that those who left the privatized enterprises lost in terms of a lower wage rate when they were reemployed, but they protected their incomes by working longer hours. On the other hand, most of them lost access to health and social security benefits. This will have to be counterbalanced against the trends in within sector wage dispersions.

The extent of labor reallocation involved in the privatization process was substantially larger in *Nicaragua.* Between 1993 and 1998, the private sector share in the labor force rose from 77% to 86% in the urban sector. In the rural sector it increased from 89% to 96% between 1993 and 1999. Thus the fraction of the overall labor force reallocated is of the order of at least 7—9%, and probably even greater if the entire period of privatization were to be taken into account. This reflects the fact that the process involved a transition from an erstwhile socialist economy. Since the number of privatized enterprises was also much larger, it was not feasible for Freije and Rivas (2002) to obtain intrafirm data concerning wages and employment. Consequently they have to rely on household surveys, which were carried out in 1993 and 1998/99.

As is the typical pattern, the average wage in the public sector tended to be above that in the private sector, implying that the labor reallocation *per se* tended to lower the average wage in the economy. The difference was large and growing in the rural sector: the public sector average wage was 29% higher in 1993, and 59% higher in 1998. In the urban sector the differential was 20% in 1999, and negligible in 1993.[32] Wage rates rose in the urban sector and fell sharply in the rural sector within both private and public employment. Hence the privatization process is likely to have significantly accentuated the downward drift in the average rural wage.

The effect on wage inequality is complicated as usual, and particularly so in the case of Nicaragua, where the choice of sector, base year and of units turns out to matter. Freije and Rivas (2002) find that the ordering of variances and means in the two sectors depends on whether the urban or rural sector is considered, whether the base or final year is chosen for comparison, and whether the wage or the log of the wage is chosen as the unit. Since the lognormal distribution is usually a better approximation than a normal distribution to distributional data, it perhaps makes sense to focus on the log of the wage rate as the relevant unit. In that case wage dispersion is uniformly higher in private employment, with the difference especially pronounced in the rural sector. This effect contributes to higher inequality owing to the labor reallocation. On the other hand the transferred workers move closer to the economy-wide average wage, which tends to reduce inequality. In the rural sector the balance between the two effects depends on

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[32] In fact the arithmetic mean of the wage rate was slightly lower in the public sector, while the geometric mean was slightly higher in 1993.

whether base year or final year weights are chosen. If final year weights are chosen, the overall effect on rural wage inequality is negative, but is positive if base year weights are chosen. In the urban sector the effect is positive in both cases, but the magnitude of the effect is sensitive to choice of the base year. It is thus difficult to make any simple inference concerning the overall effect of the labor reallocation on wage inequality.

Wage dispersion within the public sector rose in both urban and rural areas: this was especially sharp in the urban sector where the variance of the log wage within the public sector rose from 0.501 in 1993 to 0.736 in 1999. This seems to reflect a process of convergence of wage structures in the public sector to those in the private sector. In particular there was a steep increase in wages paid to managerial and professional employees in public employment, bringing them towards parity with private sector wages for these categories. At the same time wages for clerical workers, salesmen, and manual workers changed little. It is therefore plausible that wage structures within the public sector were responding to market pressures at the upper end, causing inequality within the public sector to grow. A decomposition analysis of the wage structure in the two sectors carried out by Freije and Rivas (2002) along the lines of Juhn, Murphy and Pierce (1993) confirms the validity of this hypothesis, even after controlling for a range of worker characteristics (such as age, gender, schooling, employment sector and nature of position held) that typically affect wages. Specifically, the convergence of public sector wage structures to the private sector at the upper end tended to explain one third of the rise of the variance of log wages in the urban sector, a proportion that was reasonably robust across choice of inequality measure (such as generalized entropy measures or

Atkinson indices corresponding to differing degrees of inequality aversion). Of course this effect is not related to the privatization process *per se,* but rather to increasing market pressures on wage structures within the public sector. It is worth noting that the dominant source of upward pressure on inequality (which far outweighs the effect of changing wage structures within the public sector) was the rise in sensitivity of market wages to worker characteristics, not surprising for a transition economy.[33] Contrasted to these changes, the contribution of the privatization process and the changes in public sector wage structures appear modest.

To summarize the experience of different countries (excluding Bolivia where data is not available and where the wage employment impact would be likely to be negligible in any case): (i) the overall labor reallocation associated with the privatization was significant in Nicaragua, unlike Argentina and Mexico; (ii) the reallocation tended to lower the average wage, since public sector wages tend to be higher on average than private sector wages; (iii) the effect of the reallocation on wage inequality is complicated owing to a set of opposing effects, with no simple pattern emerging across different countries; (iv) these effects are likely to have been dominated by changes in wage inequality within the public and private sector; (v) within sector inequality fell in Argentina during the privatization period (for reasons not yet well understood), while inequality within privatized enterprises fell in Mexico partly owing to the privatization process. Within sector

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[33] The contribution of the increased sensitivity of wages to worker characteristics typically constitutes between 130-250% of the change in overall wage inequality in the urban sector between 1993 and 1999, contrasted to a contribution of the order of 33-60% of changed wage structures in the public sector, and 16-76% of the labor reallocation arising from the privatization.

inequality rose significantly in Nicaragua (owing most likely to increasing market pressures associated with the transition process).

5. Fiscal Effects

Privatization can have important fiscal consequences. The distributive impact of the fiscal implications are less visible and difficult to estimate. But they could be just as important as their direct impact on consumers and workers. There are at least two relevant channels of impact. First, the proceeds from the privatization can be large, and be used to retire public debt or reduce fiscal deficits. They can thus serve as useful accompaniments to macroeconomic stabilization programs aimed at reducing inflation and future debt burdens. The inflation tax often falls disproportionately on the poor, while reductions in debt service burdens can free up resources for social spending programs (such as old age pensions, public schooling or health clinics). Second, many state owned enterprises tend to incur operating losses funded by subsidies from the fiscal budget. Privatization often leads to elimination of these losses, and profitable private enterprises contribute tax revenues instead of absorbing public subsidies. We now review the nature of the evidence from the four country studies concerning these fiscal effects.

In *Argentina*, the privatization proceeds were considerable: $19 billion at the federal level, and $4 billion at the provincial level. Of this, $10 billion was used to reduce the public debt, including $6.7 billion from the telecom privatization in 1990, and $2.7 billion from electricity and natural gas privatization in 1992. This amounted to about one eighths of the public debt at that time, which fell from $78.9 billion in 1990 to $69.6

billion in 1993. Interest payments on debt fell from 2.98% of GDP in 1989 to 1.70% in 1993 and 1.61% in 1994. Since the early 1980s, social spending programs have tended to be negatively correlated with debt service payments; following this general pattern social spending increased by an almost equivalent amount (from 17.63% of GDP in 1989, to 19.24% in 1994). The fiscal deficit dropped from 3.8% of GDP in 1989 to 0.1% in 1994 and 0.5% in 1995, partly a result of the additional $13 billion privatization proceeds in the form of cash. It is of course almost impossible to disentangle the specific contribution of the privatization proceeds to these, but they do seem to have played some part in the general macroeconomic stabilization in the economy that occurred during this time. Concerning annual fiscal transfers between enterprises and the government budget, the state owned sector as a whole received fiscal transfers of the order of 1.92% and 1.06% of GDP in 1989 and 1990 respectively. However some of the privatized enterprises had been profitable prior to the privatization, and data concerning this as well as their post-privatization transfers are yet to be collected (we hope to report on this in future drafts).

In the case of *Bolivia,* the privatization process was unique insofar as the government treasury did not receive any funds from the capitalizations. But there was earmarking of the proceeds for new investment in the companies, while 45% of the shares went to a *Collective Capitalization Fund (CCF)* devoted to retirement benefits. The dividends received by the CCF amounted to 0.5% of GDP in 1997 and 1999, the bulk of which accrued from the telecom sector. The CCF funded a program called *Bonosol*, which made cash payments equivalent to $248 per citizen above the age of 65, to approximately 320,000 people. These payments are significant compared with the country's per capita

income of approximately $1000. In later years the scale of these payments shrunk to about $60 between 1998 and 2000, and reached a smaller number of people (about 150,000). The total outlay on these cash payments have amounted to approximately $57 million so far. The CCF also funded private pension accounts (through an *Individual Capitalization Fund)* to the tune of $15 million, and paid out another $23 million in the form of funeral expenses.

Privatization proceeds in *Mexico* were to the tune of $23 billion between 1984 and 1993, and $10 billion during 1994-2000. These were used to retire public debt, reduce the fiscal deficit (which fell from over 15% of GDP in 1982-83, to 10% in 1984 and near zero during 1993—96), and increase social spending (which rose from 6% of GNP in 1990, to 9% in 1994 and 9.5% in 2000). Many of the privatized enterprises were converted from loss-making units to profit making entities, which presumably would have reversed the nature of fiscal transfers.

In *Nicaragua* by contrast there was a marked lack of transparency with regard to use of privatization proceeds in the first phase of privatization. Despite being of the order of 2.5% of GDP every year, they did not have any fiscal implications, nor for social spending. More recent phases have encountered an improvement on this dimension, with the privatization of electricity distribution raising 5% of GDP, 80% of which accrued to the government budget ``below the line". Hence it had no implications for the fiscal deficit, but provided a potential cushion in the form of reserves which could be used in future crises. Concerning fiscal transfers on the other hand, there is evidence of

improvement on many fronts. Three large companies that together contributed 1.1% of GDP in revenues during the 1990s increased their contribution to 2% in the four years following privatization. In the two fiscal years following CORNAP privatization, 20% of total revenue contribution by large firms came from newly privatized firms. In addition there is evidence reported by the Central Bank of Nicaragua that during the 1980s, direct and indirect subsidies to the CORNAP (i.e., privatized) enterprises amounted to 11.2% of GDP, the elimination of which has potentially huge fiscal implications.

5. Summary and Conclusions

The country case studies summarized here have principally focused on effects of privatization on consumers, workers and public finances. The exercises have been constrained severely by the nature of data available, and represent an attempt to extract whatever inferences are possible from existing data sources. The analyses ignored effects on ownership, the environment or other spillover and general equilibrium effects. Ownership changes may conceivably have distributive impacts and play a large role in public discussions of the fairness of the privatizations, concerning methods of allocating and pricing shares in the privatized enterprises. But the absence of data concerning ownership distribution prevents any assessment of this. Moreover, the ownership effects are unlikely to have much impact on the bottom half of the income distribution. To the extent that the latter is of primary interest, the consumer and worker effects would seem to be of greater importance.

Overall, the studies could not identify the reasons for the popular disenchantment with the privatization process on the basis of their distributive impact. The most widespread effects of the privatization concern the effect on consumers of essential services provided by utility companies. A lot of the public disenchantment stems from concerns about price rises resulting from privatization. Yet as we have seen there is no clear pattern concerning price changes, with prices going down in about half the cases. More important perhaps is our finding that *even if prices did go up, their effects were dominated by the corresponding increases in access that occurred in the bottom or lower half of the distribution.* The only single exception to this was the failed water concession in Cochabamba. Consequently in most cases there was no evidence of a significant increase in poverty. There was (patchy) evidence of noticeable service quality improvements following privatization, which therefore seem likely to reinforce these inferences concerning the consumer effects.

In contrast there were adverse impacts on the worker side, principally in the form of layoffs associated with the privatization. Employment contractions were significant within privatized enterprises, relative to the rest of the economy, with the cutbacks ranging from 30 to 75%. However as the privatized enterprises were typically capital intensive, the employment contractions were small in relation to the size of the aggregate labor force (2% in Argentina, 1% in Mexico, and 0.13% in Bolivia), excepting only the case of Nicaragua which underwent a more widespread privatization as part of its transition process from an erstwhile socialist economy. A significant fraction of the laid off workers seem to have been rehired subsequently in other private enterprises in the

same sector of activity in Argentina and Mexico. So the intermediate term impact has been much lower than the immediate impact. No simple inference could be made about the effects on wage levels and wage inequality, but the relatively small scale of the labor reallocation in Argentina, Bolivia and Mexico makes it unlikely that these were significant. The most significant effects are likely to have arisen in Nicaragua, where at least 7-9% of the labor force has been reallocated throughout the urban and rural sectors. This probably had a modest downward impact on the average wage rate, and raised wage inequality in the urban sector. However, these effects were dwarfed by increasing market pressure on wage structures *within* both public and private sector in the economy.

The fiscal impact of the reforms seem generally to have had favorable distributive consequences, by aiding macroeconomic stabilization, and allowing a shift in public spending away from expensive debt service obligations and funding operating losses in state owned enterprises (which eventually subsidize middle income workers and consumers), towards increased social spending (targeted more directly towards the old and the poor).

In sum, the only signs of an adverse distributive impact on the bottom half of the distribution appear (with the exception of the failed Cochabamba water concession) with respect to a small proportion of workers that were displaced from their jobs in state owned enterprises, with many of them probably getting rehired subsequently elsewhere in the economy. Against this have to be offset the advantages from lower prices, widened access to poorer consumers, enhanced service quality, and a changed structure of public

finances that benefits the poor more in a wide variety of ways. This suggests that future privatization programs can be designed in particular ways to minimize the adverse nature of their distributive impact: (a) design regulatory institutions for the privatized enterprises that ensure that prices are kept low, the firms operate under competitive pressure, are induced to innovate and keep costs low, and are set service expansion, quality and access requirements; (b) cushion the employment impact, by funding severance packages, unemployment benefits, retraining and job search assistance for the laid off employees; (c) use privatization proceeds in a transparent fashion to retire public debt and/or increase social spending. The earmarking mechanisms utilized in the capitalization process in Bolivia are notable in this respect.

In retrospect, it is striking to note the contrast between the nature of the statistical evidence and popular perceptions concerning the impact of privatization on the poor and middle classes in Latin America. This could partly reflect problems with the nature of the data, insofar as they miss important dimensions of the real welfare impact. It could also reflect biases in the formation of public perceptions. We now discuss these two possibilities in further detail.

As noted in the Introduction and subsequent sections, the data are subject to numerous limitations. The most important qualification concerns the ability of the data to accurately represent the impact of privatization on prices and access. This involves a counterfactual: e.g., what would the price path or the evolution of access have been in the absence of the privatization? Such counterfactuals are intrinsically difficult to assess, in the midst of

macroeconomic changes, widespread deregulation and trade liberalization in these economies that affected prices of utility services relative to other goods and services in the economy. Moreover, the government may have raised prices prior to the privatization to make them more attractive for private investors, which would cause the fall in prices subsequent to privatization to be artificially exaggerated. We chose surveys a few years before and after the privatization precisely for this reason, and also to avoid periods of excessive macroeconomic instability. For instance, the pre-privatization year in Argentina was chosen to be 1985-86 for both of these reasons. But this raises other potential problems: it could be that prices fell following the pre-privatization survey but before the privatization took place, in which case part of the measured price change actually occurred before the privatization. The same problems arise with the access data: e.g., some of the access changes may have occurred owing to the nature of technological change even if the privatization had not taken place (as in the case of telephones which saw the advent of cellular services). Some of the increased access may simply reflect the fact that connections that were previously illegal were now legalized, resulting in increased expenditures incurred by the poor rather than a genuine increase in access.

Nevertheless, it is not clear that there is any superior way to measure the impact of privatization on prices or access. Whenever possible the studies have attempted to assess this issue, e.g., in the case of Bolivia where the evolution of prices in privatized regions could be compared with non-privatized regions. In the cases of Bolivia and Nicaragua access to electricity was measured directly rather than by whether households incurred positive expenditures on the service. Some of the data problems apply to particular

sectors or countries and not to others: e.g., the likelihood of measured improvements in access masking the legalization of illegal connections arises mainly in the electricity sector, and even within the electricity sector not in Bolivia and Nicaragua where access is measured directly. Yet the broad conclusions appear to be similar across most sectors and countries.

The lack of price data at the household level meant that the studies had to resort to using a single price for each service (in a given region). For most part this meant that distributive impacts of tariff rebalancing that usually accompanies privatization could not be incorporated. For instance, if short distance telephone rates rise while long distance rates fall, this may affect different groups of the population differently (depending on their patterns of usage), an issue that we could not address.

Another shortcoming of the analyses is that they ignored possible environmental effects of the privatization. It is possible that private operators have neglected safety and health considerations, or maintained public facilities more poorly. Some news articles have dwelt on some of these problems (e.g., the New York Times article referred to in footnote 2 discussed the flooding of a Buenos Aires restaurant following the water privatization, possibly owing to poor maintenance of the water pipes). Yet this issue can also cut both ways. There may be a number of positive spillover effects resulting from legalization of illegal electric connections that may have occurred as a result of privatization, with reduced health hazards. Galiani, Gertler and Schargrodsky (2002) find for instance a significant effect of the water privatization in Argentina on child mortality. Comparing

regions and time periods with varying degrees of privatization they find a 5-7% drop in mortality rates in regions which privatized their services overall compared with those that did not. The drop was highest (24%) for the poorest groups, and resulted mainly from a reduction in deaths from water-borne parasitic and infectious diseases.

While data inadequacies certainly limit the inferences that can be made, it is equally possible that the divergence between popular opinion and the results of the studies reported here could stem from lack of adequate information and biases in the process by which popular perceptions are formed, besides the implicit use of different standards of fairness than customarily used by economists. There are many possible sources of bias. First, popular views are shaped by extreme cases that invite media attention, while widely diffused benefits are rarely noticed. Many of the benefits accrue to a wide range of customers, each of whom may be benefiting moderately but these are overshadowed by the dramatic losses of a few workers or customers. The fiscal benefits are even more diffuse and invisible. This reflects a number of other tensions between statistical evaluation of economic outcomes and the way that popular, more mainstream, views emerge on public policy issues. One of these is the tension described eloquently by Tom Schelling between 'personal' and 'statistical' lives (or in this case between a few personal tragedies and widespread statistical benefits calculated by aggregating the fortunes of diverse individuals within any given income or expenditure class). In addition there is the psychological phenomenon of 'loss aversion', where individuals react more sharply to losses relative to the status quo than they do to gains. There is a tendency to

focus on the immediate short term implications (e.g., with respect to job layoffs) without following through to the intermediate term (where the laid off workers may be rehired).

Other psychological biases also tend to pervade popular opinions. It is common to lump together privatization with other pro-market reforms such as fiscal contraction, trade liberalization that collectively constitute the 'Washington consensus'. Separating out the distinct roles of these different elements of policy reforms is a forbidding exercise even for academic experts. It is also difficult to isolate the effect of privatization from effects of macroeconomic shocks or other technological changes occurring in the economy of which there clearly have been many throughout the 1990s. Finally there is the tension between deeply held ideological principles (e.g., the sanctity of basic needs, such as water or electricity, which should not be left to the mercy of profit calculus of multinational corporations), and the reality of how state-owned enterprises actually perform with regard to fulfillment of these basic needs. The fact that the popular discontent is most severe in the case of water privatization lends credence to this view. Suspicions that shares in public enterprises were given away to cronies of political elites, or that the proceeds from privatization have not been used in the public interest may have fuelled much of the discontent. Finally there is a widespread pessimism concerning the ability of market pressure, media and regulatory oversight in constraining private enterprises to meet the public interest, which though realistic in some instances is exaggerated in many others.

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Appendix 1: Welfare Changes with Repeated Cross-Sections

The household surveys for Argentina, Bolivia and Mexico only provide access information for the year in which the survey was taken. As different households were surveyed each year, this means it is not possible to determine exactly which households experienced a change in access to the privatized services. Evaluation of the welfare

change from privatization therefore requires further approximating assumptions. Divide the sample into deciles, and let N_t^d be the total number of households sampled from decile d in time t, where $t=0$ denotes the pre-privatization period and $t=1$ post-privatization. Let $A_{h,t}$ be an indicator of whether household h has access ($A_{h,t}=1$) or not ($A_{h,t}=0$) at time t. At time t there are F_t^d households in decile d with access to the service, and I_t^d households in decile d without access. Then the expected welfare change to household h in decile d from privatization is:

$$E\Delta U_h^d = P(A_{h,0}=1, A_{h,1}=1)\Delta U(A_{h,0}=1, A_{h,1}=1) + P(A_{h,0}=0, A_{h,1}=1)\Delta U(A_{h,0}=0, A_{h,1}=1)$$
$$+ P(A_{h,0}=0, A_{h,1}=0)\Delta U(A_{h,0}=0, A_{h,1}=0) \qquad (A.1.)$$

Here $P(.,.)$ is the probability distribution function for household h. The last term in (A.1.) will be zero unless the prices of substitutes change. We assume that households with access in period 0 do not lose access in period 1. Then taking means of (A.1.) across all households in decile d in time 0 gives the mean expected change in welfare in decile d:

$$E\Delta U^d = \frac{F_0^d}{N_0^d}\frac{1}{F_0^d}\sum_{h:A_{h,0}=1}\Delta U(A_{h,0}=1) + \frac{1}{N_0^d}\sum P(A_{h,0}=0, A_{h,1}=1)\Delta U(A_{h,0}=0, A_{h,1}=1) \qquad (A.2.)$$

The first term in (A.2.) is just the proportion of households who have access in period 0 multiplied by the mean change in welfare for those who do have access. The second term then needs to be estimated using the period 1 survey data. We make the simplifying assumption that within a given decile, all households with access in period 1 had equal probability of having not had access in period 0.[34] Then for households with access in period 1 we have

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[34] One could compare the observable characteristics of those households within a decile that have access in period 0 to the characteristics of households with access in period 1 in order to identify dimensions along

$$P\left(A_{h,0} = 0 \mid A_{h,1} = 1\right) = \left(\frac{F_1^d}{N_1^d} - \frac{F_0^d}{N_0^d}\right) \tag{A.3.}$$

Plugging (A.3.) into (A.2.), replacing the second term of (A.2.) with period 1 reference values, and rearranging, therefore gives:

$$E\Delta U^d = \frac{F_0^d}{N_0^d}\frac{1}{F_0^d}\sum_{h:A_{h,0}=1}\Delta U\left(A_{h,0}=1\right) + \left(\frac{F_1^d}{N_1^d} - \frac{F_0^d}{N_0^d}\right)\frac{F_1^d}{N_1^d}\frac{1}{F_1^d}\sum_{h:A_{h,1}=1}\Delta U\left(A_{h,0}=0, A_{h,1}=1\right) \tag{A.4.}$$

The second term in (A.4.) is the conditional probability of having no access in period 0 given access in period 1, multiplied by the probability of access in period 1, multiplied by the mean value of gaining access for households with access in period 1. The first-order approximation of the mean decile change in welfare is therefore:

$$\begin{aligned} E\Delta U^d = &-\frac{F_0^d}{N_0^d}\frac{1}{F_0^d}\sum_{h:A_{h,0}=1}\left(\Delta\log p_j\right)w_{h,j0}x_{h,0} \\ &-\left(\frac{F_1^d}{N_1^d}-\frac{F_0^d}{N_0^d}\right)\frac{F_1^d}{N_1^d}\frac{1}{F_1^d}\sum_{h:A_{h,1}=1}\left(\log p_{j1}-\log p_{h,vj}\right)w_{h,j1}x_{h,1} \end{aligned} \tag{A.5}$$

and the second-order approximation to mean decile welfare change is similarly:

$$\begin{aligned} E\Delta U^d = &-\frac{F_0^d}{N_0^d}\frac{1}{F_0^d}\sum_{h:A_{h,0}=1}\left(\Delta\log p_j\right)w_{h,j0}x_{h,0}\left[1+\frac{\Delta\log p_j}{2}\frac{\partial\log w_{h,j0}}{\partial\log p_j}\right] \\ &-\left(\frac{F_1^d}{N_1^d}-\frac{F_0^d}{N_0^d}\right)\frac{F_1^d}{N_1^d}\frac{1}{F_1^d}\sum_{h:A_{h,1}=1}\left(\log p_{j1}-\log p_{h,vj}\right)w_{h,j1}x_{h,1}\left[1+\frac{\left(\log p_{j1}-\log p_{h,vj}\right)}{2}\frac{\partial\log w_{h,j1}}{\partial\log p_j}\right] \end{aligned} \tag{A.6.}$$

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which the increase in access has occurred. This information could then be used to allow the probability of moving from no access to access to differ across households within a decile which have access in period 1. This extension is not pursued here. There are a variety of political, strategic, geographic, and economic

Appendix 2: Poverty and Inequality with Repeated Cross-Sections.

For households with access prior to privatization, we can use the first- and second-order approximations to estimate the change in utility arising from the change in prices following privatization. We then take the pre-privatization per capita expenditure for these households, and add the estimated change in welfare divided by household size to it, to obtain household per capita welfare after privatization. For households without access pre-privatization, we can not tell which specific households then gained access. Instead, as above, we use the post-privatization households with access, and calculate their mean welfare change if they did gain access. The first and second approximations of this mean welfare change are:

$$E\left(\Delta U_h^d \mid A_{h,0}=0, A_{h,1}=1\right)=-\frac{1}{F_1^d}\sum_{h:A_{h,1}=1}\left(\log p_{j1}-\log p_{h,vj}\right)w_{h,j1}x_{h,1}, \quad and$$

$$E\left(\Delta U_h^d \mid A_{h,0}=0, A_{h,1}=1\right)=-\frac{1}{F_1^d}\sum_{h:A_{h,1}=1}\left(\log p_{j1}-\log p_{h,vj}\right)w_{h,j1}x_{h,1}\left[1+\frac{\log p_{j1}-\log p_{h,vj}}{2}\frac{\partial \log w_{h,j1}}{\partial \log p_j}\right].$$

(A.7.)

We make the simplifying assumption that all households without access in period 0 had equal chance of gaining access in period 1. Then we randomly choose households without access from the pre-privatization survey, and add the expected welfare change from access in (A.7.) divided by their household size to their pre-privatization per capita expenditure. The fraction of households without access for which this is done, τ, is the conditional probability of having access in period 1, given no access in period 0, and is given by:

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reasons that determine where increases in access occur, which can counterbalance one another to make our assumption a reasonable approximation.

$$\tau = \frac{\left(\dfrac{F_1^d}{N_1^d} - \dfrac{F_0^d}{N_0^d} \right)}{\left(1 - \dfrac{F_0^d}{N_0^d} \right)}$$

The remaining fraction, 1-τ, of households without access pre-privatization will only have a welfare change if prices of substitutes change. Otherwise, this fraction are assigned zero welfare change.

TABLE 1: MAIN FEATURES OF THE PRIVATIZATIONS

COUNTRY	YEARS	SECTORS PRIVATIZED	PROCEEDS IN US$BILLION (as % of GDP) [a]	% of LABOR FORCE IN SOEs PRIVATIZED	EMPLOYMENT CUTS AS % OF TOTAL LABOR FORCE
ARGENTINA	1989/90	Utilities, Other Manufacturing, and Services	23 (25)	1.95	1.46
BOLIVIA	1995-97	Utilities, Oil and Gas	2 (30)	<0.5	0.13
MEXICO Phase I	1982-88	Manufacturing and Services	negligible		
				| 2 |	| 1 |
Phase II	1988-94	Manufacturing and Services	23 (10)		
Phase III	1994-00	Utilities	10 (3)	n.a.	n.a.
NICARAGUA Phase I	1991-96	All	0.24 (14)	7-9	n.a.
Phase II	1996-02[b]	Electricity, Telephones, Energy	0.17 (5)	n.a.	n.a.

Notes:

a. Proceeds are given as percentage of the GDP in a midpoint year of the privatizations

b. Liberalization of Electricity in 1997, Privatizations in 2000-02

n.a. denotes information not available

TABLE 2: ACCESS TO INFRASTRUCTURE
Percentage of Households with Access by Decile

| | Year | Household Expenditure per capita Decile | | | | | | | | | |
		1	2	3	4	5	6	7	8	9	10	Total
Argentina (urban)												
Water and Electricity[a]	1985/86	64.8	81.5	87.8	91.2	93.3	93.9	97.4	96.4	97.8	99.3	90.3
	1996/97	82.5	91.6	94.0	94.5	94.9	94.7	95.9	96.1	96.1	96.9	93.7
Telephone[a]	1985/86	18.4	26.5	33.7	43.6	47.0	49.6	61.4	67.2	75.9	82.3	50.4
	1996/97	22.8	39.6	53.5	57.7	68.5	78.2	82.7	86.7	89.8	92.9	67.2
Bolivia (urban)												
Electricity[b]	1994	89.2	93.3	93.2	94.6	96.6	97.7	98.1	98.0	98.8	99.7	96.0
	1999	98.9	95.0	97.9	96.9	100.0	100.0	100.0	100.0	99.9	100.0	98.8
Telephone[a]	1994	2.9	7.2	8.1	9.4	13.4	22.3	27.4	35.6	48.6	69.7	25.5
	1999	7.9	6.9	13.0	22.9	33.4	35.2	36.7	42.6	58.6	62.0	31.0
Water[c]	1994	64.5	68.1	74.7	73.2	76.4	83.0	85.1	91.1	91.5	95.5	80.6
	1999	89.1	82.5	89.1	89.0	87.8	95.7	98.7	97.7	95.7	97.8	92.1
Mexico (all)												
Telephone[a]	1992	2.0	3.3	5.1	5.7	10.1	14.1	19.9	26.4	39.1	60.8	18.6
	1998	3.9	6.0	9.1	12.6	15.9	21.8	28.4	37.9	54.8	72.8	26.3
Water[c]	1992	22.0	30.5	39.1	44.3	48.8	54.1	63.0	66.0	75.0	87.1	53.0
	1998	27.9	35.8	39.3	44.8	49.4	58.5	64.8	72.1	83.3	89.9	56.6
Nicaragua (all)												
Electricity[d]	1993	11.1	25.2	36.2	53.4	64.4	68.5	78.5	81.7	82.0	78.0	57.9
	1998	11.3	29.5	40.3	58.4	72.0	77.2	88.5	91.4	93.2	84.9	64.7

Notes:

a - Household has access if it reports positive expenditure on the infrastructure item.

b - Household has access if their dwelling has electricity.

c - Household has access if the water network reaches the building they are living in.

d - 1993 figures obtained from 1998 survey using a question as to whether the household has had electricity installed within the past five years

TABLE 3: HOW MUCH OF THE INCREASE IN ACCESS IS DUE TO PRIVATIZATION?
Access to Water by Region and Year in Bolivia

Quintile	La Paz/El Alto			Other main cities			Difference in difference		Triple Difference
	1992	1994	1999	1992	1994	1999	92-94	94-99	
1	53.3	66.1	88.8	57.4	66.4	82.5	3.8	6.6	-0.6
2	70.7	73.3	93.3	69.8	74.2	86.9	-1.8	7.4	2.4
3	76.0	77.4	95.6	75.7	80.6	89.4	-3.5	9.5	3.6
4	87.1	89.8	100.0	84.1	87.5	97.3	-0.7	0.4	0.4
5	96.2	94.6	100.0	87.8	93.1	95.4	-6.9	3.1	4.1
Overall	78.1	81.7	94.4	75.6	80.3	90.7	-1.0	2.2	1.0

Notes: The difference-in-difference is the change in La Paz/Alto less the change in the other main cities of Cochabamba and Santa Cruz. The Triple difference is the difference between one-fifth the double difference over 1994-99 and one half the double difference over 1992-94.

TABLE 4: PRICE CHANGES WITH PRIVATIZATION

(real price indices relative to Consumer Price Index, before privatization=100)

	Argentina		Bolivia		Mexico		Nicaragua	
	before	after	before	after	before	after	before	after
Telephones	100	83.9	100	91.7	100	147.9		
Electricity	100	67.5	100	126.2			100	124.2
Water	100	84			100	109.2		
- La Paz/El Alto			100	89.5				
- Cochabamba			100	143				

sources for indices:

Argentine water data from Galiani et al. (2002), Table 3, electricity are residential final prices from FIEL (1999),
telephone is based on the communications price index from Instituto Nacional de Estadística y Censos (INDEC)
Bolivian telephone prices are the minimum fixed tariff from Instituto Nacional de Estadistica (INE), electricity
prices are residential tariff rates from Superintendencia de Electricidad, Bolivia, and water rates are the tariff
for 10 cubic metres from INE for La Paz/El Alto, and rates in Cochabamba are R2 category rates (very poor users)
from The Democracy Center.
Mexican water prices are from CONAGUA (Comisión Nacional del Agua) and PROFECO (Procuraduría Federal
del Consumidor), telephone prices are residential monthly subscription charges from ITU (2001).

TABLE 5: SELECTED QUALITY INDICATORS

Bolivia

Sector	Quality Measure	Legal Limit or Goal	Actual[1]	
Electricity	Average response time (hours) to users technical complaints	3	2.26	
	Average interruption frequency per user	25	4.7	
	Index of commercial complaints	12	1.14	
Telephone				
- long distance	Percentage of rural towns connected	25	32.66	
	Percentage of National Long Distance calls completed	55	69	
	Percentage of faults corrected within 3 days	85	88	
- fixed line	*Cotas* Digitalization (%)	80	96	
	Cotel Digitalization (%)	5	5	
	Cotas Incidence of Faults (%)	40	8	
	Cotel Incidence of Faults (%)	60	27	
		1993	*1999*	
	Waiting list for main lines (1000s)	50	8	

Mexico

Sector	Quality Measure	*1990*	*1995*	*1997*
Telephone	Waiting time for new connection (days)	2.5 years	72	30
	Faults per 100 lines per year	6.0^2	4.6	3.3
	% digital main lines	38.6^3	88	90.1
	Number of pending connections	259875^2	70798	91367

Argentina

Sector	Quality Measure	*1989/90*	*1994*	*1997/98*
Telephone	Digitalization (%)	13	63	100
	Lines in Service	3139685	4886957	6852086
	Faults per 100 lines per year	42.4^3	37.2	17.2
	Average repair waiting time (days)	11	3	.
		1992/93	*1994-99*	
Water	Spilled Water (millions of m^3/day)	1.49	1.27	
	Average delay in attending claims (days)	180	32	

Notes:

1. Electricity results are an average of results reached by five firms: CRE, ELECTROPAZ, ELFEC, ELFEO and CESSA, in 1999; Telephone results are for 1997.

2. 1993 data, as 1990 data unavailable.

3. 1991 data as 1990 data unavailable

additional sources:

Argentine water measures are from Galiani et al. (2002)

TABLE 6: BUDGET SHARES ON INFRASTRUCTURE BY DECILE
(all households - including those without access)

	Year	Expenditure per capita decile									
		1	2	3	4	5	6	7	8	9	10
Argentina (urban)											
Telecom	85/86	0.3	0.3	0.5	0.8	0.7	0.6	1.0	0.9	1.0	1.1
	96/97	1.8	2.2	2.3	2.6	2.4	2.7	2.5	2.6	2.3	2.2
Water &	85/86	2.3	2.6	2.6	2.9	2.3	2.6	2.4	2.3	2.0	1.8
Electricity	96/97	4.7	4.2	3.7	3.6	3.1	2.9	2.7	2.5	2.1	1.5
Bolivia (urban)											
Telecom	1994	0.1	0.3	0.4	0.3	0.5	0.9	1.0	1.5	2.0	2.8
	1999	0.3	0.2	0.6	0.9	1.3	1.3	2.2	2.2	4.6	4.4
Water	1994	2.2	1.9	1.6	1.6	1.6	1.9	1.9	1.9	1.8	1.4
	1999	2.1	1.5	1.9	1.8	1.8	2.1	2.0	1.8	1.7	1.7
Electricity	1994	4.8	4.1	3.9	4.0	3.9	4.2	3.9	3.7	3.6	2.9
	1999	4.4	3.6	4.0	3.9	3.4	3.4	3.7	3.6	3.5	2.9
Mexico											
Telecom	1992	0.1	0.1	0.4	0.4	0.6	1.0	1.2	1.5	2.0	2.4
	1998	0.1	0.2	0.6	1.0	1.4	1.8	2.4	2.6	2.9	3.1
Water	1992	0.9	1.1	1.1	1.1	1.1	1.0	1.0	1.0	0.8	0.6
	1998	1.2	1.0	1.3	1.2	1.2	1.2	1.2	1.0	0.9	0.6
Nicaragua											
Electricity	1993	2.5	1.9	1.6	2.1	2.3	2.3	3.4	3.5	3.6	3.4
	1998	0.4	0.8	1.1	1.3	1.5	1.9	1.7	2.1	2.1	1.8

TABLE 7: VALUING THE JOINT EFFECT OF PRICE AND ACCESS CHANGES ON CONSUMERS
Change as a Percentage of Per Capita Total Household Expenditure

pre-privatization expenditure per capita decile	Electricity Reforms in NICARAGUA						ARGENTINA (urban)			
	Households with Access Both Periods		Households who gain access		Overall Effect		Electricity Overall Effect		Telephone Overall Effect	
	1st-order approx.	2nd-order approx.	1st-order approx.	2nd-order approx.	1st-order approx.	2nd-order approx.	1st-order approx.	2nd-order approx.	1st-order approx.	2nd-order approx.
1	-0.78	-0.76	12.99	12.66	-0.09	-0.05	3.05	3.32	0.10	0.14
2	-0.55	-0.54	15.98	16.55	-0.16	0.58	2.22	2.48	0.29	0.37
3	-0.59	-0.58	15.61	16.25	-0.24	0.47	1.79	2.03	0.47	0.61
4	-0.48	-0.46	5.38	6.29	-0.27	0.07	1.71	1.94	0.47	0.59
5	-0.43	-0.40	5.38	6.27	-0.32	0.22	1.19	1.41	0.51	0.67
6	-0.53	-0.49	3.57	4.30	-0.41	0.04	1.29	1.51	0.66	0.86
7	-0.43	-0.39	1.69	2.41	-0.37	-0.07	1.11	1.32	0.55	0.72
8	-0.50	-0.43	2.02	2.59	-0.45	-0.10	1.08	1.29	0.45	0.63
9	-0.49	-0.39	1.38	1.84	-0.45	-0.11	0.88	1.09	0.39	0.57
10	-0.49	-0.36	0.74	1.25	-0.40	-0.19	0.81	1.02	0.36	0.52

pre-privatization expenditure per capita decile	BOLIVIA (urban)									
	Electricity Overall Effect		Telephone Overall Effect		Water					
					scenario 1		scenario 2		Cochabamba	
	1st-order approx.	2nd-order approx.	1st-order approx.	2nd-order approx.	1st-order approx.	2nd-order approx.	1st-order approx.	2nd-order approx.	1st-order approx.	2nd-order approx.
1	11.97	17.36	0.23	0.34	4.12	6.93	0.94	1.48	-0.99	-0.95
2	0.76	1.56	0.13	0.13	0.83	1.58	0.31	0.50	-1.08	-1.04
3	3.48	5.64	0.50	0.70	2.01	2.96	0.46	0.63	-0.55	-0.52
4	1.60	2.65	1.80	2.69	1.30	2.63	0.43	0.77	-0.69	-0.66
5	2.11	3.57	4.06	5.80	1.29	1.94	0.87	1.29	-0.95	-0.92
6	0.97	1.98	4.05	5.65	1.15	1.86	0.47	0.70	-0.76	-0.72
7	0.86	1.62	3.55	4.65	0.85	1.29	0.17	0.17	-0.75	-0.71
8	0.78	1.60	2.62	3.71	0.60	0.83	0.18	0.19	-0.38	-0.34
9	0.02	0.42	8.38	10.51	0.42	0.62	0.26	0.33	-0.50	-0.46
10	-0.50	-0.41	-7.44	-9.27	0.42	0.54	0.15	0.16	-0.57	-0.53

Notes:

Scenarios 1 and 2 water results for Bolivia are for the cities of El Alto and La Paz only.

For Bolivia, scenario 1 is the overall effect assuming all of the increase in access is due to privatization, scenario 2 is the overall effect assuming that only the increase in access relative to increases in Santa Cruz and Cochabamba is due to privatization.

**TABLE 8: THE CONSUMER EFFECT OF PRIVATIZATION ON INEQUALITY AND POVERTY**

	Actual measure prior to privatization	Estimated measure after privatization effect								
		Electricity		Telephones		Water		Water in Cochabamba	
		1st-order approx.	2nd-order approx.	1st-order approx.	2nd-order approx.	1st-order approx.	2nd-order approx.	1st-order approx.	2nd-order approx.
ARGENTINA (urban)									
INEQUALITY MEASURES									
Gini Coefficient	0.400	0.396	0.396	0.396	0.396				
Atkinson Indices - A(0.5)	0.130	0.128	0.127	0.129	0.128				
A(1)	0.241	0.238	0.237	0.237	0.237				
A(2)	0.424	0.519	0.482	0.417	0.417				
POVERTY MEASURES									
Headcount (α=0)	0.113	0.095	0.095	0.102	0.102				
Poverty Gap (α=1)	0.032	0.027	0.027	0.029	0.029				
Distribution Sensitive (α=2)	0.013	0.011	0.011	0.012	0.012				
BOLIVIA (urban)									
INEQUALITY MEASURES									
Gini Coefficient	0.442	0.440	0.442	0.455	0.464	0.435	0.430	0.442	0.442
Atkinson Indices - A(0.5)	0.164	0.162	0.163	0.171	0.176	0.159	0.156	0.164	0.164
A(1)	0.278	0.275	0.278	0.293	0.303	0.270	0.265	0.278	0.279
A(2)	0.660	0.652	0.649	0.641	0.641	0.652	0.647	0.660	0.660
POVERTY MEASURES									
Headcount (α=0)	0.625	0.615	0.610	0.572	0.566	0.618	0.612	0.646	0.625
Poverty Gap (α=1)	0.259	0.253	0.251	0.240	0.240	0.250	0.245	0.262	0.259
Distribution Sensitive (α=2)	0.136	0.132	0.132	0.129	0.128	0.130	0.125	0.138	0.136
NICARAGUA									
INEQUALITY MEASURES									
Gini Coefficient	0.556	0.557	0.557						
Atkinson Indices - A(0.5)	0.265	0.266	0.266						
A(1)	0.428	0.430	0.430						
A(2)	0.634	0.636	0.636						
POVERTY MEASURES									
Headcount (α=0)	0.352	0.351	0.352						
Poverty Gap (α=1)	0.145	0.146	0.146						
Distribution Sensitive (α=2)	0.081	0.082	0.082						

Note: For Bolivia the Water privatization refers to the successful concession in La Paz/El Alto and assumes all of the increase in access is due to privatization. See Barja, McKenzie and Urquiola (2002) for results under alternate assumptions. City-level counterfactual poverty and inequality measures are scaled to be comparable to the overall actual urban levels in the first column.

TABLE 9: EMPLOYMENT CONTRACTIONS IN PRIVATIZED ENTERPRISES/SECTORS

	percent of (urban) economy's workforce in privatized sectors prior to privatization	employment cutbacks as percent of urban economy's workforce	employment cutbacks as percent of pre-privatization employment in the privatized firms	employment cutbacks as percent of increased unemployment in the economy (period)	re-employment rates within the same sector
ARGENTINA	7	2	75	13 (1987/90--1997)	80-90 (within four years)
BOLIVIA	less than 0.5	0.13	30	3 (1995--2000)	n.a.
MEXICO	4	1	50	-100 (1983--94)	45-50 (within one year)

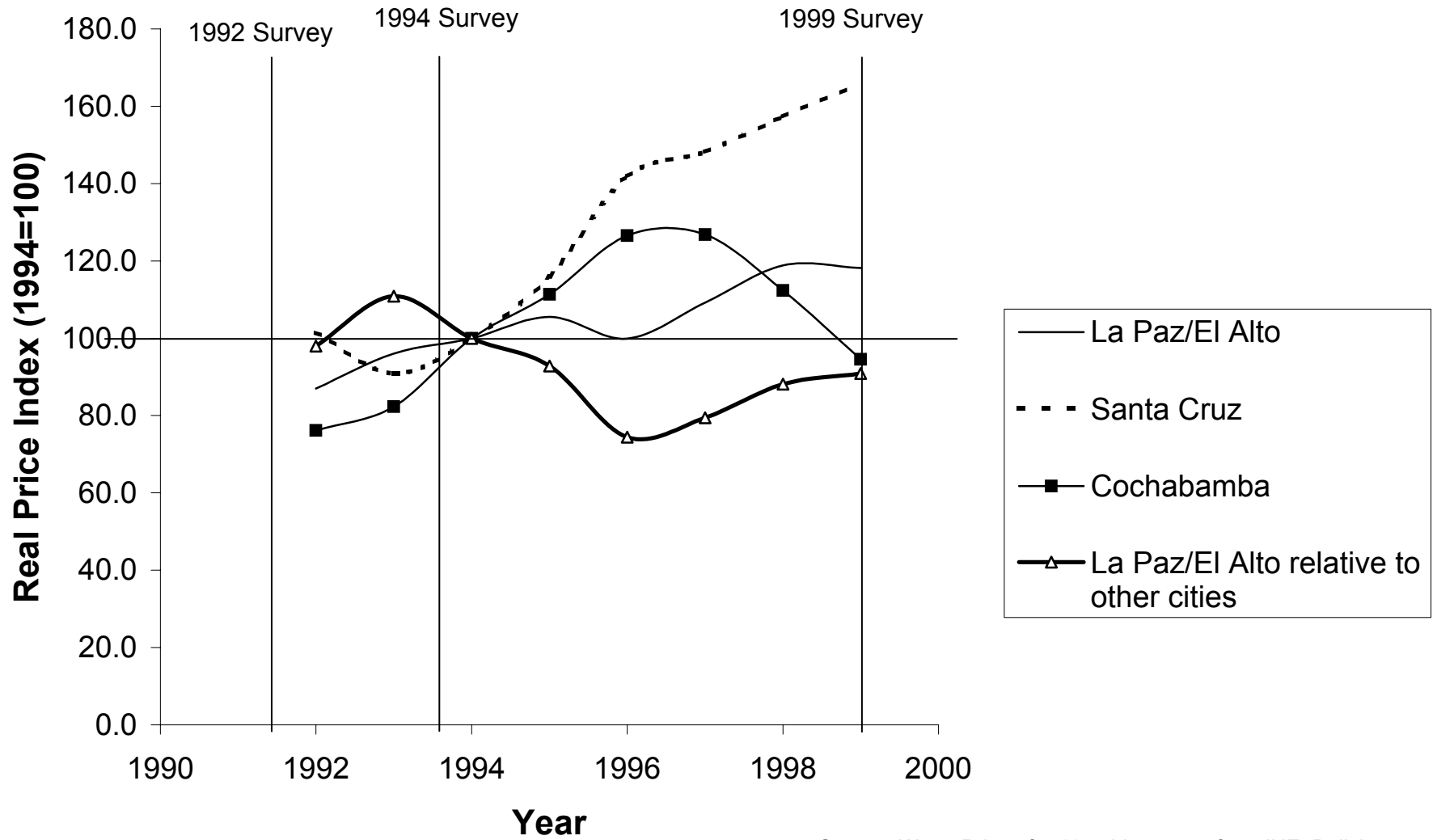# Figure 1: Evolution of Prices in Argentina
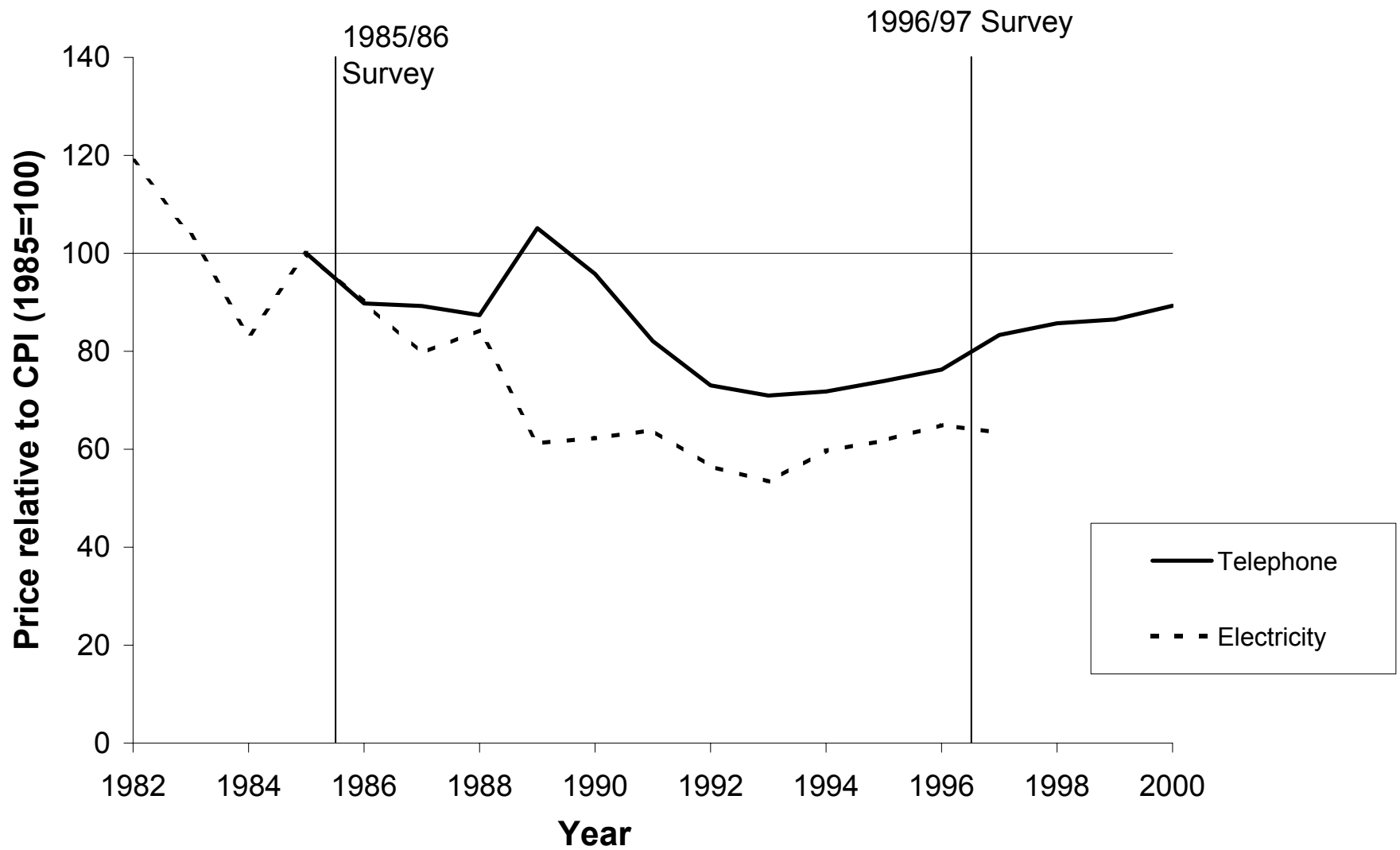
Sources: Electricity from FIEL (1999), Telephone from INDEC, CPI from INDEC

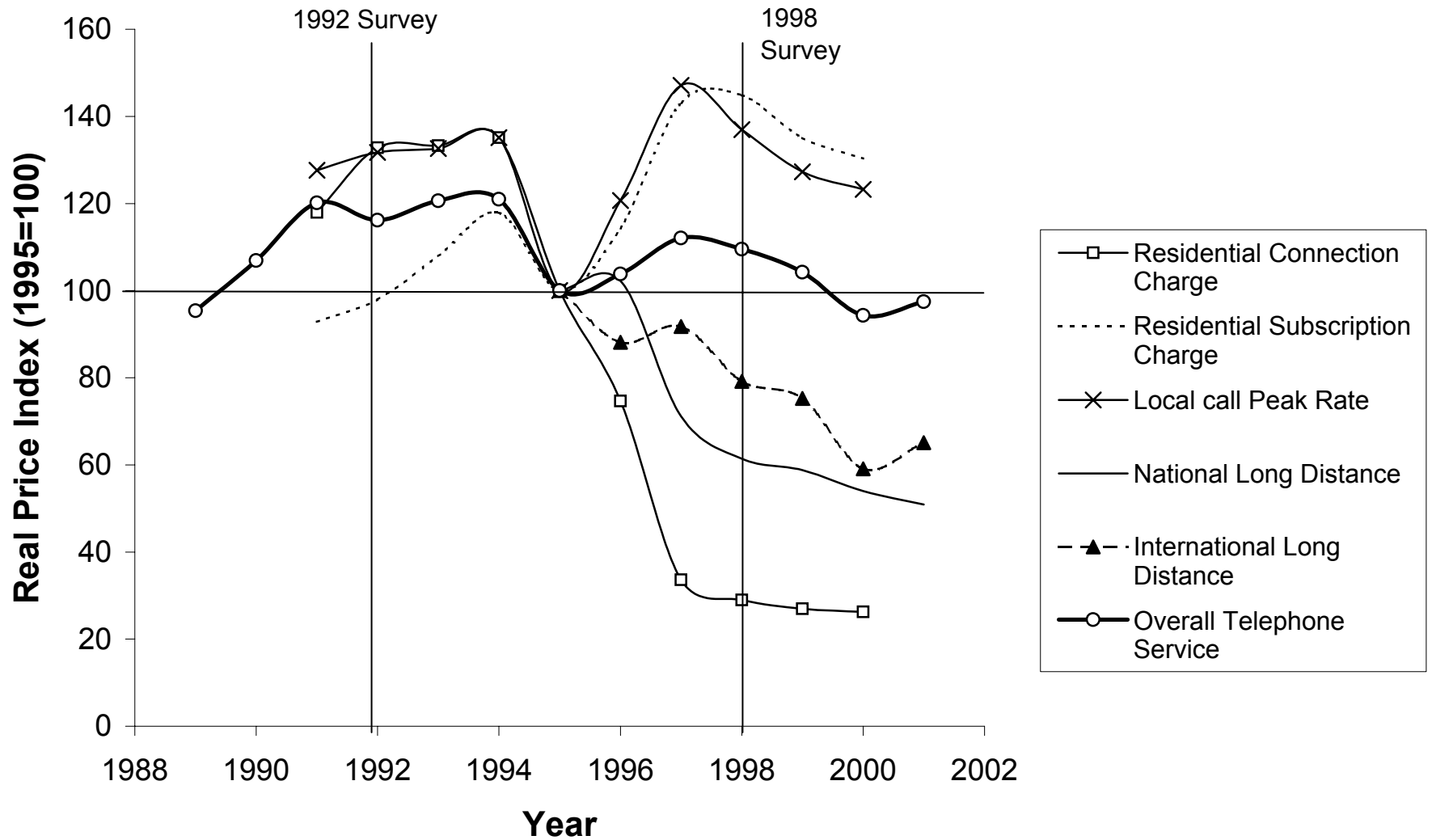**Figure 2: Electricity Prices in Bolivia 1992-99**
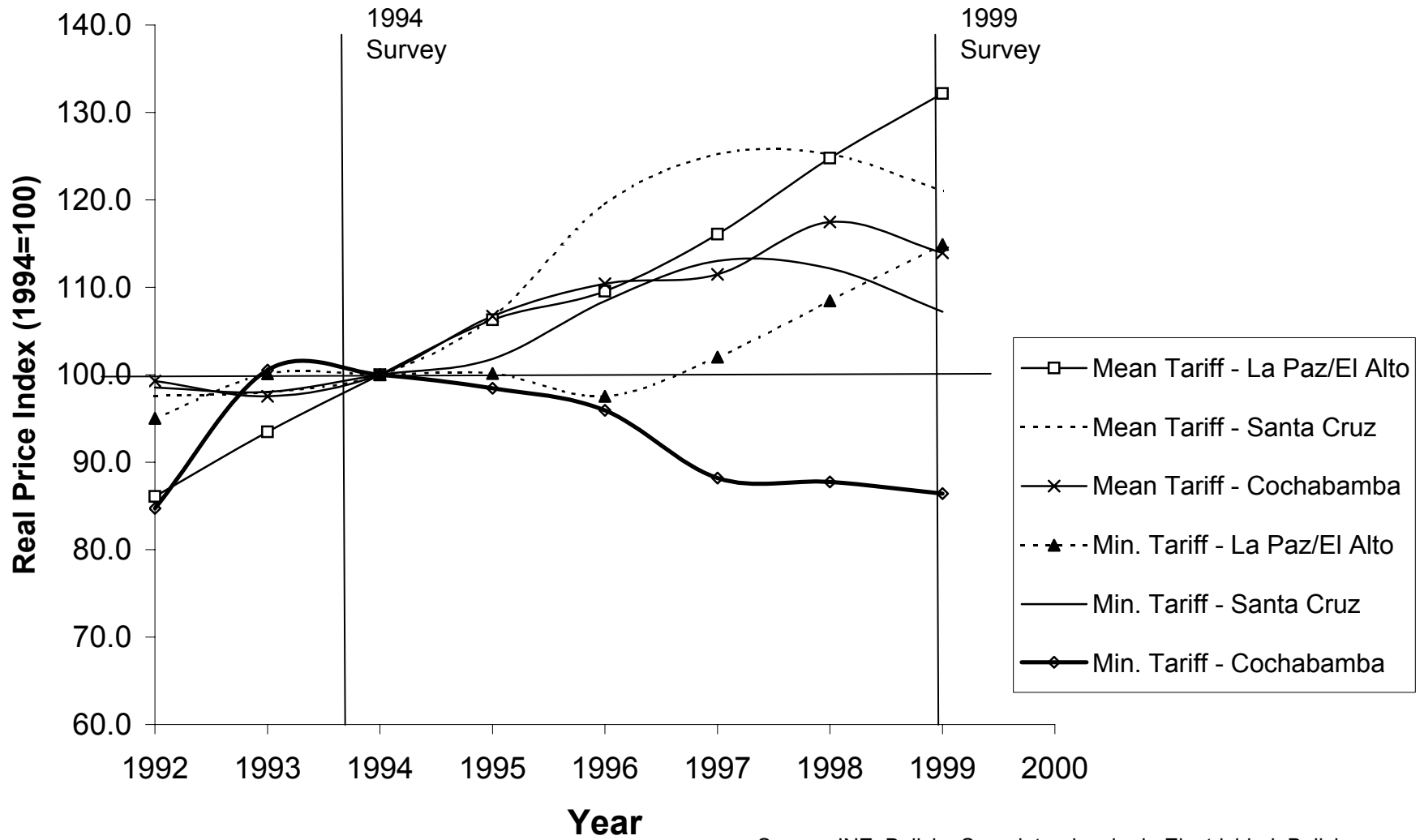
Source: INE, Bolivia, Superintendencia de Electricidad, Bolivia.

Figure 3: Water Prices in Bolivia 1992-99

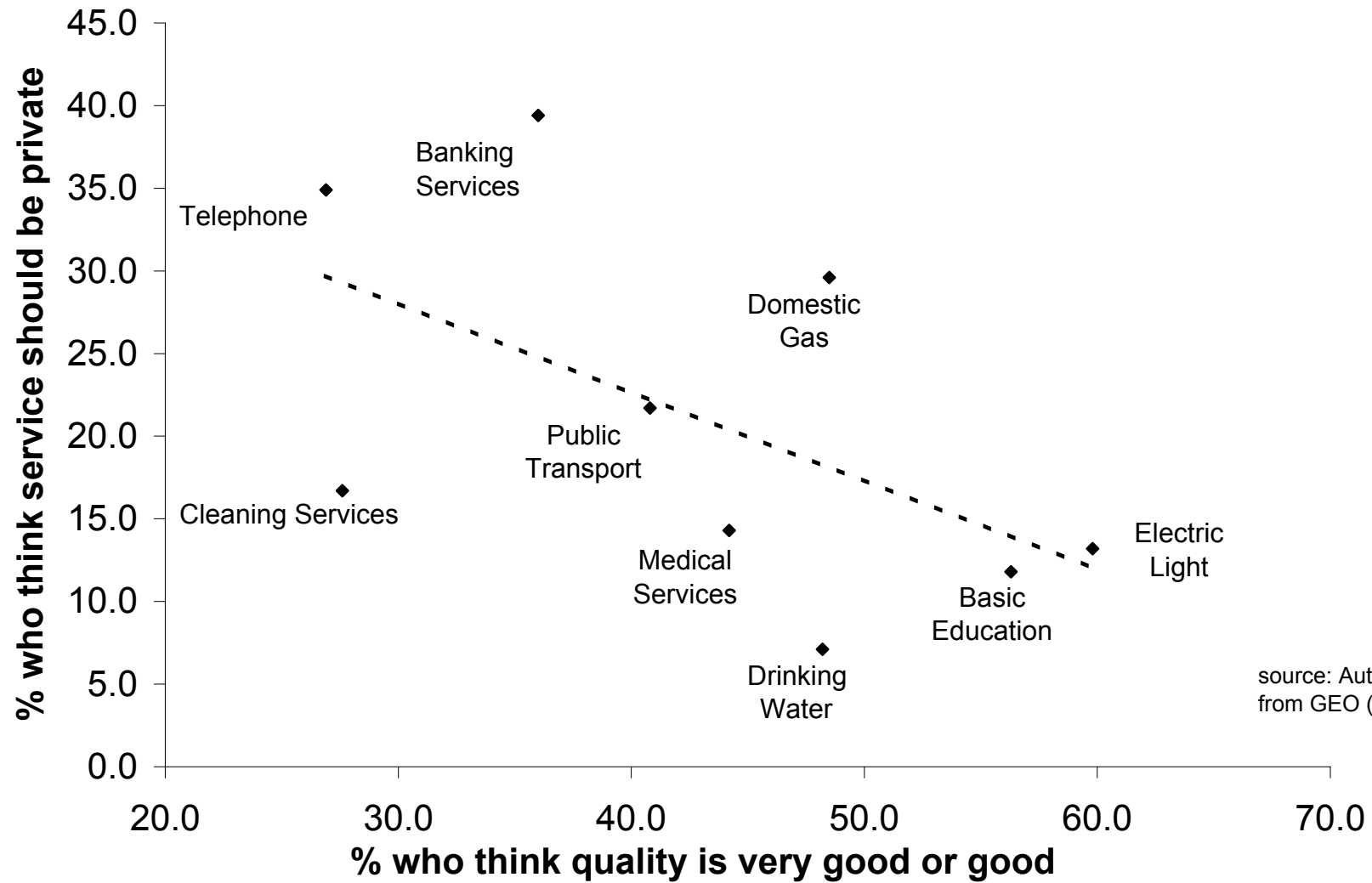Source: Water Prices for 10 cubic metres from INE, Bolivia

Figure 4: Evolution of Telephone Prices in Mexico

Sources: ITU (2001), Banco de Mexico national CPI by expenditure item

Figure 5: Support for Privatization and Perceived Service Quality - Results from a 1992 Mexican Poll

Banking
Services

Telephone

Domestic
Gas

Public
Transport

Cleaning Services

Medical
Services

Electric
Light

Basic
Education

Drinking
Water

source: Author's calculation
from GEO (1992)

% who think service should be private

% who think quality is very good or good