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ABSTRACT

The Impact of Divorce on School Performance: Evidence from France, 1968-2002*

For given observable parental characteristics, children with divorced or separated parents tend to perform less well at school than children living with their two parents. This result has been used to argue that softening divorce legislation might be bad for children. This might, however, just reflect a selection effect: parents who decide to separate are presumably parents who fight with each other, etc., and it is unclear whether children growing up in a high-conflict, two-parent family are better off than children with separated parents. In this Paper, I develop two identification strategies suggesting that the selection hypothesis is indeed relevant. First, I look at the school performance of children a couple of years before their parents separate, and I show that they are doing as bad as children already living with only one of their parents. Next, I exploit the large increase in separation rates following the 1975 divorce law reform (as well as cross-regional variations in divorce rates) to show that the performance gap of single-parent children is a declining function of the separation rate, with an elasticity close to -1. Taken together, my results suggest that parental conflicts (rather than separation per se) are bad for children, and that the distribution of conflict intensity between couples has been fairly stable over time and was not significantly affected by the change in divorce law.

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1. Introduction

For given observable parental characteristics (education, occupation, region, etc.), children living in single-parent families (or with only one of their parents and his/her new mate) tend to perform less well at school than children living in (intact) two-parent families. This performance gap is large and highly significant. The existence of such a performance gap has been established in a large number of studies by sociologists and economists in several countries.[1] These results are frequently referred to in the public debate in order to argue that softening divorce legislation might entail negative consequences for children.[2] In the U.S., the Bush administration has recently decided to spend more resources to encourage stable marriage, a move that was largely motivated by the view that traditional two-parent families are preferable for children.

Such results raise serious interpretation problems, however. A central limitation of these studies is that divorce is not an exogenous event with respect to other determinants of child outcomes. Presumably, couples who decide to divorce are couples who fight with each other, who do not get along very well, etc. Therefore the measured negative impact of single-parenthood on school performance might just be due to a selection effect. The experience of parental separation and growing up with only one biological parent might not entail any causal effect per se, and the measured negative impact might simply be due to the fact that children with fighting parents perform less well at school (irrespective of whether or not their parents actually separate). One could very well argue that breaking up harmful marriages (e.g. thanks to easier divorce legislation) can actually be beneficial for children. In order to settle the issue, one would need to compare children living in single-parent families with children living in two-parent families where parents fight as much as in the initial two-parent family. Given that it is impossible to observe directly whether parents fight or not,[3] one needs to find alternative ways to address this problem.

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[1] See e.g. Gruber (2000) for references to the U.S. literature and Archambault (2001) for similar results using French data.

[2] For instance, such arguments were frequently used by members of the Jospin government in France during the 1997-2002 period, and this played an important role in Jospin's final decision not to introduce unilateral divorce into French legislation.

[3] See however Dronkers (1999), who uses survey questionnaires on parental conflicts and finds that children living in "high-conflict" two-parent families are doing as bad at school as children living with a single parent, which is consistent with the selection hypothesis and with the results presented in this paper. The problem with this kind of direct evidence on conflicts is that there is no simple metric to

In this paper, I develop two identification strategies to address the selection issue. First, I look at the school performance of children a couple of years before their parents separate, and I show that they are doing as bad as children already living with a single parent. Controlling for pre-separation school performance, separation has no residual impact. These results confirm that selection effects play a key role: children seem to suffer from the fact of growing up with fighting parents, not from the separation per se. Although looking at pre-sepration kids is a fairly straightforward strategy, this had apparently never been explored in a systematic way before the present paper. One reason is probably that most panel data sets are simply not large enough to include sufficiently many observations of couples in the process of separation to perform statistically significant econometric analysis (annual separation rates are fairly small – typically around 1-2%). In order to get around this difficulty, I put together all Employment Surveys conducted annually in France over the 1968-2002 period (about 150,000 individuals have been interviewed each year since 1968, and the survey sampling is based upon a three-year rotating panel – more details on this below).

One may be tempted to conclude from the results on pre-separation children that divorce legislation has little impact on the school performance of children: even if the parents who are about to split were forced to stay together (e.g. through restrictive divorce legislation or high-powered tax incentives), school performance would be just as bad. Such a conclusion would be premature, however. First, couples who split later in their life might have non-observable characteristics that make them worse parents (e.g. they are less able to make long term plans) than those who split earlier, and the performance of their kids might have been worse than those of other parents had they splitted earlier. Next, and most importantly, divorce legislation might have an impact on pre-divorce parental behavior. I.e. pre-separation parental conflict partly reflects the fact that parents have already entered a pre-divorce stage.[4] It is conceivable that parents would fight less if they knew they couldn't divorce. According to this view, parents can make efforts to avoid conflict and offer a stable environment to their children, and the decline in the legal and social costs of divorce

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measure the intensity of parental conflict. In particular, there is no way to know in any precise manner how the level of conflict achieved by the "high-conflict" families identified by Dronkers compares to the average pre-separation conflict levels of already separated families.

[4] See e.g. Cherlin and Morisson (1995), who argue that it is natural to expect children to begin suffering from divorce a few years before actual divorce, to the extent that parents have already entered a pre-divorce stage.

since the 1970s has led to less parental effort, more conflict, and substantial negative consequences for children. The alternative view is that the fraction of fighting parents (or more generally the distribution of conflict intensity) is approximately constant over time, and that the conflict threshold above which parents decide to divorce has been declining since the 1970s (thanks to the decline in the costs of divorce). I show with a simple structural model of parental conflict and divorce that if that was the case, then one should typically observe that the school performance gap between children with separated parents and children living with their parents has dropped sharply since the 1970s (this test provides a sufficient condition to validate the selection model, but it is not necessary). Conversely, if the decline in the costs of divorce induced less parental effort and more conflict, then the performance gap should have been stable (reflecting the true causal impact of divorce, via increased conflict).

In order to test these two competing views, I exploit the fact that the number of divorce, and consequently the fraction of children living with a single parent, have increased enormously in France since the 1970s (see Figures 1 and 2). The rise was particularly strong following the introduction of no-fault, mutual-consent divorce into the French legislation in 1975 (there exists no unilateral divorce in France), but it was already apparent in the early 1970s. In addition to these time variations, I also use the very large cross-regional variations in divorce rates that exist in France, e.g. between high-divorce, dechristianized areas such as the Paris region and the South-East region and low-divorce, Christian western regions such as Vendée and Britanny (presumably religion affects the perceived social costs of divorce). I find that the performance gap of single-parent children is systematically smaller in region-year cells where the fraction of single-parent is higher. I estimate an elasticity of the performance gap with respect to the fraction of single-parent children around –1, i.e. the performance gap declines by almost 1% when the single-parent fraction rises by 1%. This result suggests that the distribution of conflict intensity between couples has been fairly stable over time and was not significantly affected by the change in divorce law, and that softening divorce legislation might have a positive impact (or a limited negative impact) on overall school performance.

Insert Figures 1 and 2

My results and policy conclusions differ not only from traditionnal OLS estimates of the impact of divorce on school performance, but also from more recent attempts to address the selection issue. In particular, Gruber (2000) has attempted in a recent paper to get around the endogeneity of divorce by exploiting variations in the timing of divorce liberalization in U.S. states since the 1960s-1970s. Gruber uses census files for 1960, 1970, 1980 and 1990, collapses the data into year x state x age cells, and finds that adults who grew up in states with unilateral divorce legislation have lower educational attainment (Gruber does not observe which adults actually experienced divorce, so he only looks at average educational attainment for this cell). Gruber concludes that unilateral divorce is bad for children. One problem with this approach is that it is difficult with decennal data to identify the impact of changes in divorce legislation on divorce rates (see e.g. the pre-existing trend in the case of the 1975 French reform), especially given that most U.S. states (and most Western countries for that matter) passed their liberalisation reform around the same years, in the late 1960s and early 1970s. Next, and mostly, what in my view makes this empirical strategy unconvincing is that there are all sorts of reasons why average educational attainment varies across year x state x age cells, so that it is extremely difficult to identify the impact of divorce on the basis of cell averages. In France, it happens to be the case that regions and years where divorce rates have increased more than average are also regions and years where school performance has increased more than average, so applying a methodology similar to that of Gruber would tend to yield opposite results (depending on the specification). It seems more realistic to allow for cell-level fixed effects and to work with the educational performance differential between single-parent children and two-parent children (assuming that all children are equally affected by cell-level fixed effects), which is the methodology used in this paper.

Another paper that is closely related to the present work is Bjorklund and Sundström (2002). Bjorklund and Sundstrom find that siblings who were not personally exposed to the separation of their parents (because parental separation occurred after they left home) have an educational attainment that is just as low as that of their younger brothers and sisters that were exposed to separation. This is fully consistent with my findings showing that pre-separation kids are doing as bad at school as single-parent children, which is reinsuring, given that Bjorklund and Sundstrom are using a completely different kind of data (they use Swedish census data and observe

educational attainment of siblings as adults). However Bjorklund and Sundtrom do not address the possibility that the perspective of divorce might have an impact on pre-divorce parental behavior.[5]

Finally, Stevensons and Wolfers (2000) have recently shown by exploiting divorce legislation variations across U.S. states and annual state-level series on suicide, domestic violence, etc., that the introduction of unilateral divorce was associated to a decline in female suicide and male domestic violence. Although their outcome of interest is quite different from mine, the spirit of their results is similar : by forcing high-conflict couples to stick together longer than they should, restrictive divorce legislation can have harmful consequences.

The rest of this paper is organized as follows. Section 2 presents my results showing that pre-separation children are doing as bad as single-parent children. Section 3 sets up a simple structural model of parental conflict and divorce and presents my results showing that the impact of separation is smaller when separation rates are higher. Section 4 concludes.

2. Pre-Separation Children Are Doing as Bad as Single-Parent Children

2.1. Data Sources

The results presented in this paper are based primarily on micro data files coming from the Employment Surveys conducted annually in France over the 1968-2002 period by INSEE (the French national statistical institute). [I also present additional results based upon the 1999 INSEE Family History Survey and the 1995-2002 French Education Ministry Panel – these data sets will be described when appropriate]. The basic methodology of French Employment Surveys has remained virtually unchanged since 1968: every year in March, all individuals aged 14 or over (about 150 000 individuals) living in a nationally representative sample of households (about 70 000 households) are being asked hundreds of questions about education,

[5] Another limitation of their paper is that they do not fully describe the size and structure of their identifying subsample, which seems relatively small. Bjorklund and Sundstrom start from a sample of the Swedish population born in Sweden between 1951 and 1963, observe in the 1960, 1965, 1970, 1975 and 1980 censuses whether the members of their sample leave with their parents, whether their parents are separated, etc., and finally measure their educational attainment in 1996.

occupation, hours of work, etc. Over a 35-year period (1968-2002), this makes about 5 millions individual observations.

The sample is a rotating three-year panel at the housing unit level. That is, each housing unit is being interviewed during three consecutive years (regardless of whether the inhabitants of the housing unit have changed) and then exits the sample. A third of the sample is being renewed each year. The "moving rate" has remained approximately stable around 10-15% during the entire 1968-2002 period. That is, there is always about 10-15% of housing units surveyed for the second or third time whose inhabitants are entirely new, i.e. where no inhabitant lived in the same housing unit the year before. This means that the family living in this housing unit at time t has moved to another home by time t+1. In the remaining 85-90% of housing units surveyed during years t and t+1, at least one individual was present during both years. In most cases, the entire family is still there. However, in a small but interesting number of cases, the husband has left (the wife is still there, but she is on her own, or with a new mate), or the wife has left (the husband is still there, but he is on his own, or with a new mate). I observe each year the marital status of all household members (married, single, divorced or widow), so I can tell whether the separation was due to widowhood or divorce.[6]

In order to investigate the impact of family structure on children's educational attainment, I use two different indicators of school performance, "Normal Age" and "Still at School":

(i) "Normal Age" is defined for all children aged 15-20 year-old,[7] and is equal to 1 when children are in normal grade for their age (i.e. they have not yet dropped out from school and they were never held back in previous grades), and 0 otherwise. Students with insufficient results are routinely required to repeat grades in France, and "Normal Age" is a very informative synthetic indicator of school performance. As of 2002, about 50% of all 15-year-old were in normal grade for their age, and the

[6] Throughout the paper, "separations" include separations due to widowhood, separations due to divorce, as well separations between non-married spouses. I will come back later to the distinction between married and non-married separations. Note also that my methodology only allows me to observe "non-moving separations" (i.e. separations where at least one spouse stayed in the same housing unit). It turns out however that the fraction of non-moving divorce (as measured by Employment Surveys) in the total number of divorce in France has been relatively stable since the 1970s (around 70%), which suggests that missing separations do not bias our results.

[7] Throughout the paper, children's age is defined by year end, i.e. in the March 2002 Employment Survey "15-year-old children" are those children who were born between January 1977 and December 1977.

corresponding figure was about 42% for all 15-20 year-old, up from about 27% in 1982 (see Figure 3). Unfortunately, it is only in 1982 that Employment Surveys have started asking the questions about current grades and degrees that are necessary to compute "Normal Age". Prior to 1982, the only thing we know about children's current education is whether they are still at school.

(ii) "Still at School" is equal to 1 when children are still at school (i.e. they have not yet dropped out from school), and 0 otherwise. Virtually 100% of children aged 15-16 year-old are still at school (they are required by law to attend school until age 16), so I define "Still at School" for 17-20 year-old only. The advantage of this indicator is that it is defined over the entire 1968-2002 period. Just like "Normal Age", this indicator has been trending upwards during the period of interest (see Figure 2). Note however the increase in dropout rates during the late 1990s, due to the labor market boom.

Insert Figure 3

Another limitation of Employment Surveys is that we know very little about the family structure and history. In particular, parents and step-parents are coded in the same manner, so I cannot distinguish between children living with their two biological parents and those living with one biological parent and his/her new mate. In what follows, they will all be classified as "children living in two-parent families". I will later use other data sources in order to assess whether this can bias my conclusions.

2.2. Basic results

Table 1 reports the basic raw results obtained with the "Normal Age" performance indicator. During the 1982-1991 period, the average school performance of all children (aged 15-20 year-old) was 28,9% (i.e. 28,9% of all children were in normal grade for their age, and 71,1% had been held back in previous grades and/or had already dropped out). Children living in single-parent families were doing significantly worse than those living in two-parent families (22,4% vs 29,8%). This gap remains virtually unchanged when one controls for parental characteristics (parents' education, occupation, age, region, city size, etc.), reflecting the fact that parental separation occurs in all social classes. The existence of such a robust performance has already been established by a large literature.

The interesting part of Table 1 is that children living in two-parent families where the two parents are about to separate are doing as bad as single-parent children: their average performance is 22,2% when parents separate at t+1, and 22,4% when they separate at t+2. One gets similar results for the 1992-2001 period: average performance is 32,7% when parents separate at t+1 and 31,8% when they separate at t+2, vs 40,0% in stable two-parents families and 31,1% in single-parent families.

Similarly to the single-parent gap, the pre-separation gap is robust, in the sense that it is not significantly affected by the inclusion of control variables (see Table 2). Whatever the time period, and no matter how one slices the data, I find that both pre-separation kids and single-parent kids are doing much worse at school than children in stable two-parent families, and there is no significant difference between pre-separation and single-parent children. It is also interesting to note that the only family group for which control variables make a big difference are children in two-parents families whose parents are about to separate due to widowhood (i.e. one parent is about to die): as one introduces control variables (especially parental education and occupation), the performance gap of those children is divided by two in 1982-1991 and becomes insignificant in 1992-2001 (see Table 2, diff. (3)-(1)). This reflects the fact that widowhood at this age occurs mostly in disadvantaged families. For given parental characteristics, expected widowhood has little impact on children performance at school. This result is reinsuring, in that it shows that my control variables have some power.

Insert Tables 1 and 2

I find the same results with the “Still at School” performance indicator, no matter how I slice the data (see Tables 3 and 4). The panel structure of the data also allows one to perform fixed-effects regressions. I find that the negative performance impact associated to single-parent families entirely vanishes once one introduces individual-level fixed effects (see Table 5). That is, controlling for the low school performance of children prior to parental separation, separation per se does not seem to have any extra effect on performance.

2.3. Robustness Checks

As was already mentioned, one shortcoming of the data used so far is that information on family structure and history is limited. This could potentially bias my conclusions. For instance, it could be that children in single-parent families are doing much worse than children living with one parent and his/her new mate. Also, it would be important to be able to distinguish between single-parent children depending on the time spent since parental separation.

In order to clarify these issues, I use data from the March 1999 Family History Survey (FHS). The FHS was conducted by INSEE at the same time as the 1999 census.[8] A random sample of about 380 000 individuals aged 18 and over (about 1/100 of French population) was asked to fill a very detailed retrospective questionnaire about their family history: their various experiences of marital life, their dates of divorce and separation, information about the children and step-children they have raised during their life-time, etc. One can therefore distinguish between first-marriage families (or more generally "first couples") with two biological parents and second-marriage families (or more generally "second couples") with one parent and one step-parent, as well as between single-parent families with varying separation dates. In addition, the survey contains the census bulletins variables of all individuals (children and adults) living in the same household as the individuals sampled in the FHS. This allows me to observe the school performance of children aged 15-20 year-old, since census bulletins filled by all individuals aged 14 and over include questions on current school grade and degrees.[9] The shortcoming of FHS is obviously that the data set is made of a single-cross section, so that I cannot use this data set to look at the performance of pre-separation children.

Several important results emerge from the FHS (see Table 6). First, children living with one of their biological parents and his/her new mate are doing as bad (and actually slightly worse) than single-parent children. This implies that by comparing single-parent children and two-parent children (first and second couples together), as I did with Employment Surveys, I obtain a satisfactory estimate of the performance gap between children with separated parents and children with non-separated

[8] Similar FHS surveys were conducted along with the 1982 and 1990 census.
[9] In practice, my measure of school performance only applies to children aged 16-20 year-old (by 1999 year end), since the grade categories used in census questionnaires do not offer sufficient information for earlier grades (grades 6-10 are pooled into a single grade).

parents. Next, time since separation has little impact on the performance of single-parent children: the performance gap is slightly smaller when parental separation occurred when the children was 0-5 year old, but it is virtually the same whether separation occurred when the children was 6-11 or 12-17 year-old. These results are again consistent with the selection hypothesis. Finally, the results reported on Table 6 show that children living with two biological parents have significantly lower school performance when their parents are not married (the gap is equivalent to the gap with children with separated parents). Here again, this probably reflects selection rather than causation.[10]

Insert Table 6

Using the 1999 FHS, one can also compute that the fraction of second (and higher) couples in separations involving children aged 15-20 year-old was about 15% during the 1990s. This is significantly higher than the fraction of second (and higher) couples in couples with children aged 15-20 year-old (that fraction was less than 10% in 1999 – see Table 6), which shows that second (and higher) couples are more unstable than first couples. However this is still far too small to explain the performance gap of pre-separation two-parent children (as defined with Employment Surveys).

2.4. Estimates from the 1995-2002 Education Ministry Panel

Another way to check the robustness of the results on pre-separation children is to replicate the same methodology with the 1995-2002 Education Ministry Panel. This is a panel of approximately 18,000 children entering 6th grade in 1995. The panel includes yearly information on the school trajectory (what grade they are, whether they move to another school, etc.) of these children until they exit high school (i.e. until 2002 for children who do not repeat any grade). Standardized test scores are available for year 1995 (these French and math tests are conducted each year in France with all children when they enter 6th grade). I also observe the scores obtained during the national examination occurring at the end of 9th grade (Bepc) and

[10] Unfortunetely, there are too few observations of 15-20 year-old children living with their two non-married parents to further explore this selection vs causation issue. In particular, there are too few observations to slice the data by region x education cells.

12th grade (Bac).[11] For other years, the only available school performance indicator is whether children repeat grades. Information about family structure and parental characteristics is available when children enter the panel in 1995, in 1998 (when a survey was organized with the parents of participating children), and in 2002, when another survey was organized with the children themselves, including questions about family structure and family structure characteristics (information available for other years comes solely from school administration and is limited to school trajectory). This allows me to identify children whose parents have separated between 1995 and 1998 or between 1998 and 2002. In that respect, the advantage of the Education Panel is that parents and step-parents are coded differently, so that I can distinguish between children living with their two biological parents and children living with one biological parent and his/her new mate (for simplicity, the latter were included in the same category as single-parent children on the results presented on Tables 7 and 8).[12]

The results presented on Tables 7 and 8 are fully consistent with my Employment Surveys estimates. First, I find that children with separated parents in 1995 and children whose parents are about to separate between 1995 and 1998 are both getting relatively low test scores in 1995 (both in French and in Maths), and that there is no significant difference between the scores of those two groups of children (see Table 7, col. (B) and (D)). Given that the available measure of school performance for 1998 (i.e. no grade repeated between 1995 and 1998) is not homogenous to the test scores available for 1995, I cannot conduct proper fixed-effects regressions. Adding controls for 1995 test scores does significantly reduce the measured negative impact of parental separation on 1995-1998 performance, but without cancelling it entirely. However the important point is that there is again no significant difference between children with separated parents in 1995 and children whose parents are about to separate between 1995 and 1998 (see Table 7, col. (G)).

I also find that children living with their two parents in 1995 and 1998, but whose parents will separate between 1998 and 2002, are doing significantly worse in 1995 than children living with their two parents up until 2002 (see Table 8, col. (B) and (D)).

[11] In practice this part of the data raises various technical difficulties (we do not observe all Bepc and Bac scores, and many children do not reach the Bac), and I only used the Bepc 0-1 indicator.

[12] I have also run regressions using separate categories for second couples and single parents, and I have obtained results similar to those presented on Table 6: children living with one biological parent and his/her new mate are doing slightly worse than single-parent children.

This suggests that parental conflicts have harmful consequences for children long before divorce actually takes place.[13] Finally, I find that children with separated parents in 1998 and children whose parents are about to separate between 1998 and 2002 are both doing poorly at the 9th grade terminal exam (Bepc, normally taken in 1998-1999), and that there is no significant difference between the performance of those two groups of children (see Table 8, col. (G)). These results confirm that selection effects play a key role: what seems to matter for children's school performance is parental conflict rather than separation per se.

Insert Table 7
Insert Table 8

3. The Impact of Separation is Smaller When Separation Rates are Higher

The results on pre-separation children show that parental conflicts are apparently more important than separation per se. However this does not necessarily imply that softening divorce legislation would not entail negative consequences for children's school performance. The reason is that divorce legislation might have an impact on pre-divorce parental behavior. It is indeed conceivable that parents would fight less if they knew they couldn't divorce. According to this view, parents can make efforts to avoid conflict and offer a stable environment to their children, and the decline in the legal and social costs of divorce since the 1970s has led to less parental effort, more harmful conflict, and substantial negative consequences for children. The alternative view is that the fraction of fighting parents (or more generally the distribution of conflict intensity) is approximately constant over time, and that the conflict threshold above which parents decide to divorce has been declining since the 1970s (thanks to the decline in the costs of divorce). One viable way to discriminate between these two competing views is to look at how the performance gap of children with divorced parents varies with the separation rate. In order to see why, it is useful to write down a simple structural model of parental conflict and divorce.

[13] Note that the negative impact on 1995 school performance is significantly larger when divorce takes place before 1995 or between 1995 and 1998 than when it takes place after 1998 (see Table 8, col. (B) and (D)). This is consistent with the findings obtained with the 1999 FHS. This suggests that conflict is more intense closer to the date of divorce, but this leaves wide open the causality issue (i.e. the perspective of divorce has a causal impact on the intensity of conflict).

3.1. A Simple Model of Parental Conflict, Divorce and School Performance

Consider a model with continuum [0;1] of families. Assume there exists a fixed, continuous distribution f(c) of conflict intensity in couples (f(c) is the density function, F(c) is the cumulative distribution function, both defined over [0;+∞[ ). Note that although I choose to interpret c as conflict intensity throughout this paper, it could as well be interpreted as any fixed parental characteristics that have an impact both on the propensity to divorce and the school performance of children.[14]

For simplicity, I assume that the school performance p(c) of children with parental conflict c depends linerly on c: [15]

$$p(c) = \pi - \alpha c \quad \text{(in case parents do not divorce)} \qquad (1)$$

$$p(c) = \pi - \alpha c - \beta \quad \text{(in case parents divorce or are about to divorce)} \qquad (2)$$

The parameter β measures the strength of the causal impact of divorce, while the parameter α measures the strength of selection effects. One can distinguish between two polar cases:

(a) $\beta = 0$, $\alpha > 0$. That is, there is no causal impact of divorce per se, parental conflict is all what matters, and there is not much one can do about it. In all societies, there are some couples who get along very well and some couples who fight, the distribution is always approximately the same, and there is nothing parents can do to attenuate the impact on children. Whether they divorce (or plan to divorce) or not makes no difference. This pure selection model can be called the liberal model of divorce.

[14] For instance, it could be that c measures how smart parents are (assuming less smart parents divorce more often and produce less talented children). The parental conflict interpretation strikes us as more realistic, but nothing in the data allows us to distinguish between these various interpretations. The important point, however, is that this is irrelevant from a policy perspective (whatever the interpretation of c might me, there is little justification for restrictive divorce legislation in case selection effects are predominant).

[15] School performance p(c) needs not be interpreted as a deterministic fraction of c: p(c) is better thought as the average school performance of children with parental conflict c (i.e. the school performance p_i of child i with parental conflict c_i is given by $p_i = p(c_i) + \varepsilon_i$, with $E(\varepsilon_i)=0$).

(b) $\beta > 0$, $\alpha = 0$. This is the opposite case: divorce has a true causal negative impact, and parental conflict entails no unavoidable consequence for children. As long as parents put enough effort and decide to remain committed to their family (e.g. because the costs of divorce are too high), children are insulated from parental conflict, and they do well at school (irrespective of true conflict intensity c). However once parents have decided to divorce, they alter their behavior and family commitment in a way that is harmful for children (they care less about children, they fight more in front of them, etc.), so that children perform badly (again irrespective of true conflict intensity) This model can be called the conservative model of divorce.

There is little doubt that both models have some relevance. The interesting question is the following: where exactly do we stand between these two polar models? In order to estimate α and β, it is useful to exploit variations in the costs of divorce and hence in the divorce rate. Assume that parents with conflict parameter c derive private utility u(c) from mariage, with u'(c)<0 and u(c*)=0 for some c*>0.[16] Parents choose to divorce as soon as their disutility from mariage exceeds the costs of divorce q>0, i.e. as soon as c>c(q), with c(q)>c* such that u(c(q))=-q.[17] The divorce rate d(q) is given by d(q) = 1-F(c(q)). By inverting d(q), one can also define the conflict threshold c(d) associated to divorce rate d. Unsurprisingly, c'(q)>0, d'(q)<0 and c'(d)<0. That is, when the divorce rate goes up, the conflict thresold above which parents choose to divorce goes dow (see Figure 4).

Insert Figure 4

Define $p_o(d)$ the average school performance of children whose parents do not divorce when the divorce rate is d, and $p_1(d)$ the average school performance of children whose parents divorce when the divorce rate is d. Applying equations (1) and (2), one gets:

[16] Here again, u(c) is better thought as the average utility parents wirh conflict parameter c derive from mariage (i.e. private utility u_i of parents of child i with conflic parametert c_i is given by $u_i = u(c_i) + \mu_i$, with $E(\mu_i)=0$).

[17] Divorce costs include formal, legal costs of divorce as well the subjective costs (e.g. due to stigma; these costs might for instance vary across regions due to cultural and religious reasons) and economic costs (for instance, divorce might be more costly for low-skill wormen, since they can less easily compensate for the loss in their husband's income).

$$p_o(d) = E(\pi - \alpha c \mid c<c(d)) = \pi - \alpha c_o(c(d)) \qquad (3)$$

$$p_1(d) = E(\pi - \alpha c + \beta \mid c>c(d)) = \pi - \alpha c_1(c(d)) - \beta \qquad (4)$$

$$\text{(with } c_o(c(d)) = E(c \mid c<c(d)) \text{) and } c_1(c(d)) = E(c \mid c>c(d)) \text{)}$$

One can also compute the average school performance p(d) of all children (whether their parents divorce or not) when the divorce rate is d, as well as the school performance gap δ (d) of children with divorced parents relative to children with stable parents:

$$p(d) = (1-d)\, p_0(d) + d\, p_1(d) = \pi - \alpha c_a - \beta d \qquad (5)$$

$$\delta(d) = p_o(d) - p_1(d) = \beta + \alpha\,(c_1(c(d)) - c_o(c(d))) \qquad (6)$$

$$\text{(with } c_a = E(c) \text{)}$$

In case some truly exogeneous shocks on divorce rates are available, then the simplest strategy to estimate the causal impact of divorce β is obviously to work with average performance p(d). For instance, if divorce costs dropped between year=0 and year=1 (e.g. because of a change in divorce law), and if one is ready to assume that nothing else has changed between those two years, then one can estimate β by simple difference : β = - (E(p|year=1)-E(p|year=0))/(E(d|year=1)-E(d|year=0)). If one isn't ready to make such an heroic assumption, then one can exploit the fact that divorce costs decelined in some regions and not in others, and use difference-in-difference estimators. More generally, one can exploit all cross-regional variations in the timing of changes in divorce costs and run cell-levels regressions of the following form (where cells are defined by year x region):[18]

$$p_{rt} = \gamma - \beta\, d_{rt} + \Sigma\, \eta_t\, 1_{year=t} + \Sigma\, \lambda_r\, 1_{region=r} + \varepsilon_{rt} \qquad (7)$$

$$\text{(with } X_{rt} = E(X \mid region=r,\ year=t) \text{)}$$

[18] This cell-level regression is equivalent to an instrumental-variables (IV), individual-level regression $p_i = \gamma - \beta\, d_i + \Sigma\, \eta_t\, 1_{year=t} + \Sigma\, \lambda_r\, 1_{region=r} + \varepsilon_i$ where one uses $1_{year=t} \times 1_{region=r}$ as a set of instruments for d_i.

This is basically the identification strategy followed by Gruber (2000).[19] The problem with this strategy is that there are all sorts of fixed effects affecting year x region cells. There are many reasons why some regions have higher average school performance than others at different points in time, and it is extremly difficult to identify the impact of divorce from these variations.[20]

One alternative strategy is to look at the impact of changes in divorce costs and divorce rates on the performance gap δ(d). To the extent that all children are equally affected by year x region fixed effects, such a differential is not biased. Note that it is not entirely clear in which direction the performance gap δ(d) should go when divorce becomes more prevalent (see equation (6) and Figure 4). When the divorce rate goes up, it is true that the average conflict intensity $c_1(c(d))$ of parents who divorce goes down, thereby implying that the average school performance $p_1(d)$ of children with divorced parents goes up. However when the divorce rate goes up, it is also true that the average conflict intensity $c_0(c(d))$ of parents who divorce goes down, thereby implying that the average school performance $p_0(d)$ of children with stable parents also goes up. Although it seems natural to expect the first effect to dominate, it actually depends on the exact shape of the distribution. One can easily construct examples where the δ(d) performance gap is an increasing, decreasing or non-monotonic function of d. In particular, a stable or increasing performance gap δ(d) cannot be taken as evidence in favor of the conservative, causal model of divorce. However the important point is that if one observes that δ(d) is a sharply declinig function of d, then this can be taken as evidence in favor of the liberal, selection model of divorce. In order to see this, one simply needs to differentiate equations (5) and (6):

$$p'(d) = p_1(d) - p_o(d) + p_o'(d) + d\,(p_1'(d) - p_o'(d)) = -\beta \qquad (7)$$

$$\delta'(d) = p_o'(d) - p_1'(d) \qquad (8)$$

[19] Except that Gruber uses direct evidence on divorce legislation in year x region cells rather than divorce rates (regions are U.S. states in the Gruber paper).

[20] I did run regressions similar to equation (7) for France, and my estimates generally go in the opposite direction than those of Gruber for the U.S. (that is, I find that regions where divorce increased more than average also tend to be regions where school performance increased more than average, implying a negative β). Most importantly, the estimates appear to be highly volatile and switch signs as one adds or deletes a couple of cells. It is obvious from looking at the data that cross-regional variations in average school performance are pretty difficult to predict.

Substituting δ(d) and δ‘(d) into equation (7), one gets the following formula for the elasticity e of the performance gap δ(d) with respect to the divorce rate d:

$$e = d\delta'(d)/\delta(d) = -1 + \beta/\delta(d) + p_o'(d)/\delta(d) \qquad (9)$$

One can see that if there is no causal impact of divorce (β=0) and if the average school performance of children with stable parents does not depend on the divorce rate ($p_o'(d)=0$), then the elasticity of the performance gap is equal to -1. This is a very intuitive result: an elasticity equal to -1 means that the performance gap of children with divorced parents declined by 1% when the divorce rate increases by 1%, which together with the assumption $p_o'(d)=0$ implies that both effects cancel each other and that the net effect of a marginal increase in the divorce rate on average school performance is equal to zero (i.e. there is no causal impact of divorce). Conversely, in case the elasticity is close to -1, then this means that both effects nearly cancel each other, which implies (given that $p_o'(d)$ is necessarily non-negative) that the causal impact β is necessarily small (or even negative).[21] More precisely, rearranging equation (9) and using the fact that $p_o'(d) \geq 0$, one obtains the following equation:

$$\beta/\delta(d) < 1 + e \qquad (10)$$

For instance, if one estimates an elasticty e=-0,7, then this implies β/δ(d)<0,3. That is, the causal impact of divorce β accounts for at most 30% of the total performance gap δ(d) of children with divorced parents (and selection effects account for at least 70% of the performance gap). If e=-0,8, then causal effects account for at most 20% for the gap, and selection effects for at least 80%. In other words, equation (10) allows me to put an upper bound on the size of the causal impact of divorce.

In order to obtain estimates of the elasticity e, I will be estimating the following cell-level regression between the log of the performance gap and the log of the divorce rate (where cells are defined by region x year x mother’s education):

$$\log(\delta_{rtm}) = \gamma - e \log(d_{rtm}) + \varepsilon_{rtm} \qquad (11)$$

$$(\text{with } X_{rtm} = E (X \mid \text{region}=r , \text{year}=t, \text{mother's education}=m))$$

[21] In case e<-1, then β is necessarily negative.

3.2. Empirical estimates of the elasticity of the performance gap

In order to implement the empirical strategy outline above, I need to exploit exogenous shocks that have affected divorce costs and divorce rates in France since 1968. The most natural candidate is the introduction of no-fault, mutual-consent divorce into French legislation in 1975. However, as was already noted the introduction (see figures 1 and 2), one actually observes a continuous and gradual rise of divorce in France over the 1968-2002 (reflecting presumably the gradual decline of the sum of formal legal divorces and of the subjective, social costs of divorce), so it makes more sense to use all the time variations in divorce rates (rather than solely the 1975 legislative shock) to estimate the elasticity of the performance gap. Cross-regional variations in divorce rates are as large as time variations in France, especially between high-divorce, dechristianized areas such as the Paris region and the South-East region and low-divorce, Christian western regions such as Vendée and Britanny (presumably religion affects the perceived social costs of divorce), so I will also exploit those variations.

Table 9 and Figure 5 report the results obtained with respect to time variations. In order to exploit time variations over the entire period, I need to use the “Still at School” performance indicator. I find that the performance gap of single-parent children (as measured by this indicator) has declined substantially since the 1970s, both in absolute and relative terms. The fraction of single-parent children rose from 10% in the 1970s to 15% in the late 1990s, and the relative performance gap declined from about 17-19% in the 1970s to 5-6% in the 1990s (see Figure 5). This decline seems extremely robust, no matters how one breaks down the data. In particular, it holds for all mother’s education group (see Table 10). One alternative interpretation for the decline of the performance gap is that it is due to a level effect: as the percentage of children aged 17-20 year-old converges toward 100%, the “Still at School” indicator might be becoming less informative. Note however one finds a similar decline of the relative performance gap (although not of the absolute gap) using the “Normal Age” performance indicator for the 1980s-1990s, and all the more

so for children with low-education mothers, who have gone through the largest increase in the rate of single-parenthood (see Table 11).[22]

Next, and most importantly, I find the same negative relationship between the performance gap of single-parent children and the fraction of single-parent children when I break the data along dimensions that are orthogonal to performance levels, e.g. along the regional dimensions (see Table 12 and Figure 6). I classify regions into three tiers according to the fraction of single-parent children, and I find that the performance gap is significantly smaller in top third regions (see Figure 6). This finding is robust to the inclusion of all control variables and to various classifications of regions. In particular, it is striking to note that the performance gap is systematically (i.e. for all years, mother's education, etc.) and significantly smaller in the Paris region and in the South-East Region (Provence-Alpes-Côte d'Azur), which are the two regions with the highest divorce rate and single-parenthood rate, than in all other regions.

Insert Tables 9-12 and Figures 5-6

In order to investigate the negative relationship between the performance gap and the fraction of single-parent children in a more systematic way, I have grouped the data into homogenous year x region x mother's education cells,[23] I have computed the performance gap and the fraction of single-parent children in each of these cells, and I have run cell-level regressions between the log of the performance gap and the log of the single-parenthood fraction (see equation (11) above). Using "Still at School" as performance indicator, I find an elasticty of –0,655 when the performance gap is

[22] It is critical to break down cells by mother's education, because the social costs of divorce might well vary with education groups. Moreover, as Tables 10 and 11 illustrate, education-related differentials have gone through important changes over the period of study: single-parenthood was less common among low-education mothers than among high-education mothers during the 1970s-1980s, but the opposite became true by the late 1990s (this reflects the fact that divorce rates first rose for high-education women, before low-education women eventually catch up). This probably explains why Archambault (2001, p.211) finds that the performance gap of single-parent children has been fairly stable in France: Archambault only looks at the crude time trend and does not break down the data by region and mother's education; in addition, his data only covers the 1980s-1990s (so he cannot exploit the low-divorce period of the 1970s and compare it to subsequent high-divorce periods), and he looks at absolute performance gaps rather than relative gaps. Dronkers and Lont (2003) also find that the negative impact of divorce has been fairly stable in the Netherlands during the 1984-1999 period, but they focus on indicators of child well-being (such as pocket money or travel allowance) rather than school performance.

[23] I have grouped years into 5-year codes, regions into 3 tiers and mother's education into 2 levels in order to ensure that each cell contains sufficientely many observations (the average size of cells is approximately 10,000 observations). The results are robust to various re-classifications.

expressed in absolute difference, and –1,143 when it is expressed in percentage difference (see Table 13).[24] For reasons noted above, this elasticity largely vanishes once level effects are taken into account. However if I use "Normal Age" as performance indicator (probably the best available indicator), I find elasticities of –0,685 and –0,751, and they are virtually unaffected by the inclusion of level effects (see Table 13). According to the structural model outlined above, this implies that at least 70-80% of the apparent negative impact of separation of school performance is actually due to selection effects (see equation (11) above).

Insert Table 13

More generally, and although it is of course possible to write down other structural models of divorce and school performance, it looks as if any reasonnable model one can think of would tend to interpret a large, negative elasticity as evidence in support of strong selection effects. For instance, instead of assuming a fixed causal impact of divorce β (see section 3.1 above), one could very well imagine that changes in divorce costs over time and across regions are correlated with changes in parental attitudes that affect the entire distribution f(c) of conflict intensity c. However the point is that in order to explain why the performance gap is larger in low-divorce regions, one would for instance need to assume that high-conflict parents are more conflictual in low-divorce regions than in high-divorce regions, i.e. the distribution f(c) has a fatter upper tail in low-divorce regions. This does not sound plausible: one would on the contrary expect regions with a fatter upper tail of the conflict distribution tend to develop more tolerance for divorce rather than higher subjective costs of divorce. If there were structurally more high-conflict couples in Vendée and Britanny than in the Paris region or in Provence-Alpes-Côte d'Azur, then it is difficult to understand why the subjective social costs of divorce would be higher in Vendée and Britanny.

It might also be tempting to interpret my cross-regional results (as well as my time series results) by emphasizing stigma effects rather than selection effects. I.e. the performance gap might be larger in high-divorce regions because children with divorced parents get more ostracized in these regions, rather than because their parents have more extreme personal characteristics. At some level, this interpretation

[24] To the extent that cell-level fixed effects affect children's performance in a multiplicative way, relative difference estimates are more appropriate.

issue is irrelevant, since both interpretations tend to lead to the same policy conclusion: the individual impact of divorce declines when divorce becomes more prevalent, so divorce liberalization should have a limited aggregate impact on school performance. However my results on pre-separation kids (see section 2) suggest that selection effects are more important than stigma effects. In principle, children whose parents have not yet divorced should not suffer from stigma, or at least should suffer less from stigma than children whose parents have already divorced (presumably pre-divorce is less publicly observable than divorce), and yet I find than pre-separation kids are doing as bad as kids whose parents have already divorced.

Finally, in order to test the robustness of my elasticity estimates, I have run the same regression with other, independant data sets (see Table 14). First, I have used large micro-files from the French censuses conducted in 1968, 1975, 1982, 1990 and 1999. The advantage of these files is that thanks to the very large number of observations I can compute precise estimates of the performance gap at the regional level (I do not need to pool several regions together).[25] Next, I have estimated similar equations using the 1995-2002 Education Ministry Panel. The advantage of this file is that I can use other measures of school performance than the ones available in employment surveys and censuses, and in particular I can use measures that apply to younger children. In both cases I find statistically significant, negative eslasticities of the order of -0,5 to -1 (see Table 14). In particular, the performance gap of children with divorced parents always tends to be lower in high divorce regions (particularly Paris and Paca), whatever the data set.

Insert Table 14

4. Concluding comments

In this paper, I have developped two identification strategies suggesting that the negative impact of divorce on the school performance of children reflects to a large extent selection effects rather than a direct causal impact. First, I have looked at the school performance of children a couple of years before their parents separate, and I

[25] The sampling rate of the census micro-files is 1/4 for the censuses of 1968, 1982 and 1990, 1/5 for the census of 1975 and 1/20 for the census of 1999 (in comparison, the sampling rate of employment surveys is about 1/300).

have showed that they are doing as bad as children already living with only one of their parents. Next, I have exploited the large increase in separation rates following the 1975 divorce law reform (as well as cross-regional variations in divorce rates) to show that the performance gap of single-parent children is a declining function of the separation rate, with an elasticity close to -1. Taken together, my results suggest that parental conflicts (rather than separation per se) are bad for children, and that the distribution of conflict intensity between couples has been fairly stable over time and was not significantly affected by the change in divorce law. According to a simple structural model of parental conflict and divorce, my preferred estimates of about -0,7 to -0,8 for the elasticity of the performance gap imply that causal effects account for at most 20%-30% of the total performance gap of children with divorced parents, while selection effects account for at least 70%-80%.

There are several important related issues that this paper leaves unanswered and that should be adressed by future research. First, my results shed new light on the long-standing debate about the causal impact of parental income on the educational achivement of children. That is, the fact that pre-separation kids do as bas as children whose parents have already divorced (and who have therefore already been exposed to the fall in household income that usually follows parental separation, as documented by Pages and Stevens (2002) using U.S. data) suggests that money matters less than parental conflict.[26] This might be due to the fact that money has generally a negligible causal impact per se, but one might also want to interpret this interpret this result as evidence for the fact that divorce might be associated with a smaller fall in household income in a high-transfer countries such as France than in the United States.[27]

Next, my results showing that children living with their two non-married parents perform badly relative to children living with their two married parents raise serious interpretation issues: in the same way as for the impact of divorce, it is unclear whether this apparent impact of marriage vs non-marriage reflects mostly selection

[26] The fact that children living with one of their parents and his or her new mate do not perform better than children living with a single parent (see Table 6) also suggests that the impact of income is not predominant.

[27] The data sets I have been using do not contain good measures of household income, so they are ill-suited to push this issue further.

effects or causal effects. Designing empirical strategies to disentangle the two should be regarded as a priority for future research.[28]

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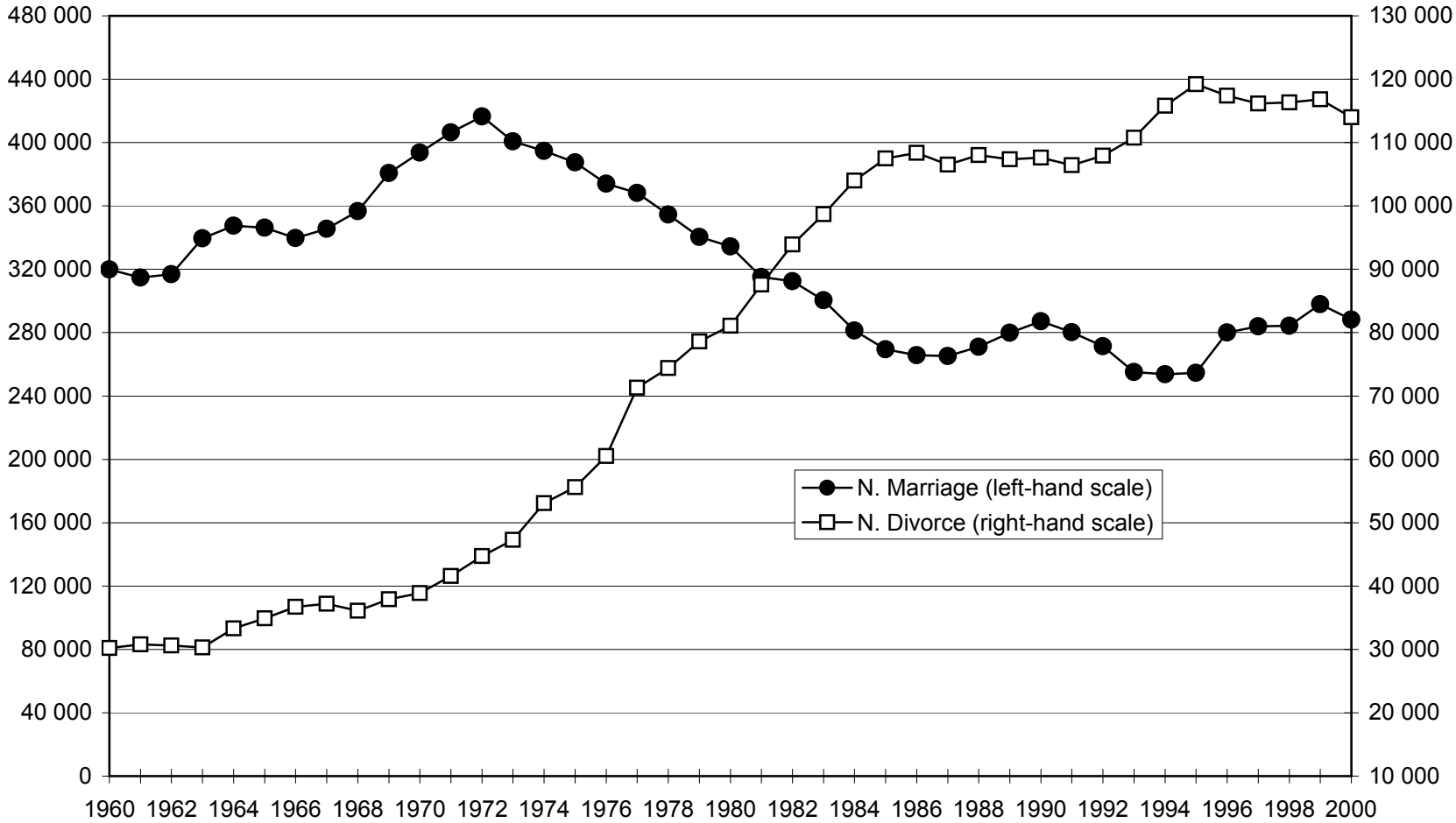
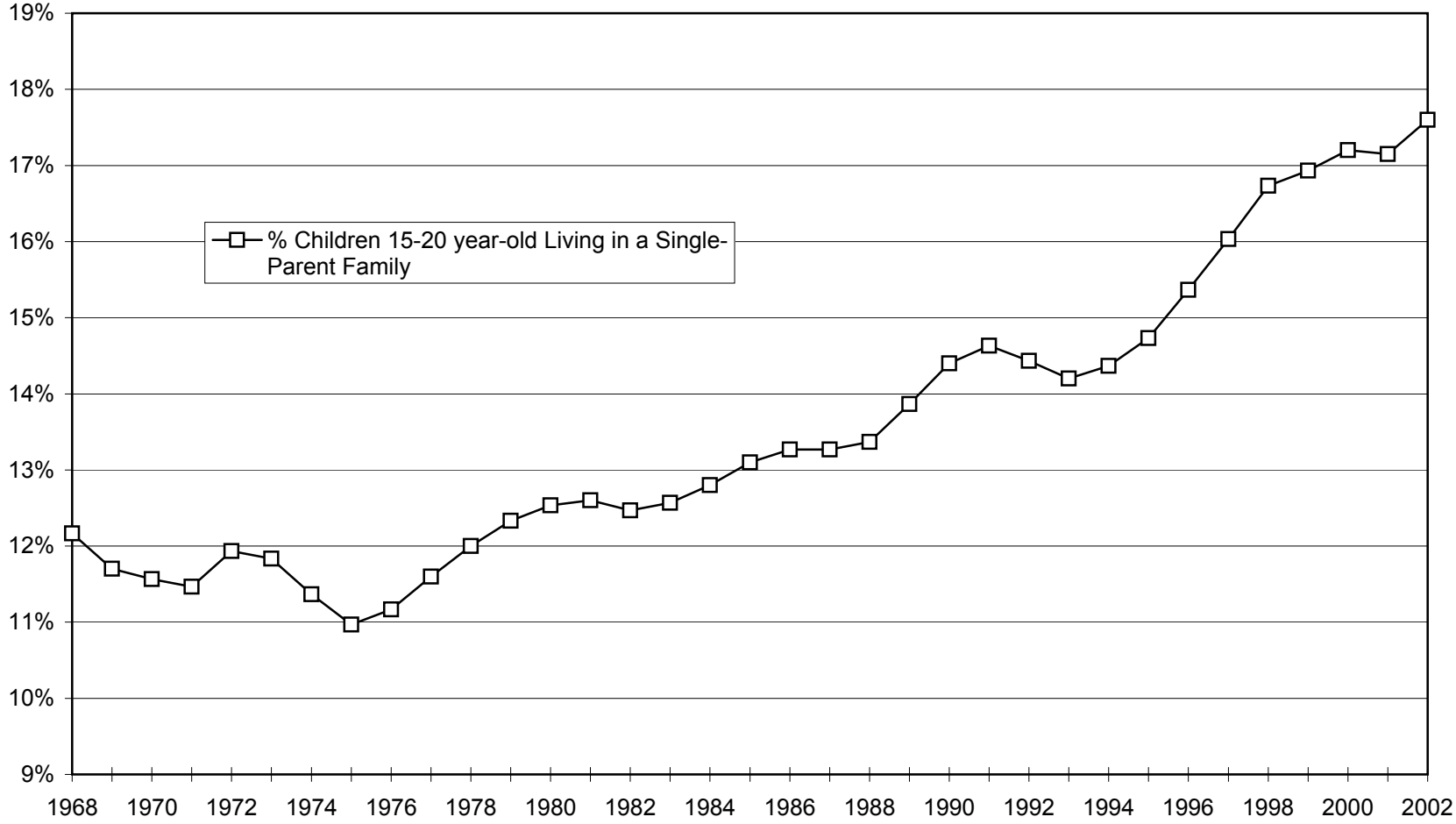
[28] Note that according to Rasul (2003), changes in the costs of divorce alter in a significant way the incentives to marry for cohabitant couples.

Figure 1: Divorce and Marriage in France, 1960-2000



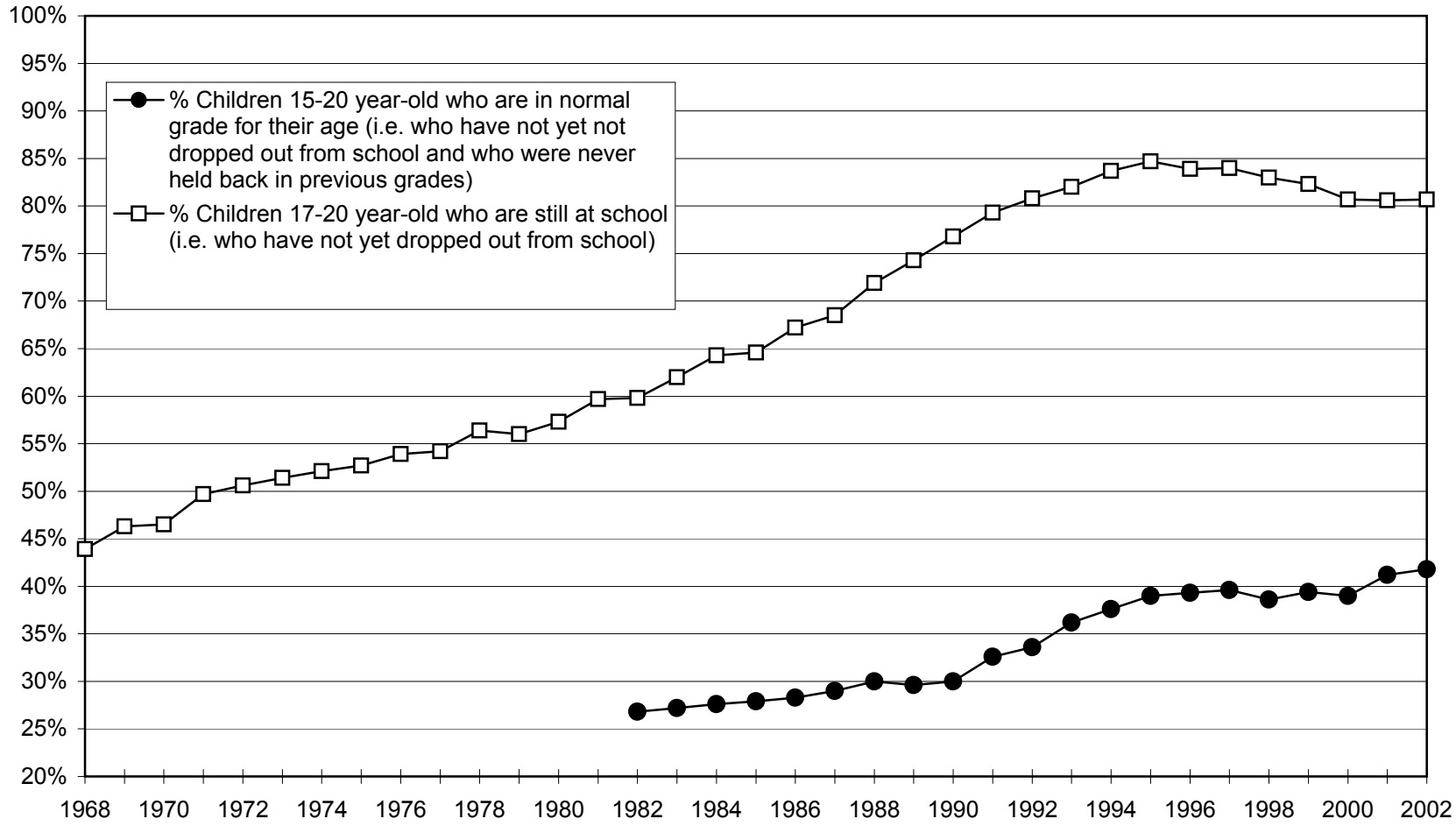
Source : French Etat-Civil

Figure 2: Children Living in Single-Parent Families in France, 1968-2002



Source : Author's computations from French Employment Surveys, 1968-2002

Figure 3: School Performance Indicators in French Employment Surveys, 1968-2002



Source : Author's computations from French Employment Surveys, 1968-2002

Figure 4: Parental Conflict and the Decision to Divorce

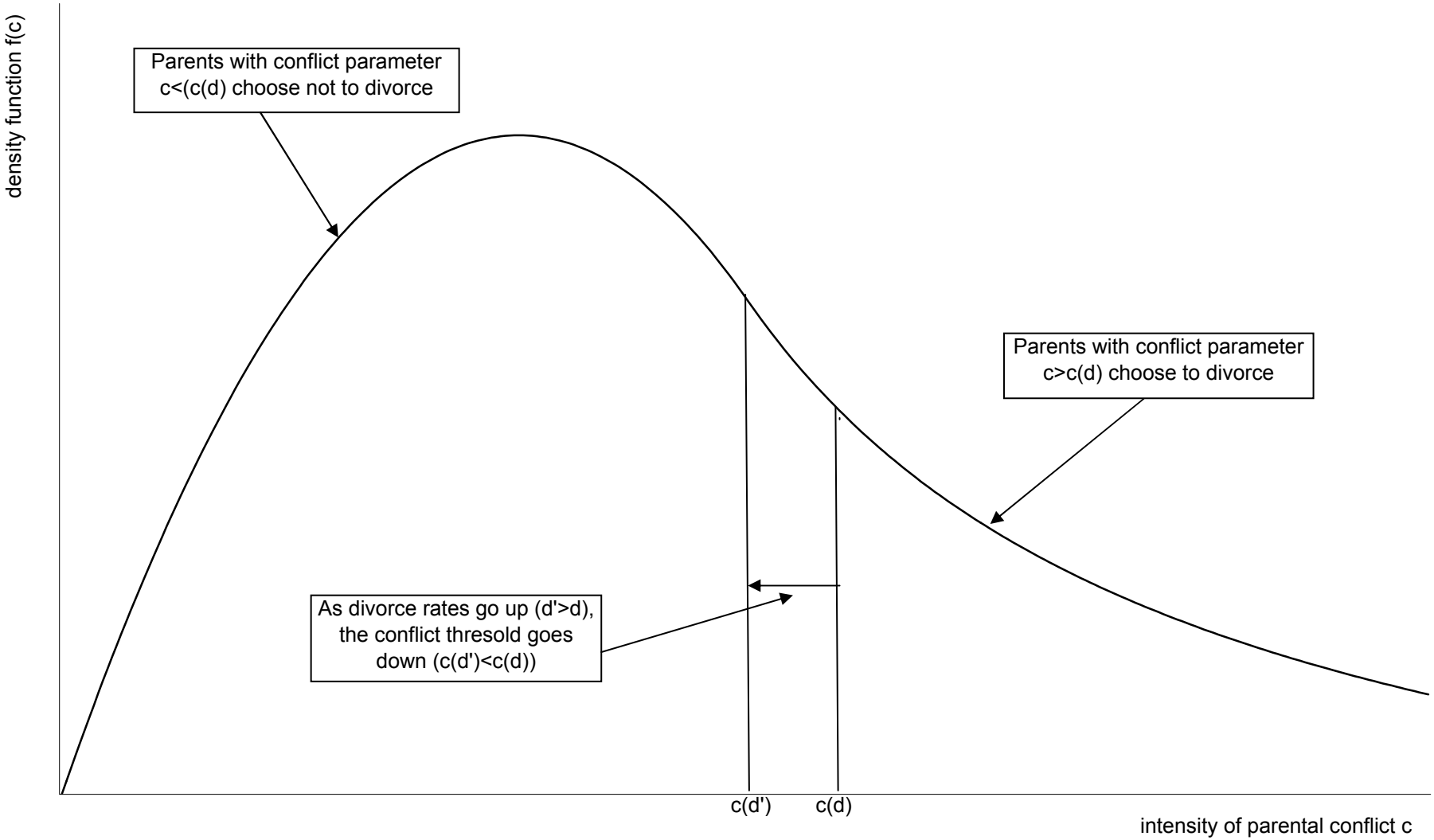
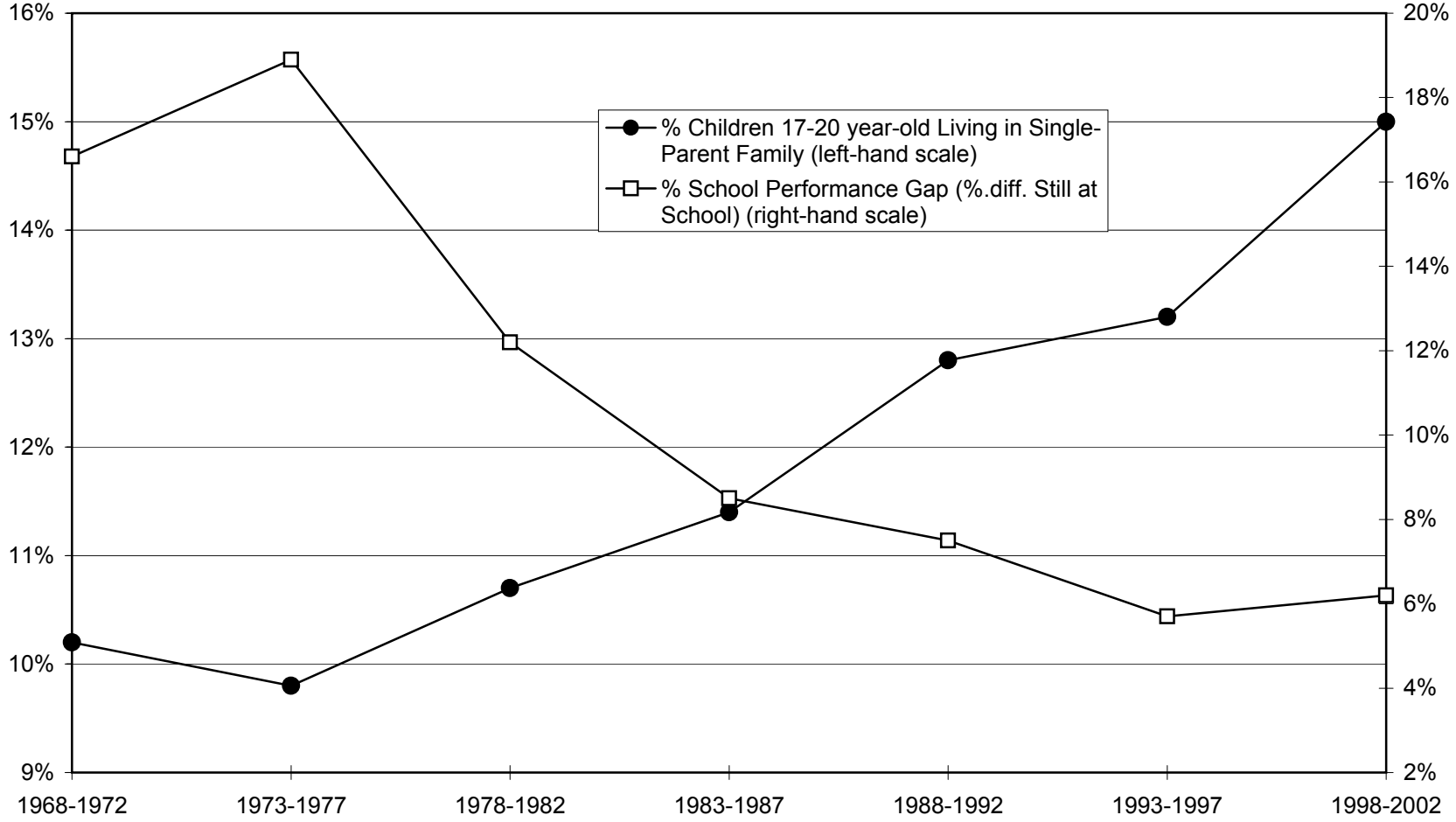
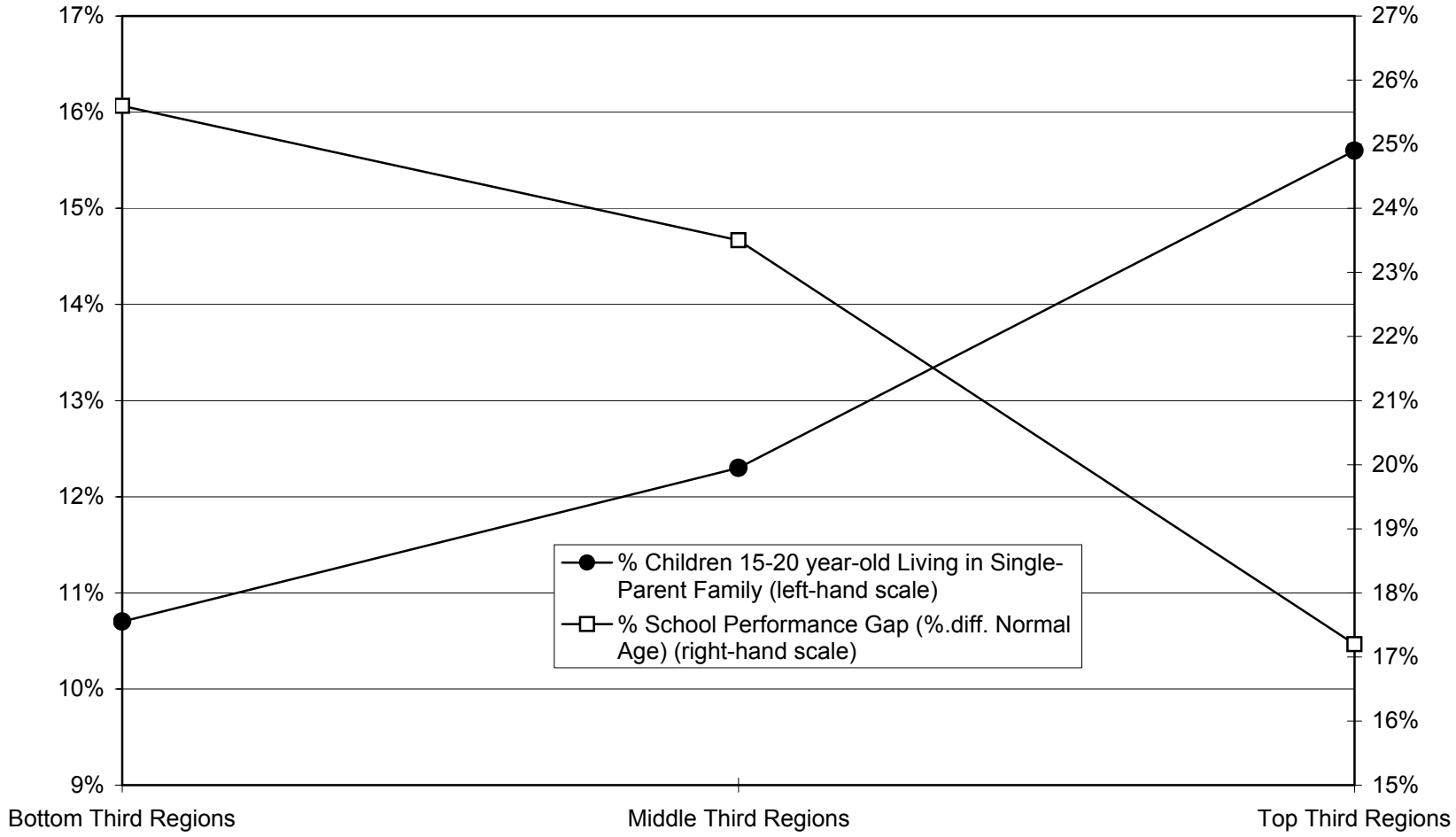


Figure 5: The Impact of Separation is Smaller when Separation Rates are Higher: Time Variations, 1968-2002



Source : Author's computations from French Employment Surveys, 1968-2002

Figure 6: The Impact of Separation is Smaller when Separation Rates are Higher: Regional Variations, 1982-2002



Source : Author's computations from French Employment Surveys, 1982-2002

Table 1: Pre-Separation Children Are Doing As Bad as Single-Parent Children
Raw Results from Employment Surveys, 1982-2002

Panel A: 1982-1991

	(0) All Children 15-20 year-old	(1) All Children in Two-Parent Families	(2) All Children in Single-Parent Families	
% Normal Age	28,9	29,8	22,4	
(s.e.)	(0,1)	(0,1)	(0,3)	
[N.obs.]	[149 025]	[129 416]	[19 600]	
	(3) Children in Two-Parent Families Stable at t+1	(4) Children in Two-Parent Families Who Separate at t+1	(5) Children in Two-Parent Families Stable at t+1 and t+2	(6) Children in Two-Parent Families Stable at t+1 and Who Sep. at t+2
% Normal Age	29,9	22,2	30,0	22,4
(s.e.)	(0,2)	(1,1)	(0,2)	(1,6)
[N.obs.]	[79 180]	[1 419]	[36 444]	[641]

Panel B: 1992-2001

	(0) All Children 15-20 year-old	(1) All Children in Two-Parent Families	(2) All Children in Single-Parent Families	
% Normal Age	38,3	39,7	31,1	
(s.e.)	(0,1)	(0,1)	(0,3)	
[N.obs.]	[141 048]	[119 264]	[21 781]	
	(3) Children in Two-Parent Families Stable at t+1	(4) Children in Two-Parent Families Who Separate at t+1	(5) Children in Two-Parent Families Stable at t+1 and t+2	(6) Children in Two-Parent Families Stable at t+1 and Who Sep. at t+2
% Normal Age	40,0	32,7	40,1	31,8
(s.e.)	(0,2)	(1,2)	(0,3)	(1,8)
[N.obs.]	[72 315]	[1 406]	[30 010]	[576]

Source : Author's computations using French Employment Surveys, 1982-2002

Table 2: Pre-Separation Children Are Doing as Bad as Single-Parent Children
OLS Estimates from Employment Surveys, 1982-2002

	1982-1991 - % Normal Age			1992-2001 - % Normal Age		
	(A)	(B)	(C)	(D)	(E)	(F)
(1) Children in	29,9	29,9	29,9	40,0	40,0	40,0
Two-Parent Families	(0,2)	(0,2)	(0,2)	(0,2)	(0,2)	(0,2)
Stable at t+1	[79 180]	[79 180]	[79 180]	[72 315]	[72 315]	[72 315]
(2) Children in	22,8	23,6	22,9	31,7	32,0	31,6
Single-Parent Families	(0,4)	(0,3)	(0,3)	(0,4)	(0,3)	(0,3)
	[16 522]	[16 522]	[16 522]	[20 581]	[20 581]	[20 581]
(3) Children in Two-Parent	18,5	20,5	23,9	31,1	31,6	37,4
Families Who Separate at t+1	(2,0)	(1,8)	(1,8)	(2,8)	(2,7)	(2,7)
(Widowhood)	[476]	[476]	[476]	[289]	[289]	[289]
(4) Children in Two-Parent	24,2	23,4	22,8	34,4	33,5	32,8
Families Who Separate at t+1	(1,4)	(1,3)	(1,3)	(1,4)	(1,4)	(1,3)
(Non-Widowhood)	[943]	[943]	[943]	[1 117]	[1 117]	[1 117]
diff. (2) - (1)	**-7,2 *** **	**-6,2 *** **	**-7,0 *** **	**-8,3 *** **	**-8,0 *** **	**-8,4 *** **
	(0,4)	**(0,3)**	**(0,3)**	**(0,4)**	**(0,3)**	**(0,3)**
diff. (3) - (1)	**-11,5 *** **	**-9,4 *** **	**-6,0 *** **	**-8,8 *** **	**-8,4 *** **	-2,6
	(2,0)	**(1,9)**	**(1,8)**	**(2,8)**	**(2,7)**	(2,7)
diff. (4) - (1)	**-5,8 *** **	**-6,5 *** **	**-7,1 *** **	**-5,6 *** **	**-6,5 *** **	**-7,2 *** **
	(1,4)	**(1,4)**	**(1,3)**	**(1,4)**	**(1,4)**	**(1,3)**
diff. (2) - (4)	-1,4	0,3	0,1	**-2,7 ***	-1,5	-1,2
	(1,4)	(1,4)	(1,3)	**(1,4)**	(1,4)	(1,3)
Year/Cohort Controls	No	Yes	Yes	No	Yes	Yes
Socio-demographic Controls	No	No	Yes	No	No	Yes

Note: Author's computations using French Employment Surveys, 1982-2002. This table reports estimates from linear probability regressio of the form: $NormalAge_i = a + b\ Family_i + c\ YearCohort_t + d\ SocioDem_i + u_i$, where $NormalAge_i$ denotes school performance (=1 if childre is in normal grade for his age, =0 otherwise), $Family_i$ is an indicator of family structure (=1 if children lives in two-parent family stable at ye t+1, =2 if children lives in single-parent family, =3 if children lives in two-parent family who separates at t+1 (widowhood), =4 if children live in two-parent family who separates at t+1 (non-widowhood)), $YearCohort_t$ is a set of Year/Cohort dummies, and $SocioDem_i$ is a set of soci demographic controls (including sex, mother's education, occupation and age, region and city size) (single-parent children living with their father were excluded). Regressions were run separately for the 1982-1991 and 1992-2001 sub-periods. Standard errors are in parenthese numbers of observations are in square brackets. *** denotes coefficients significant at 1% level, ** at 5% level and * at 10% level. The key result is that there is no statistically significant difference in school performance between children living in single-parent families and children living with two parents who are about to separate.

Table 3: Pre-Separation Children Are Doing As Bad as Single-Parent Children
Raw Results from Employment Surveys, 1968-2002

Panel A: 1968-1984

	(0) All Children 17-20 year-old	(1) All Children in Two-Parent Families	(2) All Children in Single-Parent Families	
% Still at School	52,8	54,1	44,3	
(s.e.)	(0,1)	(0,1)	(0,3)	
[N.obs.]	[182 640]	[159 461]	[23 179]	
	(3) Children in Two-Parent Families Stable at t+1	(4) Children in Two-Parent Families Who Separate at t+1	(5) Children in Two-Parent Families Stable at t+1 and t+2	(6) Children in Two-Parent Families Stable at t+1 and Who Sep. at t+2
% Still at School	55,4	46,5	55,6	46,4
(s.e.)	(0,2)	(1,2)	(0,3)	(1,8)
[N.obs.]	[80 906]	[1 602]	[33 651]	[658]

Panel B: 1985-2001

	(0) All Children 17-20 year-old	(1) All Children in Two-Parent Families	(2) All Children in Single-Parent Families	
% Still at School	78,0	78,8	73,3	
(s.e.)	(0,1)	(0,1)	(0,3)	
[N.obs.]	[159 620]	[135 038]	[24 222]	
	(3) Children in Two-Parent Families Stable at t+1	(4) Children in Two-Parent Families Who Separate at t+1	(5) Children in Two-Parent Families Stable at t+1 and t+2	(6) Children in Two-Parent Families Stable at t+1 and Who Sep. at t+2
% Still at School	79,0	71,4	79,1	72,8
(s.e.)	(0,2)	(1,2)	(0,2)	(1,7)
[N.obs.]	[82 397]	[1 503]	[35 822]	[665]

Source : Author's computations using French Employment Surveys, 1968-2002

Table 4: Pre-Separation Children Are Doing as Bad as Single-Parent Children
OLS Estimates from Employment Surveys, 1968-2002

	1968-1984 - % Still at School			1985-2001 - % Still at School		
	(A)	(B)	(C)	(D)	(E)	(F)
(1) Children in	55,4	55,4	55,4	79,0	79,0	79,0
Two-Parent Families	(0,2)	(0,2)	(0,2)	(0,2)	(0,2)	(0,2)
Stable at t+1	[80 906]	[80 906]	[80 906]	[82 397]	[82 397]	[82 397]
(2) Children in	45,7	48,5	47,3	74,2	73,9	73,1
Single-Parent Families	(0,4)	(0,4)	(0,4)	(0,4)	(0,3)	(0,4)
	[18 310]	[18 310]	[18 310]	[21 763]	[21 763]	[21 763]
(3) Children in Two-Parent	42,4	44,5	48,2	66,8	69,3	72,4
Families Who Separate at t+1	(1,8)	(1,7)	(1,8)	(2,0)	(2,0)	(1,9)
(Widowhood)	[761]	[761]	[761]	[410]	[410]	[410]
(4) Children in Two-Parent	52,3	51,4	49,4	73,1	71,8	71,6
Families Who Separate at t+1	(1,7)	(1,6)	(1,7)	(1,3)	(1,3)	(1,3)
(Non-Widowhood)	[841]	[841]	[841]	[1 093]	[1 093]	[1 093]
diff. (2) - (1)	**-9,8 *** **	**-6,9 *** **	**-8,1 *** **	**-4,8 *** **	**-5,1 *** **	**-5,9 *** **
	(0,4)	**(0,4)**	**(0,4)**	**(0,4)**	**(0,3)**	**(0,3)**
diff. (3) - (1)	**-13,2 *** **	**-10,9 *** **	**-7,2 *** **	**-12,2 *** **	**-9,7 *** **	**-6,6 *** **
	(1,8)	**(1,7)**	**(1,8)**	**(2,0)**	**(2,0)**	**(1,9)**
diff. (4) - (1)	**-3,1 ***	**-4,0 ** **	**-6,0 *** **	**-5,9 *** **	**-7,2 *** **	**-7,4 *** **
	(1,7)	**(1,6)**	**(1,7)**	**(1,3)**	**(1,2)**	**(1,2)**
diff. (2) - (4)	**-6,6 *** **	**-2,9 **	-2,1	1,1	2,1	1,5
	(1,7)	**(1,6)**	(1,7)	(1,4)	(1,4)	(1,2)
Year/Cohort Controls	No	Yes	Yes	No	Yes	Yes
Socio-demographic Controls	No	No	Yes	No	No	Yes

Note: Author's computations using French Employment Surveys, 1968-2002. This table reports estimates from linear probability regressio of the form: $StillAtSchool_i = a + b\ Family_i + c\ YearCohort_t + d\ SocioDem_i + u_i$, where $StillAtSchool_i$ denotes school performance (=0 if chil has dropped out from school, =1 otherwise), $Family_i$ is an indicator of family structure (=1 if children lives in two-parent family stable at ye t+1, =2 if children lives in single-parent family, =3 if children lives in two-parent family who separates at t+1 (widowhood), =4 if children live in two-parent family who separates at t+1 (non-widowhood)), $YearCohort_t$ is a set of Year/Cohort dummies, and $SocioDem_i$ is a set of soci demographic controls (including sex, mother's education, occupation and age, region and city size) (single-parent children living with their father were excluded). Regressions were run separately for the 1968-1984 and 1985-2001 sub-periods. Standard errors are in parenthese numbers of observations are in square brackets. *** denotes coefficients significant at 1% level, ** at 5% level and * at 10% level. The key result is that there is no statistically significant difference in school performance between children living in single-parent families and children living with two parents who are about to separate.

Table 5: The Impact of Single-Parenthood on School Performance: Fixed-Effects Regressions

	1984-2002 - % Normal Age		
	(A)	(B)	(C)
Children in Single-Parent Families	**-7,1 *** (0,3)**	**-7,8 *** (0,3)**	0,2 (1,1)
Year/Cohort Controls	No	Yes	Yes
Socio-demographic Controls	No	Yes	Yes
Individual Fixed Effects	No	No	Yes
N.obs.	[171 004]	[171 004]	[171 004]

Note: Author's computations using French Employment Surveys, 1984-2002. This table reports estimates from linear probability regressions of the form: $NormalAge_{it} = a + b\ Family_{it} + c\ YearCohort_{it} + d\ SocioDem_{it} + u_{it}$, where $NormalAge_{it}$ denotes school performance (=1 if children is in normal grade for his age, =0 otherwise), $Family_{it}$ is an indicator of family structure (=1 if children lives in two-parent family, =2 if children lives in single-parent family, $YearCohort_{it}$ is a set of Year/Cohort dummies, and $SocioDem_{it}$ is a set of socio-demographic controls (including sex, mother's education, occupation and age, region and city size) (single-parent children living with their father were excluded).
Standard errors are in parentheses. *** denotes coefficients significant at 1% level, ** at 5% level and * at 10% level.
The key result is that the negative coefficient on single-parenthood vanishes once individual fixed effects are introduced.

Table 6: The Impact of Separation: First-Marriage vs Second-Marriage vs Single-Parent Families

	School Performance (% Normal Age) Children 16-20 year-old (A)	Performance Gap w/ Children Living with theirTwo Parents (Married) (B)	Performance Gap w/ Children Living with theirTwo Parents (Married) (C)	Performance Gap w/ Children Living with theirTwo Parents (Married) (D)	Performance Gap w/ Children Living with theirTwo Parents (Married) (E)
(1) Children Living with their Two Parents (Married)	41,8 (0,2) [42 253]				
(2) Children Living with their Two Parents (Non-Married)	33,1 (1,3) [1 195]	**-8,6 ***** **(1,3)**	**-10,8 ***** **(1,3)**	**-10,0 ***** **(1,4)**	**-10,0 ***** **(1,4)**
(3) Children Living with only One of their Parents and his/her New Mate (Married)	30,1 (0,9) [3 287]	**-11,7 ***** **(0,9)**	**-12,1 ***** **(0,8)**	**-12,7 ***** **(0,8)**	**-12,7 ***** **(0,8)**
(4) Children Living with only One of their Parents and his/her New Mate (Non-Married)	29,4 (1,1) [2 170]	**-12,4 ***** **(1,1)**	**-13,6 ***** **(1,0)**	**-14,1 ***** **(1,0)**	**-14,1 ***** **(1,0)**
(5) Children Living with only One of their Parents (No Mate)	29,9 (0,6) [7 246]	**-11,8 ***** **(0,6)**	**-10,7 ***** **(0,6)**	**-10,4 ***** **(0,6)**	
In Which: (6) Children Living with only One of their Parents (No Mate) (No previous marital life)					**-10,2 ***** **(2,7)** [300]
(7) Children Living with only One of their Parents (No Mate) (Sep. When Children 0-5 year-old)					**-7,4 ***** **(1,7)** [734]
(8) Children Living with only One of their Parents (No Mate) (Sep. When Children 6-11 year-old)					**-11,7 ***** **(1,2)** [1 451]
(9) Children Living with only One of their Parents (No Mate) (Sep. When Children 12-17 year-old)					**-11,3 ***** **(0,9)** [2 690]
Socio-demographic Controls I	No	No	Yes	Yes	Yes
Socio-demographic Controls II	No	No	No	Yes	Yes

Note: Author's computations using French Family History Survey, 1999. This table reports estimates from linear probability regressions of the form: $NormalAge_i = a + b\ Family_i + c\ SocioDemI_i + d\ SocioDemII_i + u_i$, where $NormalAge_i$ denotes school performance (=1 if children is in normal grade for his age, =0 otherwise), $Family_i$ is an indicator of family structure (see the table), $SocioDemI_i$ and $SocioDemII_i$ are two sets of socio-demographic controls (set I includes sex, age, region and city size, set II includes mother's education, occupation and age). Standard errors are in parentheses, numbers of observations are in square brackets.

*** denotes coefficients significant at 1% level, ** at 5% level and * at 10% level.

Table 7: Pre-Separation Children Are Doing as Bad as Single-Parent Children
Estimates from Education Ministry Panel, 1995-2002 (I)

	1995 Normalized French Test Scores		1995 Normalized Maths Test Scores		1995-1998 School Performance (% Normal Age)		
	(A)	(B)	(C)	(D)	(E)	(F)	(G)
(1) Children Living with	4,209	4,209	3,806	3,806	69,1	69,1	69,1
their Two Parents	(0,009)	(0,009)	(0,009)	(0,009)	(0,4)	(0,4)	(0,4)
in 1995 and 1998	[11 305]	[11 305]	[11 279]	[11 279]	[11 822]	[11 822]	[11 822]
(2) Children Living with their	4,112	4,083	3,705	3,672	56,7	56,7	60,0
Two Parents in 1995 and with	(0,038)	(0,038)	(0,038)	(0,038)	(0,3)	(0,3)	(0,3)
only One of Their Parents in 1998	[684]	[684]	[674]	[674]	[577]	[577]	[577]
(3) Children Living with	4,004	4,077	3,550	3,629	53,1	58,7	63,3
only One of their Parents	(0,018)	(0,018)	(0,018)	(0,018)	(2,0)	(2,0)	(2,0)
in 1995 and 1998	[3 184]	[3 184]	[3 189]	[3 189]	[3 013]	[3 013]	[3 013]
diff. (2) - (1)	**-0,097 ****	**-0,126 *****	**-0,102 ****	**-0,134 *****	**-12,5 *****	**-12,5 *****	**-9,1 *****
	(0,042)	**(0,041)**	**(0,042)**	**(0,041)**	**(2,0)**	**(2,0)**	**(2,0)**
diff. (3) - (1)	**-0,204 *****	**-0,132 *****	**-0,257 *****	**-0,177 *****	**-16,0 *****	**-10,4 *****	**-5,8 *****
	(0,021)	**(0,022)**	**(0,021)**	**(0,022)**	**(1,0)**	**(1,1)**	**(1,0)**
diff. (2) - (3)	**0,107 ****	0,007	**0,155 ****	0,044	**3,5 ***	-2,1	-3,3
	(0,046)	(0,046)	**(0,046)**	(0,046)	**(2,2)**	(2,2)	(2,1)
Socio-demographic Controls	No	Yes	No	Yes	No	Yes	Yes
1995 Test Scores Controls	-	-	-	-	No	No	Yes

Note: Author's computations using Education Ministry Panel, 1995-2002. Col. (A) to (D) of his table report estimates from linear regressions of the form: $TestScores1995_i = a + b\ Family_i + c\ SocioDem_i + u_i$, where $TestScores_i$ denotes 1995 normalized test scores (i.e. test scores divided by standard deviation), $Family_i$ is an indicator of family structure (=1 if children lives with his two parents in 1995 and 1998, =2 if children lives with his two parents in 1995 and with only one of his parents in 1998, =3 if children lives with only one of his parents in 1995 and 1998), and $SocioDem_i$ is a set of socio-demographic controls (including sex, mother's education, occupation and age, and city size)
Col. (E) to (G) of his table report estimates from linear probability regressions of the form: $Performance19951998_i = a + b\ Family_i + c\ TestScores1995_i + u_i$, where $Performance19951998_i$ is an indicator of school performance between 1995 and 1998 (=0 if children was held back in at least one grade between 1995 and 1998, =1 otherwise), $Family_i$ is an indicator of family structure (same as above), $SocioDem_i$ is a set of socio-demographic controls (see above), and $TestScores1995_i$ denotes 1995 normalized test scores (both French and maths test scores were included in absolute and squared values). Standard errors are in parentheses, numbers of observations are in square brackets.
*** denotes coefficients significant at 1% level, ** at 5% level and * at 10% level.

Table 8: Pre-Separation Children Are Doing as Bad as Single-Parent Children
Estimates from Education Ministry Panel, 1995-2002 (II)

	1995 Normalized French Test Scores		1995 Normalized Maths Test Scores		1998-1999 Junior High School Terminal Exam (% Pass)		
	(A)	(B)	(C)	(D)	(E)	(F)	(G)
(1) Children Living with	4,307	4,307	3,908	3,908	90,2	69,1	69,1
their Two Parents	(0,009)	(0,009)	(0,009)	(0,009)	(0,4)	(0,4)	(0,4)
in 1995, 1998 and 2002	[8 644]	[8 644]	[8 620]	[8 620]	[6 754]	[11 822]	[11 822]
(2) Children Living with their	4,265	4,225	3,843	3,840	85,7	56,7	60,0
Two Parents in 1995 and 1998 and	(0,037)	(0,037)	(0,038)	(0,038)	(1,3)	(0,3)	(0,3)
with only One of Their Parents in 200	[753]	[753]	[755]	[755]	[551]	[577]	[577]
(3) Children Living with their	4,089	4,107	3,689	3,697	83,6	58,7	63,3
Two Parents in 1995 and with only	(0,038)	(0,038)	(0,038)	(0,038)	(1,4)	(2,0)	(2,0)
One of Their Parents in 1998 and 200	[708]	[708]	[698]	[698]	[434]	[3 013]	[3 013]
(4) Children Living with	3,988	4,090	3,538	3,640	79,0	58,7	63,3
only One of their Parents	(0,019)	(0,019)	(0,019)	(0,020)	(0,7)	(2,0)	(2,0)
in 1995, 1998 and 2002	[3 184]	[3 184]	[3 184]	[3 184]	[1 813]	[3 013]	[3 013]
diff. (2) - (1)	-0,042	**-0,082 ****	**-0,065 ***	**-0,068 ***	**-4,5 *****	**-5,0 *****	**-5,1 *****
	(0,037)	**(0,034)**	**(0,037)**	**(0,035)**	**(1,4)**	**(1,4)**	**(1,4)**
diff. (3) - (1)	**-0,218 *****	**-0,200 *****	**-0,219 *****	**-0,211 *****	**-6,5 *****	**-6,8 *****	**-6,6 *****
	(0,038)	**(0,038)**	**(0,038)**	**(0,039)**	**(1,6)**	**(1,7)**	**(1,6)**
diff. (4) - (1)	**-0,319 *****	**-0,217 *****	**-0,371 *****	**-0,268 *****	**-11,1 *****	**-10,3 *****	**-7,3 *****
	(0,021)	**(0,022)**	**(0,020)**	**(0,022)**	**(0,9)**	**(0,9)**	**(0,9)**
diff. (2) - (3)	**0,176 *****	**0,118 ****	**0,154 *****	**0,143 ****	2,0	1,8	1,5
	(0,040)	**(0,041)**	**(0,040)**	**(0,041)**	(1,7)	(1,7)	(1,7)
diff. (3) - (4)	**0,101 ****	0,017	**0,152 ****	0,057	**5,6 *****	**-3,5 ***	0,7
	(0,039)	(0,040)	**(0,038)**	(0,040)	**(1,7)**	**(1,8)**	(1,8)
Socio-demographic Controls	No	Yes	No	Yes	No	Yes	Yes
1995 Test Scores Controls	-	-	-	-	No	No	Yes

Note: Author's computations using Education Ministry Panel, 1995-2002. Col. (A) to (D) of his table report estimates from linear regressions of the form: $TestScores1995_i = a + b\ Family_i + c\ SocioDem_i + u_i$, where $TestScores_i$ denotes 1995 normalized test scores (i.e. test scores divided by standard deviation), $Family_i$ is an indicator of family structure (=1 if children lives with his two parents in 1995, 1998 and 2002, =2 if children lives with his two parents in 1995 and 1998 and with only one of his parents in 2002, =3 if children lives with his two parents in 1995 but with only one of his parents in 1998 and 2002, =4 if children lives with only one of his two parents in 1995, 1998 and 2002), , and $SocioDem_i$ is a set of socio-demographic controls (including sex, mother's education, occupation and age, and city size)
Col. (E) to (G) of his table report estimates from linear probability regressions of the form: $Exam19981999_i = a + b\ Family_i + c\ TestScores1995_i + u_i$, where $Exam19981999_i$ is an indicator of school performance during year 1998-1999 (=0 if children did not pass the junior high school terminal exam ("brevet des collèges"), =1 otherwise), $Family_i$ is an indicator of family structure (same as above), $SocioDem_i$ is a set of socio-demographic controls (see above), and $TestScores1995_i$ denotes 1995 normalized test scores (both French and maths test scores were included in absolute and squared values). Standard errors are in parentheses, numbers of observations are in square brackets.
*** denotes coefficients significant at 1% level, ** at 5% level and * at 10% level.

Table 9: The Impact of Separation is Smaller when Separation Rates are Higher
Time Variations, 1968-2002

	% Children 17-20 Living in Single-Parent Family (A)	School Performance (% Still at School) of Children Living in Two-Parent Family (B)	Performance Gap Single-Parent vs Two-Parent (abs.diff.) (C)	Performance Gap Single-Parent vs Two-Parent (%.diff.) (D)	Performance Gap Single-Parent vs Two-Parent (abs.diff.) (E)	Performance Gap Single-Parent vs Two-Parent (%.diff.) (F)
1968-1972	10,2	47,5	**-8,2 *****	**-17,2 *****	**-7,9 *****	**-16,6 *****
	(0,1)	(0,1)	**(0,6)**	**(1,2)**	**(0,6)**	**(0,6)**
	[66 293]					
1973-1977	9,8	54,4	**-10,6 *****	**-19,5 *****	**-10,3 *****	**-18,9 *****
	(0,1)	(0,1)	**(0,8)**	**(1,4)**	**(0,8)**	**(1,4)**
	[45 365]					
1978-1982	10,7	59,0	**-8,3 *****	**-14,1 *****	**-7,2 *****	**-12,2 *****
	(0,1)	(0,1)	**(0,7)**	**(1,2)**	**(0,7)**	**(1,2)**
	[46 864]					
1983-1987	11,4	66,1	**-5,7 *****	**-8,6 *****	**-5,6 *****	**-8,5 *****
	(0,1)	(0,1)	**(0,7)**	**(1,0)**	**(0,7)**	**(1,0)**
	[47 654]					
1988-1992	12,8	77,6	**-5,9 *****	**-7,6 *****	**-5,8 *****	**-7,5 *****
	(0,1)	(0,1)	**(0,6)**	**(0,9)**	**(0,6)**	**(0,9)**
	[47 067]					
1993-1997	13,2	84,5	**-4,9 *****	**-5,8 *****	**-4,8 *****	**-5,7 *****
	(0,1)	(0,1)	**(0,5)**	**(0,6)**	**(0,5)**	**(0,6)**
	[44 455]					
1998-2002	15,0	82,5	**-5,6 *****	**-6,8 *****	**-5,1 *****	**-6,2 *****
	(0,1)	(0,1)	**(0,5)**	**(0,6)**	**(0,5)**	**(0,6)**
	[43 908]					
Year/Cohort Controls	-	-	No	No	Yes	Yes
Socio-demographic Controls	-	-	No	No	Yes	Yes

Note: Author's computations using Employment Surveys, 1968-2002. Standard errors are in parentheses, numbers of observations are in square brackets
*** denotes coefficients significant at 1% level, ** at 5% level and * at 10% level.

Table 10: The Impact of Separation is Smaller when Separation Rares are Higher
Time and Mother's Education Variations, 1968-2002

	Children Living with Low-Education Mother				Children Living with High-Education Mother			
	% Children 17-20 year-old Living in Single-Parent Family (A)	School Performance (% Still at School) of Children Living in Two-Parent Family (B)	Performance Gap Single-Parent vs Two-Parent (abs.diff.) (C)	Performance Gap Single-Parent vs Two-Parent (%.diff.) (D)	% Children 17-20 year-old Living in Single-Parent Family (E)	School Performance (% Still at School) of Children Living in Two-Parent Family (F)	Performance Gap Single-Parent vs Two-Parent (abs.diff.) (G)	Performance Gap Single-Parent vs Two-Parent (%.diff.) (H)
1968-1972	10,1	44,5	**-8,2 *****	**-18,4 *****	10,8	86,4	**-10,5 *****	**-12,2 *****
	(0,1)	(0,2)	**(0,7)**	**(1,4)**	(0,4)	(0,5)	**(1,6)**	**(1,8)**
	[61 476]				[4 817]			
1973-1977	9,7	51,9	**-10,7 *****	**-20,6 *****	9,9	87,4	**-10,2 *****	**-11,7 *****
	(0,2)	(0,3)	**(0,8)**	**(1,5)**	(0,5)	(0,6)	**(2,0)**	**(2,2)**
	[42 219]				[3 146]			
1978-1982	10,4	53,6	**-8,9 *****	**-16,6 *****	11,9	86,1	**-9,0 *****	**-10,4 *****
	(0,2)	(0,3)	**(0,8)**	**(1,5)**	(0,3)	(0,4)	**(1,2)**	**(1,3)**
	[39 005]				[7 859]			
1983-1987	11,1	60,7	**-5,6 *****	**-9,2 *****	12,6	87,6	**-4,3 *****	**-4,9 *****
	(0,2)	(0,3)	**(0,8)**	**(1,3)**	(0,3)	(0,4)	**(1,0)**	**(1,1)**
	[38 012]				[9 642]			
1988-1992	12,7	72,1	**-7,0 *****	**-9,7 *****	13,0	92,0	**-4,4 *****	**-4,8 *****
	(0,2)	(0,3)	**(0,7)**	**(1,0)**	(0,3)	(0,3)	**(0,7)**	**(0,8)**
	[33 664]				[12 819]			
1993-1997	12,9	79,2	**-5,9 *****	**-7,4 *****	13,7	93,5	**-3,7 *****	**-4,0 *****
	(0,2)	(0,3)	**(0,7)**	**(0,9)**	(0,2)	(0,2)	**(0,6)**	**(0,7)**
	[27 826]				[16 457]			
1998-2002	15,6	75,6	**-6,1 *****	**-8,1 *****	14,3	90,5	**-3,8 *****	**-4,2 *****
	(0,2)	(0,3)	**(0,8)**	**(0,9)**	(0,2)	(0,2)	**(0,6)**	**(0,6)**
	[27 754]				[20 148]			

Note: Author's computations using Employment Surveys, 1968-2002. Standard errors are in parentheses, numbers of observations are in square brackets.
*** denotes coefficients significant at 1% level, ** at 5% level and * at 10% level.

Table 11: The Impact of Separation is Smaller when Separation Rares are Higher
Time and Mother's Education Variations, 1982-2002

	Children Living with Low-Education Mother				Children Living with High-Education Mother			
	% Children 15-20 year-old Living in Single-Parent Family (A)	School Performance (% Normal Age) of Children Living in Two-Parent Family (B)	Performance Gap Single-Parent vs Two-Parent (abs.diff.) (C)	Performance Gap Single-Parent vs Two-Parent (%.diff.) (D)	% Children 15-20 year-old Living in Single-Parent Family (E)	School Performance (% Normal Age) of Children Living in Two-Parent Family (F)	Performance Gap Single-Parent vs Two-Parent (abs.diff.) (G)	Performance Gap Single-Parent vs Two-Parent (%.diff.) (H)
1983-1987	10,6	22,7	**-6,4 *****	**-28,2 *****	12,1	52,2	**-11,2 *****	**-21,5 *****
	(0,1)	(0,2)	**(0,6)**	**(2,4)**	(0,3)	(0,4)	**(1,2)**	**(2,3)**
	[58 187]				[15 810]			
1988-1992	12,0	23,6	**-7,3 *****	**-30,9 *****	12,5	53,4	**-9,5 *****	**-17,8 *****
	(0,1)	(0,2)	**(0,6)**	**(2,5)**	(0,2)	(0,3)	**(1,1)**	**(2,2)**
	[49 698]				[20 236]			
1993-1997	12,5	27,3	**-6,4 *****	**-23,4 *****	12,9	58,6	**-10,2 *****	**-17,4 *****
	(0,1)	(0,2)	**(0,6)**	**(2,2)**	(0,2)	(0,3)	**(0,9)**	**(1,7)**
	[42 256]				[26 996]			
1998-2002	15,6	27,3	**-6,1 *****	**-22,3 *****	13,9	57,2	**-10,3 *****	**-18,0 *****
	(0,2)	(0,2)	**(0,6)**	**(2,2)**	(0,2)	(0,2)	**(0,8)**	**(1,4)**
	[35 635]				[32 029]			

Note: Author's computations using Employment Surveys, 1982-2002. Standard errors are in parentheses, numbers of observations are in square brackets.
*** denotes coefficients significant at 1% level, ** at 5% level and * at 10% level.

Table 12: The Impact of Separation is Smaller when Separation Rares are Higher
Regional Variations, 1982-2002

	% Children 15-20 Living in Single-Parent Family (A)	School Performance (% Normal Age) of Children Living in Two-Parent Family (B)	Performance Gap Single-Parent vs Two-Parent (abs.diff.) (C)	Performance Gap Single-Parent vs Two-Parent (%.diff.) (D)	Performance Gap Single-Parent vs Two-Parent (abs.diff.) (E)	Performance Gap Single-Parent vs Two-Parent (%.diff.) (F)
(1) Bottom Third Regions	10,7	34,8	**-8,5 *****	**-24,4 *****	**-8,9 *****	**-25,6 *****
	(0,1)	(0,2)	**(0,5)**	**(1,4)**	**(0,5)**	**(1,4)**
	[97 421]					
(2) Middle Third Regions	12,3	34,6	**-8,0 *****	**-23,1 *****	**-8,3 *****	**-23,9 *****
	(0,1)	(0,2)	**(0,4)**	**(1,2)**	**(0,4)**	**(1,2)**
	[112 844]					
(3) Top Third Regions	15,6	37,2	**-5,9 *****	**-15,9 *****	**-6,4 *****	**-17,2 *****
	(0,1)	(0,2)	**(0,5)**	**(1,3)**	**(0,5)**	**(1,3)**
	[81 741]					
diff. (3) - (1)	**4,9 *****	**2,4 *****	**2,6 *****	**8,6 *****	**2,5 *****	**8,4 *****
	(0,1)	**(0,2)**	**(0,5)**	**(1,4)**	**(0,5)**	**(1,4)**
Year/Cohort Controls	-	-	No	No	Yes	Yes
Socio-demographic Controls	-	-	No	No	Yes	Yes

Note: Author's computations using Employment Surveys, 1982-2002. Standard errors are in parentheses, numbers of observations are in square brackets. *** denotes coefficients significant at 1% level, ** at 5% level and * at 10% level.

Table 13: The Elasticity of the Performance Gap with Respect to the Separation Rate, I

Panel A: Employment Surveys, 1968-2002 (School Performance Indicator : % Still at School)

	Performance Gap Single-Parent vs Two-Parent (abs.diff.) (1)	Performance Gap Single-Parent vs Two-Parent (abs.diff.) (2)	Performance Gap Single-Parent vs Two-Parent (%.diff.) (3)	Performance Gap Single-Parent vs Two-Parent (%.diff.) (4)
% Children 17-20 Living	**-0,655 ****	-0,352	**-1,143 *****	-0,352
in Single-Parent Family	**(0,282)**	(0,319)	**(0,347)**	(0,319)
Level Control	No	Yes	No	Yes
[N.obs.]	[42]	[42]	[42]	[42]
Adj. R.sq.	0,068	0,127	0,141	0,410

Panel B: Employment Surveys, 1982-2002 (School Performance Indicator : % Normal Age)

	Performance Gap Single-Parent vs Two-Parent (abs.diff.) (1)	Performance Gap Single-Parent vs Two-Parent (abs.diff.) (2)	Performance Gap Single-Parent vs Two-Parent (%.diff.) (3)	Performance Gap Single-Parent vs Two-Parent (%.diff.) (4)
% Children 15-20 Living	**-0,685 ****	**-0,751 *****	**-0,792 *****	**-0,751 *****
in Single-Parent Family	**(0,323)**	**(0,191)**	**(0,259)**	**(0,191)**
Level Control	No	Yes	No	Yes
[N.obs.]	[24]	[24]	[24]	[24]
Adj. R.sq.	0,153	0,751	0,299	0,636

Note : Author's computations using French Employment Surveys, 1968-2002. This table reports estimates from linear regressions of the form $\log(PerformanceGap_i) = a + b \log(SingleParent_i) + c \log(LevelControl_i) + u_i$, where $PerformanceGap_i$ is the cell-level school performance between children living in single-parent and two-parent families (the gap is expressed either in absolute difference or percentage difference, and cells are defined by all possible year x region x mother's education combinations), $SingleParent_i$ is the cell-level fraction of children living in single-parent families, and $LevelControl_i$ denotes the cell-level school performance of children living in two-parent families.

*** denotes coefficients significant at 1% level, ** at 5% level and * at 10% level.

Table 14: The Elasticity of the Performance Gap with Respect to the Separation Rate, II

Panel A: Census Micro-Files, 1968-1999

	School Performance Indicator : % Still at School		School Performance Indicator : % Normal Age	
	Performance Gap Single-Parent vs Two-Parent (%.diff.)	Performance Gap Single-Parent vs Two-Parent (%.diff.)	Performance Gap Single-Parent vs Two-Parent (%.diff.)	Performance Gap Single-Parent vs Two-Parent (%.diff.)
	(1)	(2)	(3)	(4)
% Children 17-20 Living	**-0,904 *** **	**-0,485 ** **	**-0,545 *** **	**-0,331 * **
in Single-Parent Family	**(0,213)**	**(0,215)**	**(0,159)**	**(0,181)**
Level Control	No	Yes	No	Yes
[N.obs.]	[110]	[110]	[66]	[66]
Adj. R.sq.	0,198	0,670	0,141	0,193

Panel B: Education Ministry Panel 1995-2002 (School Performance Indicator : % Normal Age in 1995)

	Performance Gap Single-Parent vs Two-Parent (abs.diff.)	Performance Gap Single-Parent vs Two-Parent (abs.diff.)	Performance Gap Single-Parent vs Two-Parent (%.diff.)	Performance Gap Single-Parent vs Two-Parent (%.diff.)
	(1)	(2)	(3)	(4)
% Children Living in	**-0,900 ** **	**-0,825 ** **	**-0,966 * **	**-0,825 ** **
Single-Parent Family in 1995	**(0,433)**	**(0,338)**	**(0,520)**	**(0,338)**
Level Control	No	Yes	No	Yes
[N.obs.]	[24]	[24]	[24]	[24]
Adj. R.sq.	0,126	0,470	0,060	0,721

Note : Author's computations using French Census Micro-files 1968-1999 (Panel A) and the Education Ministry Panel 1995-2002 (Panel B). This table reports estimates from linear regressions of the form $\log(PerformanceGap_i) = a + b \log(SingleParent_i) + c \log(LevelControl_i) + u_i$, where $PerformanceGap_i$ is the cell-level school performance gap between children living in single-parent and two-parent families (the gap is expressed either in absolute difference or percentage difference, and cells are defined by all possible year x region combinations in panel A, and by all "academies" (administrative school regions) in panel B), $SingleParent_i$ is the cell-level fraction of children living in single-parent families, and $LevelControl_i$ denotes the cell-level school performance of children living in two-parent families.
*** denotes coefficients significant at 1% level, ** at 5% level and * at 10% level.