Age At Parents' Separation And Children Achievement: Evidence From France Using A Sibling Approach

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Age At Parents' Separation And Achievement: Evidence From France Using A Sibling Approach

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Abstract

This paper investigates the link between parental separation and children's achievement in adulthood. Using a French dataset on "Education-Training-Employment", I first estimate a random effects model and then examine the differences in age at divorce for children within the same family, to control for divorced family selection. Three outcomes are analysed: number of years of schooling, earnings-weighted education and social position. Using a random effects model, parental separation is linked to poorer educational attainment for their children, from 32% to 12% of a standard deviation lower where the number of years of education is concerned ; and from 30% to 8% of a standard deviation lower where the earnings-weighted education is concerned. This effect varies with age: least affected are the 16 to 18-year-olds, and most affected are the youngest. Where social position is concerned, effects are weaker, but remain negative. Accounting for the family fixed effect yields somewhat weaker estimated effects for the youngest, but results remain similar. Parental separation is more detrimental to boys' education under both models, but conducting a F-test, we only reject the nul hypothesis for earnings-weighted education where family fixed effect is accounted for. In results from both models, teenagers who experience a parental separation are less affected if born after 1970, but differences are not statistically different from zero where the family fixed effect is accounted for.

JEL classification : I20, J12

Keywords: Labour Market Outcomes, Education, Divorce, Family Structure, Marital Dissolution

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1 Introduction

The share of children whose parents separate has increased, from 3% for the generation born in 1946 to 15% for the generation born in 1988[1]. Despite a growing literature on the effect of parental separation on children's achievement, there is still no consensus on its magnitude. Several papers find a large proportion of the effect of parental separation attributable to selection on unobserved family characteristics (Björklund et al. 2007; Björklund & Sundström 2006; Ermisch & Francesconi 2001). However, the effect remains negative in Eastern Germany and Austria, even after accounting for selection (Francesconi et al. 2010; Frimmel et al. 2016). In this study, I provide new evidence on the link between parental separation and individuals' achievement in France. Even after controlling for family fixed effect, I find a negative correlation between parental separation and children's achievement, which contradicts the assumption that the effect of divorce is mainly explained by family selection.

This paper offers two main contributions. The first is to investigate the heterogeneity of the link between parental separation and children's achievement according to mother's education or to the cohort's composition. If the social composition of divorced families differs across countries, this may help to explain differences in the magnitude of the correlations between parental separation and children's achievement across countries. Moreover, this paper contributes to the burgeoning literature on the impact of parental separation on an existing gender gap (see Bertrand & Pan 2013; Lundberg 2017).

The second contribution is to shed light on the French case. France is an interesting setting to explore this question, lying somewhere between the US and Scandinavian countries in terms of welfare expenditures for families with children, and in terms of inequality of opportunity (Lefranc & Trannoy 2005). Therefore, the French case can provide wider insights into the impact of parental separation on children.

Parental separation may impact individuals' achievement through different channels. First, both parents' economic and time resources may be affected by a separation. From a theoretical perspective, it is well established that family background impacts a child's achievement (Becker 1994; Becker et al. 1976; Becker & Tomes 1979; Carneiro & Heckman 2003). The wealthier the parents, the more they invest in their child's human capital, and consequently, the wealthier the child will be. A separation is an economic shock for all the individuals. By separating, the couple lose all the gains from marriage, such as production and consumption complementarity or risk-pooling. They may have less economic resources to invest in their child's human capital. They could be constrained

[1]Computations by the author based on the Formation et Qualification Professionnelle (FQP) surveys, 2003 and 2014 waves.

to move, and their housing quality may be affected. Leturcq & Panico (2019) describe how income poverty and deprivation vary on average around parental separation. Using an event study, they show that both leisure deprivation, such as not being able to afford holidays or activities that involve a cost, like cinema outings and sports, and material deprivation (housing quality) appear to drive the observed overall deprivation increase. Clark et al. (2015) show that the effect of parental separation on children's outcomes decreases when income is controlled for. Moreover, the custodial parent, to offset the loss of one wage, has to increase working hours and may have less time for their child. A decrease in time spent with parents may also be a channel for the impact on achievement (see Grätz 2017; Le Forner 2019).

Second, parental separation could be a psychological shock for the child, especially if the level of conflict was low before the parental separation, which could mean that the separation was unexpected (Amato & Booth 2001). On the other hand, parental separation could benefit the child if it puts an end to a conflictual period (Amato & Booth 2001). This effect was, however, not confirmed for education in studies in Australia (Ribar et al. 2017) and in the United Kingdom (Clark et al. 2015). Then again, conflict might be a source of selection, raising the question of the effects of a "non-divorce", with the child remaining in a conflictual family. This correlation between parental separation and conflict (or other latent characteristics) introduces some degree of endogeneity. Divorce could be seen as simply an indicator of conflictual families (Amato & Sobolewski 2001; Martin 2007).

A number of methods have been used to deal with the endogeneity issue. Using variation in the gender ratio in the father's firm to instrument divorce, Frimmel et al. (2016) find a negative and persistent impact of divorce in Austria, with an upward bias. Bedard & Deschenes (2005) use the gender of the first-born to instrument separation in the US. A second method is to exploit time differences (Leturcq & Panico 2019; Piketty 2003), but this method cannot be used to study the impact of parental separation on children later, in adulthood. A strand of the literature (Björklund & Sundström 2006; Bratberg et al. 2014; Ermisch & Francesconi 2001; Francesconi et al. 2010) uses the variation in children's age at divorce across siblings to estimate a sibling-differences model. It cancels out the "family fixed effect" that captures all the characteristics common to siblings in a family.

I follow this last strand of the literature, using the FQP (*Formation et Qualification Professionnelle* - Education, Training and Occupation) surveys conducted by INSEE in 2003 and 2014. This is cross-sectional data including information on siblings' outcomes. The sample is roughly 40 000 individuals from the 2003 wave and roughly 26 000 individuals from the 2014 wave, making a total sample that includes more than 28 000 families. This guarantees enough significance power in the sibling-differences model. Three outcomes are analysed: number of years of schooling, earnings-weighted education and social position. The same number of years of schooling may lead to qualifications of varying levels or associated with different earning potential. This is accounted for by earnings-weighted education, the difference in earning potential conferred by a particular qualification as compared to being unqualified. Individuals with a given qualification may differ in their social position, due to occupational choices. Therefore, we also analyse social position as the average earnings that can be expected given the individual's education and occupation.

Four new findings are worthy of note. First, I find that parental separation lowers children's outcomes by 8% to 30% of a standard deviation. This link is poorly explained by divorced family selection in France. It reveals a negative correlation between divorce and children's achievement in France, whose effects do not go below 8% of a standard deviation, even after controlling for family fixed effect. This contrasts with findings elsewhere of a lower effect of parental separation after controlling for family fixed effect, and sometimes no significance at all. There are several possible explanations. The larger number of observations - more than 28 000 families - means that not too much significance power is lost in the sibling-differences model. Moreover, separated parents might not differ in their unobserved characteristics from non-separated parents in France, making separation random on average. Nevertheless, it is possible that there are several types of divorced families with different latent characteristics that have opposite effects on their children's achievement. These effects may compensate for each other.

Second, the correlation between parental separation and children's outcomes differs across groups. The negative impact is greater on boys' education, confirming previous findings (Bertrand & Pan 2013; Frimmel et al. 2016). This disadvantage for boys is less pronounced when social position is taken into account. One explanation might be that parental separation affects boys' externalising behaviour more (school attendance, concentration issues, suspension from school). However, girls are more affected when internalising behaviours like depression are considered (Lundberg 2017), and internalising behaviour may have more effect on social position than on educational outcomes. Third, under the family fixed effects model, parental separation is more detrimental to children's outcomes when the mother is less highly educated. This is consistent with heterogeneous consequences for divorced men and women according to their income: separation exacerbates existing inequalities (Ananat & Michaels 2008; Mcmanus & Diprete 2001). Nevertheless, a F-test fails to reject the equality of the coefficients between the two subgroups. Fourth, individuals born after 1970 seem to be less affected by a parental separation during their teenage years than those born before 1970, possibly due to a stigmatisation effect, but differences are only statistically different from zero for the number of years of education using the random effects model.

The rest of the paper is organised as follows. Section 2 provides a description of the dataset, the main variables, some descriptive statistics and the identification strategy. Section 3 reports the results. In

Section 4, the sensitivity of the results is checked. Section 5 concludes.

2 Data & Method

Data are taken from the FQP (*Formation et Qualification Professionnelle* - Education, Training and Occupation) surveys conducted by INSEE in 2003 and 2014. The FQP surveys conducted in 2003 and 2014 offer a representative sample of the French population aged 18 to 65 living in France at the date of the survey. This is cross-sectional data. The sample is around 40 000 and 26 000 observations for the 2003 wave and for the 2014 wave, respectively. There is detailed information on individual's education, occupation, earnings, parents' education and socio-professional category The respondent provides education and occupation information on one of their siblings, picked randomly. There is also data on parental divorce or separation, including date, type of custody arrangement and presence of a step-parent. Survey data is collected *a posteriori* and refers to the situation at the time when the respondent left the education system. Despite substantial effort by the survey team, therefore, errors of measurement due to recall errors remain possible[2]. Since the question about a parental separation refers to the end of a respondent's education, this could unfortunately be a source of bias. A respondent declaring a parental separation when (s)he was 23 means (s)he was still a student, and thus in higher education. This could artificially yield more highly educated individuals among the separated families. I perform a robustness check to investigate the existence of this potential question bias, and reject it.

2.1 Sample selection criteria

The sample was restricted to individuals (a) born between 1946 and 1978 for the 2003 wave, and between 1946 and 1989 for the 2014 wave, (b) for whom there was information on one sibling, (c) not identified as a half-sibling (born after a separation)[3], and (d) who experienced the parental separation in a different age group from that of the sibling. Another more restricted sample included only individuals (e) whose age differed from that of the referent sibling by less than 10 years.

Condition (a) ensured that individuals were old enough (25) to be at the end their education, therefore providing accurate information on their highest qualification. I also excluded children born during

[2]The FQP team makes substantial effort to obtain reliable retrospective data and avoid recall errors. They fill out with the respondent a timetable of all the major life events, to help them remember the date of each event. They cross-check all the events with the respondent: what happened at school against what happened in the family, stressing the importance of accuracy. Although this assists the respondent and creates a favourable context for obtaining accurate data, recall errors are still possible.

[3]The question on siblings does not distinguish between half-sibling and natural sibling. Half-siblings are observable if born after the respondent's parents' separation: 302 siblings here ; all of whom were excluded from the main analysis. Half the siblings had an age difference of more than 10 years. Therefore, when we focus on the subsample excluding siblings whose age differs by more than 10 years, we drop more than half the older half-siblings.

World War II, since they might not be representative. Condition (b) was required by the identification strategy, which uses differences between siblings. Although this eliminated only-children from the sample, a robustness check confirmed that results are not affected[4]. Using the sibling-differences model also led to condition (d), which ensured variations in age group within a family, useful to estimate the effect of parental separation. Conditions (c) and (e) provided the most similar environment across siblings, enabling me to assume a family *fixed* effect that guarantees the assumptions made for the sibling-differences model, resulting in unbiased estimators. Because it was not possible to identify half-siblings born before a divorce, this restriction could remove 50% of older half-siblings[5]. Robustness checks were performed to see whether conditions (b), (d) and (e) affect results, and are presented in Section 4.

After applying the sample selection criteria, I obtained a sample of about 56 000 siblings, and more than 50 000 siblings under condition (e). Sensitivity tests were performed to see the effect of these restrictions. The model was also tested excluding respondents who declare a divorce after age 16, because of potential question bias (condition (f)).

Table 1 shows the number of individuals in each sample when each criterion is applied. It also shows the number of individuals whose parents are separated or non-separated for each sample.

Table 1 – Number of observations depending on the sample

	(1)	(2)	(3)	(4)	(5)
Non Separated Parents	54498	53608	53608	49534	49534
Separated Parents	4405	4324	3268	3068	2412
Total	58903	57932	56876	52602	51946
Conditions (b) and (c) applied	No	Yes	Yes	Yes	Yes
Condition (d) applied	No	No	Yes	Yes	Yes
Condition (e) applied	No	No	No	Yes	Yes
Condition (f) applied	No	No	No	No	Yes

Notes: This Table reports the number of individuals in each subsample, breaking them down into separated parents and non-separated parents. Under condition (a), individuals were born between 1946 and 1978 for the 2003 wave, and between 1946 and 1989 for the 2014 wave, and it is applied for all samples. Under condition (b), only children are excluded. Condition (c) excludes observable half-siblings. Condition (d) excludes siblings who experience a parental separation in the same age group. Condition (e) excludes siblings with an age difference larger than ten years.

Source: Estimation samples drawn from the Dataset "Formation et Qualification Professionnelle" (INSEE), waves 2003 and 2014.

[4]Except for families with only one child, all family sizes are included.

[5]Since younger half-siblings born after divorce can be identified, the distribution of half- siblings is observable. Half have an age difference of more than 10 years.

2.2 Main Variables

We now present the main variables used in the analysis, starting with outcomes, followed by family structure, the main variable of interest, and the controls.

2.2.1 Measuring individual's achievement

Three outcomes are analysed: number of years of schooling, earnings-weighted education and social position. Since in France, the same number of years of schooling might culminate in different, more or less highly valued, qualifications, I consider an additional measure, earnings-weighted education. This is the wage value associated with a particular qualification as compared to being unqualified. Since a given qualification may lead to different occupations, and thus to different earnings, I also consider social position, measured as average earnings linked to characteristics such as occupation.

2.2.1.1 Number of years of schooling.

i) Compute the respondent's number of years of schooling from the first year of primary school (called CP) onwards

$$Y_1 = year\ of\ end\ of\ schooling - year\ of\ birth - 6$$

ii) Regress Y_1 on highest qualification, gender, year of birth and, its quadratic term, age and its quadratic term and interaction terms. It is then predicted for individuals and their siblings. Results of this regression are presented in Table A.1.

$$Y_1 = X\beta + \epsilon \tag{2.1}$$

$$\Rightarrow \hat{Y}_1 = X\hat{\beta}$$

iii) To avoid over-estimating of educational attainment for individuals who repeat years of schooling or temporarily suspend their education, median years of schooling is linked to each qualification by cohort. Table A.2 reports the number of years of schooling values for each cohort and each qualification in the five first columns.[6]

$$Y_2^{qualification \times cohort} = median(Y_1^{qualification \times cohort})$$

Since in France, an equal number of years of schooling might reflect qualifications of diverse

[6]In Section A 1.1, I compare and discuss my measure and a measure of number of years of schooling based on "normal age".

quality or that are differently valued in the society, I aim to take into account the quality of the qualification, looking at another measure of schooling: the earnings-weighted education.

2.2.1.2 Earnings-weighted education.

Following Ben-Halima et al. (2014) and Björklund & Sundström (2006), earnings-weighted education is examined for each qualification.

i) We predict the log of earnings for each gender. For respondents, the log of earnings is regressed on highest qualification, year of birth and, its quadratic term, age and its quadratic term, dummies for the profession categories (31 categories) and interaction terms (see Björklund & Jäntti 1997, for example).[7] The estimation is carried out for full-time workers, using the Heckman procedure to account for the exclusion of part-time workers and the inactive. The selection equation takes into account marital status and number of children.

$$Y_1 = \Sigma_1^{K-1} a^k \delta^k + X\beta + \epsilon \tag{2.2}$$

where a^k denotes each qualification. δ^k denotes the effect on earnings of having a particular qualification compared to being unqualified[8]. Individuals are selected only if they work full-time, i.e., under the following condition (selection equation):

$$Full\ Time_i^* = b_0 + b_1 Number\ of\ children_i + b_2 Marital\ Status + \epsilon_i,$$

$$Full\ Time_i = \begin{cases} 1\ if\ Full\ Time_i^* > 0 \\ 0\ if\ Full\ Time_i^* \leq 0 \end{cases}$$

ii) Earnings-weighted education is measured by $\hat{\delta}^k$, which is each qualification's contribution to the individual's earnings as compared to an unqualified individual. The measure is summarised in Table A.3 by each gender.

The two measures of education differ in how they rank the qualifications (See Figure 1). A degree from a Grande Ecole has much higher value when earnings-weighted education is used. On the other hand, a first University degree and a professional qualification or certificate like the *Brevet de technicien professionnel* has much higher value when number of years of schooling is used.

[7] Since we don't have information on the siblings' earnings, this model is estimated only on the respondents' sample.
[8] Table A.4 provides the results of this estimation for men and women, respectively; it also provides the results from an OLS model.

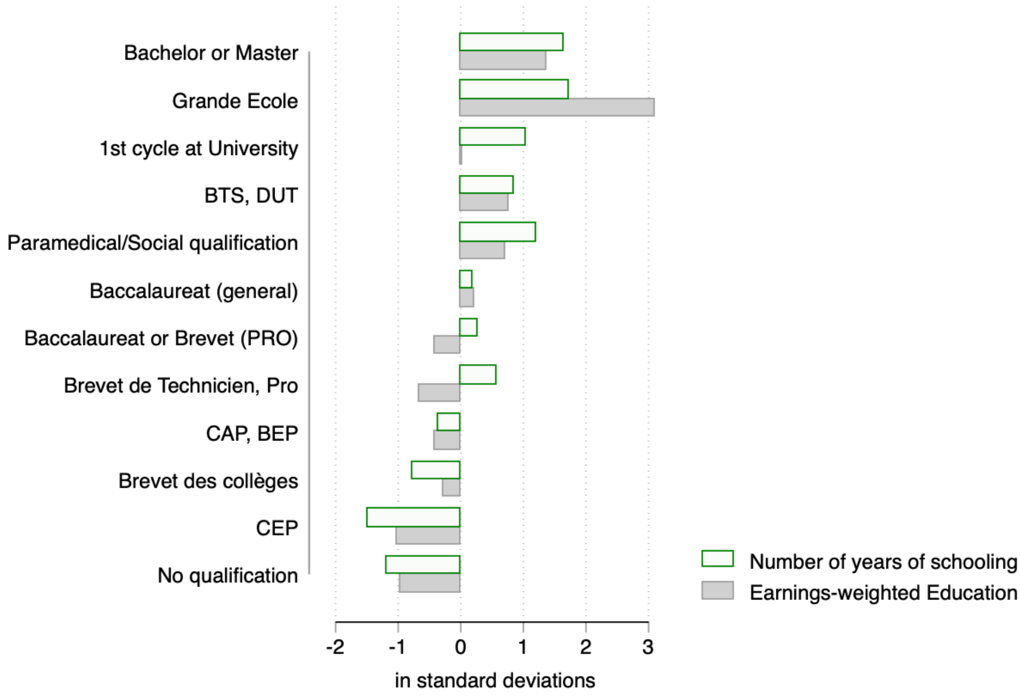

Fig. 1. Comparison of the two education measures: number of years of schooling vs earnings-weighted education. To ease interpretation, the two measures have been standardized for a mean of 0 and a standard deviation of 1.

2.2.1.3 Social Position.

Two individuals with the same qualifications would have the same earnings-weighted education, but Individual 1 could have an occupation associated with higher earnings than Individual 2, which would be reflected in social position. Social position is measured as average annual earnings linked to characteristics such as occupation and highest qualification. Formally:

i) For each gender, we estimate Equation 2.2 using a Heckman procedure described earlier[9].

ii) It is predicted for all individuals

$$\hat{Y}_1 = \Sigma_1^{K-1} a^k \hat{\delta}^k + X\hat{\beta} \tag{2.3}$$

For each outcome, we use the predicted outcomes for both siblings, even for the respondent, since we need comparable measures for both of them[10]. Outcomes are summarised in Table 2. The first column reports the summary of the (predicted) outcomes of the whole population of the dataset. The two other columns report the summary for the sample of interest, broken down into respondents

[9] In Section A.4, we compare this model to an OLS model. Results are reported in Table A.4. Figure A.1 provides the distribution of observed earnings and earnings estimated using both procedures for the respondents' sample.

[10] As a robustness check, we estimate the effect of parental separation adding residuals from a normal distribution to the actual outcome measures. Principal results for the main model using these noisy measures are in Table A.8. Results are qualitatively similar.

and siblings. The three subsamples are similar in terms of outcomes. In the rest of the analysis, outcome variables are standardized for a mean of zero and a standard deviation of one.

Table 2 – Summary statistics for outcomes

	All mean/sd/min/max	Respondents mean/sd/min/max	Siblings mean/sd/min/max
Nb. of Years of Schooling	13.36	13.45	13.48
	2.81	2.82	2.77
	8.5	8.5	8.5
	18.3	18.3	18.3
Earnings-weighted Education	0.11	0.11	0.12
	0.12	0.12	0.12
	-0.1	-0.1	-0.1
	0.5	0.5	0.5
Social Position	10.23	10.25	10.22
	0.42	0.42	0.43
	7.4	7.7	7.4
	13.6	13.6	11.7
Observations	81533	28438	28438

Notes: Schooling is a proxy for the number of years of schooling. Earnings-weighted education is the wage value of the individual's highest qualification (compared to no qualification). Social position is the average earnings estimated separately for each gender on full-time workers with a Heckman procedure to account for the absence of part-time workers and inactive individuals. See Section 2.2.1 for a more detailed description. The first column shows the summary statistics for the whole population of the dataset. The second column shows the summary statistics for our sample considering only the respondents, and the third column shows the summary statistics considering only the respondents' siblings.

Source: Estimation sample drawn from the Dataset "Formation et Qualification Profesionnelle" (INSEE), waves 2003 and 2014.

2.2.2 Measuring family structure

For a family, divorce is a dummy that equals 1 if the respondent's parents get divorced or separated during the individual's schooling. The individual's age at divorce is also reported, and a set of dummies corresponding to each age group at divorce compiled. Both cohabiting parents and married parents are considered here, since we do not have information on whether parents are married.

Table 3 shows the number of individuals whose parents separated, according to respondent's age at the time.

2.2.3 Measuring additional control variables

Control variables are included: gender, region of birth, year of birth centred on the average year of birth (1960), its quadratic term, age and its quadratic term, and birth order. Other controls cover family environment: parents' qualifications and profession, dummies for whether the parents were

Table 3 – Number of observations by age group at divorce depending on the sample

	(1)	(2)	(3)	(4)	(5)
0-3	351	343	197	169	169
4-6	430	420	346	327	327
7-9	594	578	476	456	445
10-12	697	686	592	572	524
13-15	825	813	663	636	548
16-18	686	673	569	543	258
18 et plus	822	811	425	365	141
Total	4405	4324	3268	3068	2412
Conditions (b) and (c) applied	No	Yes	Yes	Yes	Yes
Condition (d) applied	No	No	Yes	Yes	Yes
Condition (e) applied	No	No	No	Yes	Yes
Condition (f) applied	No	No	No	No	Yes

Notes: This Table reports the number of individuals whose parents separated, according to their age at the time. Under condition (a), individuals were born between 1946 and 1978 for the 2003 wave, and between 1946 and 1989 for the 2014 wave, and it is applied for all samples. Under condition (b), only children are excluded. Condition (c) excludes observable half-siblings. Condition (d) excludes siblings who experience a parental separation in the same age group. Condition (e) excludes siblings with an age difference larger than ten years.

Source: Estimation samples drawn from the Dataset "Formation et Qualification Professionnelle" (INSEE), waves 2003 and 2014.

born abroad, mother's year of birth (thus implicitly for the age of the mother at children's birth), number of siblings and its quadratic term.

For parents' education, seven categories of qualification are considered. From bottom to top, "No Qualification" means that the individual's schooling ends with no qualification or at the end of primary school. The second category indicates that the parent has a primary or secondary school certificate: the *"CEP"*[11], a school-leaving certificate formerly awarded at the end of primary school or the *"BEPC"*[12], the French equivalent of the Junior High School Certificate (USA), awarded during secondary education at the age of 15. The third category of *"CAP/BEP"*[13] is vocational training

[11]Certificat d'Etudes Primaires
[12]Brevet d'Etudes du Premier Cycle
[13]Certificat d'Aptitude Professionnelle/Brevet d'Etudes Professionnelles

certificates taken at the end of secondary school. Fourth, the "Brevet professionnel ou de technicien" is a vocational qualification taken three years after secondary school. Fifth, the *"BAC" (Baccalauréat général ou technologique)* is the qualification taken at the end of secondary school, generally at the age of 18. It is the French equivalent of A-levels (United Kingdom) or Abitur (Germany). The sixth category, *"BAC + 2"*, means that the individual completed two years in higher education (after the *BAC*), obtaining the French vocational training or technical certificates *BTS*[14], *DUT*[15]. The seventh category, *"BAC+2 and more"*, covers all qualifications taken after a 3-year higher education course or more: Bachelor, Master or PhD degrees and qualifications from engineering or business schools. For professional occupation, eight categories are considered: Farmer, Artisan (Craftsman), White Collar Worker or Senior Executive, Mid-level Profession (intermediate occupations), Employee, Manual Worker, Retired, Other. Artisan refers to skilled workmen, craftspeople and retailers. Employee refers to administrative, sales or services occupations.

2.3 Descriptive statistics

Comparing summary statistics on the non-divorced families and the divorced families of the respondents[16] (see Table A.10 in the Appendix, columns 1 and 2), we see that children in divorced families belong to younger cohorts on average. Mothers in divorced families are more educated on average. The share of mothers in a mid-level profession or who are employees or manual workers is higher in divorced families, whereas the share of mothers who are farmers or in "other" professions (housewives) is higher in non-divorced families. Divorced family fathers are also more educated, on average. They are more likely to be in mid-level professions or employees, and less likely to be farmers. There are more divorced families in the Ile de France region.

Comparing the respondents and their siblings in divorced families, the main difference is in age at parents' divorce. The average age at divorce is a little higher in the siblings sample, mainly because the 18 and over are over-represented (see Table A.11). Since respondents are answering the question about a divorce *during schooling*, those over 18 at the time of a divorce will not be declaring it if they have finished their schooling. But a respondent's brother or sister can appear as a sibling after age 18, whether or not they are still at school. Table A.12 compares respondents and respondents' siblings who experience a parental separation after the age of 16. Respondents were born later, their father is less likely to be a manual worker and they have fewer siblings on average. This information indicates the possible existence of a question bias that will be investigated later.

[14] Brevet de Technicien Supérieur

[15] Diplômes universitaires de Technologie

[16] The sample provided by the French FQP (Formation et Qualification Professionnelle) survey

2.3.1 Increased separation in all social categories

Divorce has increased, and where once it was characteristic of only certain socio-economic categories, such as the most educated or "White Collar" professions, it now extends to all social categories. Figure 2 shows that divorce has increased in all (parents') education categories, especially for less-educated parents. Divorce has also increased in all occupation categories, especially artisans, mid-level professions and employees, as well as white-collar workers or senior executives. For the generation born in 1946-1950, the share of children who experience a divorce is much higher when the mother is highly educated, but this is less true for more recent generations. The same applies to father's profession. The share of children born between 1946 and 1950 experiencing a divorce is higher when the father is a white-collar worker or senior executive, whereas divorce today affects a wider range of social categories: the artisan (craftsman), white-collar workers or senior executives, mid-level professions, employees and manual workers.

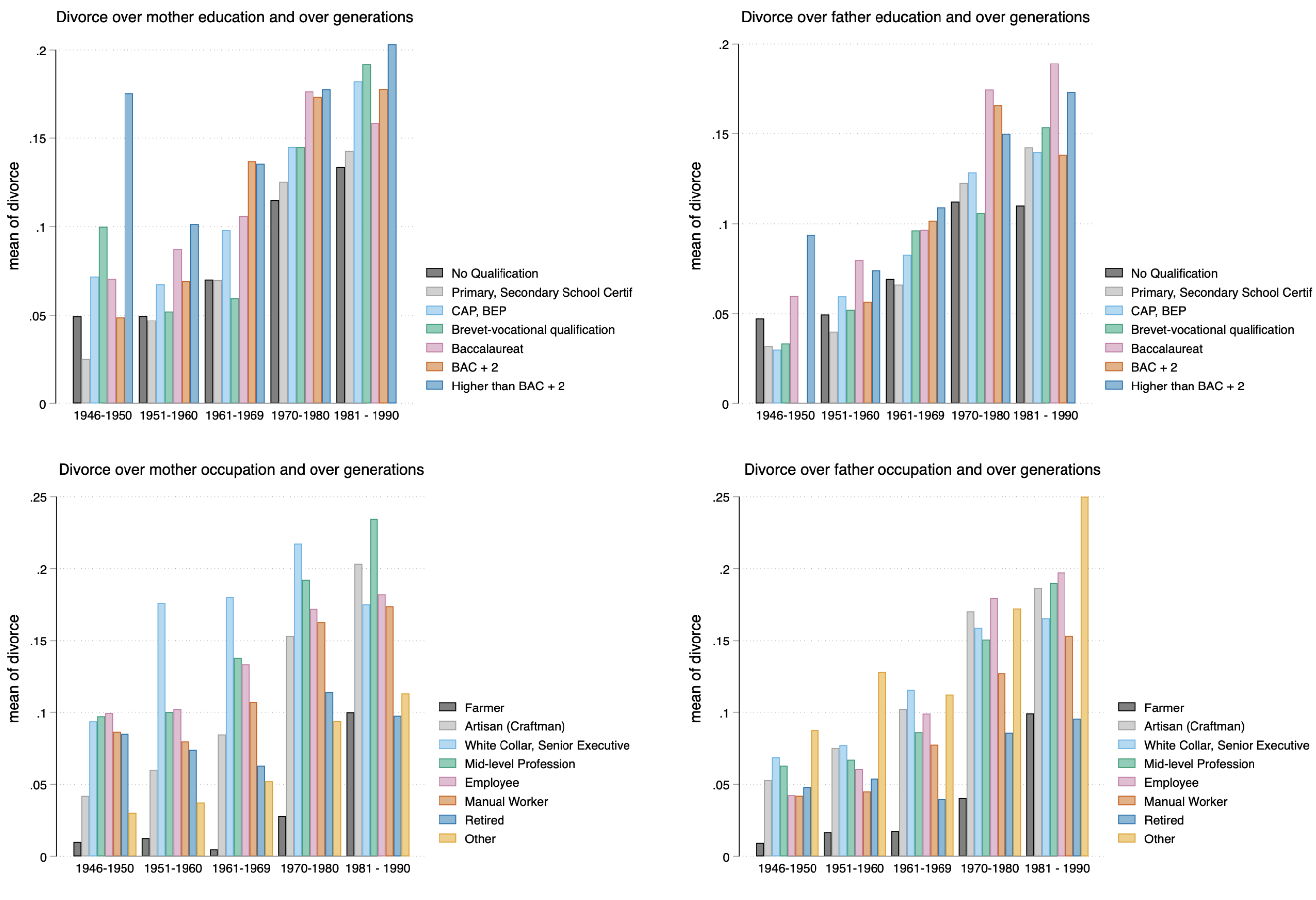

Fig. 2. Share of children whose parents are separated according to parents' education and occupation. Of the children whose mothers have no qualifications, 5% of those born between 1946 and 1950 experience a divorce, as against 15% for those born between 1981 and 1990

2.3.2 Increase in child's age at parental separation across generations

Figure 3 shows the distribution of child's age at parents' divorce over the whole sample, most of whom were around age 10, although around 10% were between 0 and 3 years old. There is enough information in each age group to provide precise results (see Table 3).

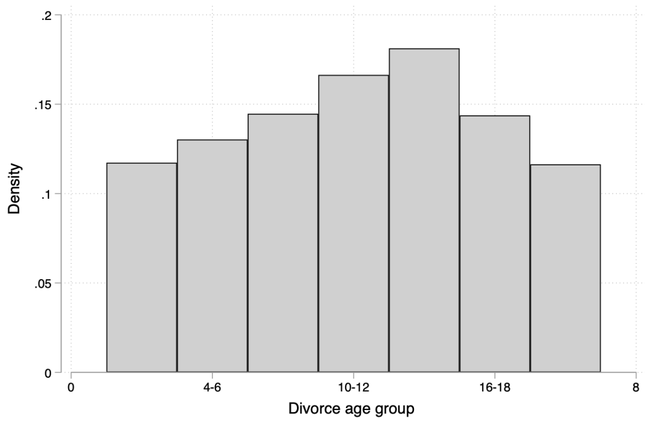

Fig. 3. Distribution of children of divorced families by age group

Figure 4 shows the distribution of children according to age at divorce in each cohort of birth. Across generations, the proportion of children who were very young when their parents divorced (0-3 years old) has decreased, while the proportion of those experiencing a divorce after the age of 18 has increased. It seems that in more recent generations, children are older when their parents get divorced. This could come from a change in the parents' social composition or a generation effect. Some differences are observed in the distribution of child's age at separation across mother's qualifications (see Figure A.2 in the Appendix). Those who experience a parental separation at a young age are over-represented among children whose mothers have no qualifications. Looking at average age at divorce over cohorts and across mother's education, having a more highly-educated mother seems to be associated with being older when parents separate, but this remains roughly the same across generations (see Figure A.2 in the Appendix). Nevertheless, the differences are much smaller when respondents who declare a parental separation after the age of 15 are excluded.

2.4 Identification strategy

Let us consider a family where an individual's achievement is a function of their characteristics, their parents' characteristics, their parents' separation and the individual's age when this separation occurs. We observe two siblings per family. As benchmark estimates, I first consider a random effects model, assuming exogenous selection.

$$y_{is} = \beta_0 + \beta_1 X_{is} + \beta_2 X_i^P + \gamma_0 D_i + \Sigma_{g=1}^{G-1} \gamma_1^g DA_{is}^g + \epsilon_{is} \tag{2.1}$$

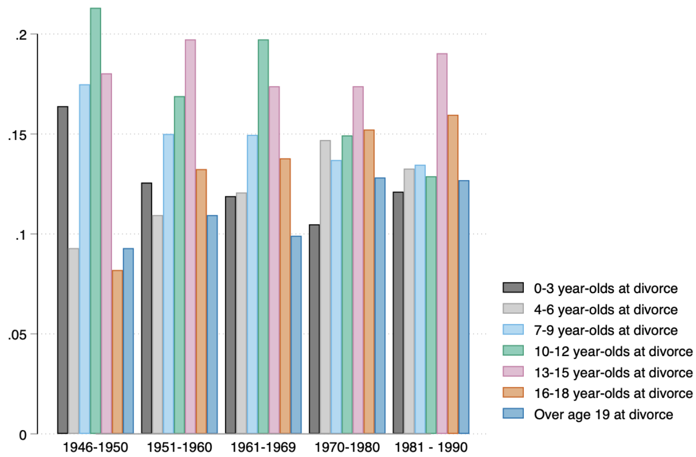

Fig. 4. Distribution of children of divorced families by age group across birth cohorts. Of the children born between 1946 and 1950, 17% of those who experience a divorce, experience it before the age of 3, as against around 12% for the generation born between 1981 and 1990

where the family is denoted i and, each sibling is denoted s. The outcomes of sibling s in family i are denoted y_{is}. The sibling's characteristics, such as gender, year of birth centred on 1960, and birth order, are denoted X_{is}. Family characteristics, such as family size, parents' occupation, and parents' education are denoted X_i^P, and are invariant across siblings. D_i is a dummy that equals 1 if the individual's parents divorce. DA_{is}^g is the age group of the child when the parents get divorced. γ_0 is the average effect of divorce for the reference age group G (which has been omitted), ceteris paribus. γ_1^g is the average additional effect of experiencing a divorce in this age group compared to the reference age group G, ceteris paribus.

This model requires that ϵ_{is} is not correlated with family structure. ϵ_{is} can be broken down into two components: $\epsilon_{is} = u_{is} + \alpha_i$, such as $E(u_i u_i'|x) = \sigma_u^2 I_T$; $E(\alpha_i u_i'|x) = 0$; and $E(\alpha_i^2|x) = \sigma_\alpha^2$; where x denotes all the variables of interest. α_i is the family fixed effect, and captures all variables - observed or latent - common to both siblings. Under the random-effects model, we assume $E(x_{is}\alpha_i) = 0, \forall s$ and $E(x_{is}u_{is'}) = 0, \forall s, s'$.

In an attempt to relax the assumption $E(x_{is}\alpha_i) = 0$, I consider a family fixed effects model[17]. This is equivalent to a sibling-differences model. First differencing Equation (2.1), we have:

$$\Delta y_{is} = \beta_1 \Delta X_{is} + \Sigma_{g=1}^{G-1} \gamma_1^g \Delta DA_{is}^g + \Delta\epsilon_{is} \tag{2.2}$$

where y_{is}, X_{is}, DA_{is}^g and ϵ_{is} refer to the same variables as before. $\Delta\epsilon_{is} = \Delta u_{is}$.

γ_1^g is the effect, *within a family*, of experiencing a divorce in age group g, compared to experiencing it in the reference group G. For example, γ_1^{0-3} is the effect, *within a family*, of experiencing a divorce

[17]See also Björklund et al. (2007); Bratberg et al. (2014); Ermisch & Francesconi (2001); Francesconi et al. (2010)

when aged between 0 and 3, compared to experiencing it in the reference group G. If group G is not affected at all by divorce $\gamma_1^G = \gamma_0 = 0$, then γ_1^g captures the average total effect of experiencing a divorce between 0 and 3, controlling for divorced family selection[18].

While divorce does not vary between siblings (half-siblings are excluded when possible, because they are not a good counter-factual), age at divorce varies between siblings. Therefore, I focus on siblings who do not experience parental separation in the same age group g [19]. Standard errors are clustered at the family level, and bootstrapped using 500 replications in both models.

The sibling-differences method rules out the endogeneity issue due to a family effect common to both siblings. Formally, it will handle selection due to unobserved characteristics common to both siblings (α_i). Therefore, the family environment is assumed to be similar for both siblings, and this assumption is crucial: the more similar the family environment, the larger the proportion of the selection captured by the family fixed effect. To be sure that the family environment is similar between siblings, I test the model excluding siblings with an age difference greater than 10 years.

Nevertheless, this method is subject to limitations as well. First, it does not take into account siblings' potentially differing reactions at particular ages to any change in their parents' situation or behaviour. Many examples of a change in family environment can be given: the development of an alcohol addiction, a job loss, conflict. The impact of the conflict, for instance, that siblings face might differ according to their age at the time, and this difference will not be cancelled out by the family fixed effects model. While there is no clear evidence in the psychological literature that parental conflict impacts children more at particular ages, they are obviously not affected in the same way. According to Jenkins & Buccioni (2000), younger children are more vulnerable than older children because they are more likely to blame themselves for their parents' conflict, but less vulnerable on other dimensions, perceiving the conflict as over if angry affect and shouting stops. Children of 9 have been found to be more sensitive to whether conflict has been resolved than 5-year-olds, and report more distress than 5-year-olds when there is unresolved conflict[20]. The effect of conflict on educational attainment and labour market outcomes is still unclear; however, it seems unwise to assume that two siblings' outcomes are equally impacted by a conflict occurring at different ages. Moreover, siblings may react differently to the family environment just because they are different.

[18]Using a Random Effects model, the next section shows that $\gamma_1^G = 0$ suggesting that parental separation has no effect after the age of 18, this relies on the assumptions mentionned above.

[19]In the Appendix, results concerning an alternative model are reported. $divage_{is}$ is the child's age when the parents get divorced.

$$\Delta y_{is} = \beta_1 \Delta X_{is} + \gamma_1 \Delta f(divage_{is}) + \Delta\epsilon_{is} \tag{2.3}$$

γ_1 is the average effect of being one year older at the moment of divorce, *within a family*.

[20]Younger children are less able to distinguish between parent and spouse roles, and conceptualise the social roles of mothers and fathers as parent more than spouse. This may account for the greater likelihood that young children blame themselves for conflict. This has generally been attributed to the egocentricity of younger children.

This is less of an issue: since there are many observations, convergence can be assumed, and birth order is already controlled for.

In addition, this model assumes that idiosyncratic endowment u_{is} is not correlated with divorce, which is tantamount to assuming that inherent differences between siblings, such as behaviour or having a disability, are not correlated with divorce. For further discussion, see Ermisch & Francesconi (2001). Even though the assumptions of this model are much weaker than with the random effects model, it should be stressed that any resulting effect needs to be interpreted with care, indicating correlation rather than a causal relationship.

3 Results

The causal interpretation of the following results relies on strong assumptions (see previous Section). Any resulting effect should therefore be interpreted as simply correlation.

3.1 Main results

Table 4 shows the estimated effects of divorce on three outcomes: number of years of schooling, earnings-weighted education, and social position.[21] Controls for individual characteristics, such as gender, year of birth and its quadratic term, age and its quadratic term and birth order are included, as are family background variables such as parents' qualifications and occupation, parents' country of birth, mother's year of birth, number of siblings and region of birth. Siblings who experience the separation while in the same age group are excluded, to avoid identification issues (Conditions (a), (b), (c) and (d) are imposed).

The first column of Table 4 shows the random effects model results for number of years of schooling. Children who experience a parental separation after the age of 18 (the reference group) do as well as children who grew up with both parents. If this effect is not biased, and this group is not selected, we are capturing the total effect in the sibling-differences model, not just a relative effect specific to this reference age group ($\gamma^G = 0$).

When divorce occurs before the child is 18, number of years of schooling is lower by some 20% of a standard deviation than for children whose parents divorce after the child is 18. This corresponds approximately to one semester less of schooling. We test whether the coefficients on the effect of parental separation before the age of 18 (γ_1^g) are simultaneously zero and reject the nul hypothesis using the random-effects model ; the p-value is reported at the bottom of Table 4, but effects differ across age groups. The 16 to 18-year-olds, and the 7 to 9-year-olds are less affected by a separation[22].

[21] Estimations of outcomes are described earlier, in the data section.

[22] The effect of parental separation on the 4-6 year-olds is statistically different from the effect on the 7-9 year-olds; the effect on the 13-15 year-olds is also statistically different from the effect on the 16-18 year-olds.

The youngest are the most affected: their number of years of schooling is 30% of a standard deviation lower than that of children who are over 18 when their parents break up. This corresponds to nearly one year less of schooling than the reference age group. In column 2 of Table 4, I account for selection of divorced families - all latent characteristics common to both siblings. Doing a joint test, we reject the nul hypothesis that the coefficients on the effect of parental separation before the age of 18 on the number of years of schooling are simultaneously zero at a 5% level. The estimated effect of parental separation is weaker (in absolute values), and no longer significant before the age of 4 and for the 7 to 9-year-olds[23], but the differences are small, especially for adolescents.

Earnings-weighted education accounts for quality of schooling, which may differ from quantity of schooling in the French education system. Each qualification is linked to average earnings, and earnings-weighted education is the wage value associated with this qualification compared to being unqualified. It measures the worth of the qualification: there is a higher wage-value attached to studying in a *Grande Ecole* than to obtaining a Master's Degree at University[24]. Nevertheless, the effect is similar to that of parental separation on number of years of schooling, as seen from columns 3 and 4 of Table 4. Testing whether the coefficients on the effect of parental separation before the age of 18 (γ_1^g) are simultaneously zero, we reject it at a 5% level using the random effects model. Those who experience a divorce when they are from 10 to 18 years old experience a lower loss in terms of earnings-weighted education than in terms of number of years of schooling. [25] In other words, they do shorter schooling but with a relatively higher return. This is true for both models, but we are not able reject that the coefficients on the effect of parental separation before the age of 18 (γ_1^g) are simultaneously zero using the sibling difference model.

Columns 5 and 6 of Table 4 show that the effects on social position are lower. Using a siblings difference model, the effects are also weaker, except for the 4 to 6-year-olds, the age when children in primary class *CP* learn to read and begin their basic education, and the 10 to 12-year-olds, the age of entry to secondary school[26]. Results suggest that the effect on education does not persist with age, and individuals seem to recover partially from the shock. This can be seen from their occupations, except for those who experience the shock at a more critical point in their education, such as entry to primary school or secondary school. For the others, some variables might mitigate the effect of parental separation on social position. Testing whether the coefficients on the effect of parental separation before the age of 18 (γ_1^g) are simultaneously zero, we reject the nul hypothesis

[23]The effect of parental separation on the 7-9 year-olds is statistically different from the effect on the 4-6 year-olds

[24]See Figure 1 for the differences from measuring education as the number of years of schooling

[25]The effect of parental separation on the 4-6 year-olds is statistically different from the effect on the 7-9 year-olds; the effect on the 13-15 year-olds is also statistically different from the effect on the 16-18 year-olds. Using the sibling-differences model, no statistical difference appears across the effect of parental separation on each age group (before the age of 18).

[26]Using the random effects model, the effect of parental separation on the 7-9 year-olds is statistically different from the effect on the 4-6 year-olds using both models, and also from the effect on the 10-12 year-olds for the sibling-differences model.

using the random-effects model at a 5% level and at a 11% level for the siblings difference model (p-values are reported at the bottom of Table 4).

I am aware that the analysis of these two latter outcomes relies on the assumption that there is not too much loss of information from using estimated earnings.

It could be argued that this estimation does not account for all the divorced family selection, because the changing family environment will have affected each sibling differently, and thus the latent characteristics such as conflict vary between siblings, and are not cancelled out. For robustness, the model is tested excluding siblings with a large age difference, with results shown in Table 5. In terms of education, results are slightly higher in absolute values for this sample, while results are slightly lower in absolute values for social position under the sibling-differences model.

A Durbin-Wu-Hausman test does not reject the null hypothesis of a systematic difference between the random effect and the sibling-differences models for the number of years of schooling and the earnings-weighted education, but rejects it for social position.

Some groups might be more vulnerable to parental separation. The next section examines the effect of parental separation in different subgroups, first according to gender and then according to mother's education. Finally, I look at whether the effect of parental separation differs across cohorts.

Table 4 – Effect of a parental separation on individuals' achievement

	Nb. of Years of Schooling		Earnings-weighted education		Social Position	
	Random Effects	Sibling Difference	Random Effects	Sibling Difference	Random Effects	Sibling Difference
0-3 at divorce	−0.32***	−0.16	−0.30***	−0.16	−0.19***	−0.12
	(0.05)	(0.10)	(0.05)	(0.10)	(0.04)	(0.11)
4-6 at divorce	−0.31***	−0.19*	−0.29***	−0.19*	−0.21***	−0.21*
	(0.04)	(0.09)	(0.04)	(0.09)	(0.03)	(0.09)
7-9 at divorce	−0.21***	−0.11	−0.22***	−0.14+	−0.12***	−0.09
	(0.04)	(0.08)	(0.04)	(0.08)	(0.03)	(0.07)
10-12 at divorce	−0.25***	−0.20**	−0.18***	−0.13+	−0.15***	−0.19**
	(0.03)	(0.07)	(0.04)	(0.07)	(0.03)	(0.07)
13-15 at divorce	−0.24***	−0.19**	−0.19***	−0.15*	−0.12***	−0.12*
	(0.03)	(0.06)	(0.04)	(0.07)	(0.03)	(0.06)
16-18 at divorce	−0.12***	−0.11*	−0.08*	−0.08	−0.09**	−0.08+
	(0.03)	(0.06)	(0.04)	(0.06)	(0.03)	(0.05)
Ref. Group : 19+ at divorce	0.04		0.00		0.03	
	(0.03)		(0.03)		(0.03)	
Constant	9.39***	0.14	12.35***	0.36+	2.13*	5.76***
	(0.83)	(0.20)	(0.79)	(0.21)	(0.86)	(0.28)
Observations	56876	56876	56876	56876	54570	54570
Joint Test	0.00	0.02	0.00	0.33	0.00	0.11

Standard errors in parentheses, clustered at the family level and bootstrapped using 500 replications. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Notes: Schooling is a proxy for the number of years of schooling. Earnings-weighted education is the wage value of the individual's highest qualification (compared to no qualification). Social position is the average earnings estimated separately for each gender on full-time workers with a Heckman procedure to account for the absence of part-time workers and inactive individuals. Outcome variables are standardized for a mean of 0 and a standard deviation of 1. See Section 2.2.1 for a more detailed description. Individual characteristics, such as sex, year of birth and its quadratic term, age and its quadratic term, birth order and a dummy indicating if the individual is the last born of the sibship are all controlled for, as are family background variables, such as parents' qualification and profession, parents' country of birth, mother's year of birth, family size and its quadratic term, and region of birth.We test whether the coefficients on the effect of parental separation before the age of 18 are simultaneously zero (Joint Test or F-Test), p-values are available at the bottom of each column.

Source: Estimation sample drawn from the Dataset "Formation et Qualification Profesionnelle" (INSEE), waves 2003 and 2014. Individuals were born between 1946 and 1988 (condition (a)) and provide information on one sibling (condition (b)) who is not a half-sibling (condition (c)). Siblings who experience a parental separation in the same age group are excluded, to avoid identification issues (condition (d)).

Table 5 – Effect of a parental separation on individuals' achievement excluding siblings with a large age difference

	Nb. of Years of Schooling		Earnings-weighted education		Social Position	
	Random Effects	Sibling Difference	Random Effects	Sibling Difference	Random Effects	Sibling Difference
0-3 at divorce	−0.41***	−0.20+	−0.36***	−0.19	−0.18***	−0.07
	(0.05)	(0.11)	(0.05)	(0.11)	(0.04)	(0.11)
4-6 at divorce	−0.34***	−0.20*	−0.32***	−0.19+	−0.22***	−0.16+
	(0.04)	(0.09)	(0.05)	(0.10)	(0.04)	(0.10)
7-9 at divorce	−0.25***	−0.13	−0.25***	−0.15	−0.12***	−0.05
	(0.04)	(0.08)	(0.04)	(0.09)	(0.04)	(0.09)
10-12 at divorce	−0.28***	−0.21**	−0.20***	−0.13+	−0.15***	−0.16*
	(0.04)	(0.07)	(0.04)	(0.08)	(0.03)	(0.08)
13-15 at divorce	−0.26***	−0.20**	−0.20***	−0.15*	−0.12***	−0.10
	(0.04)	(0.06)	(0.04)	(0.07)	(0.03)	(0.07)
16-18 at divorce	−0.15***	−0.13*	−0.10*	−0.09	−0.10**	−0.07
	(0.04)	(0.06)	(0.04)	(0.07)	(0.03)	(0.06)
Ref. Group : 19+ at divorce	0.06*		0.02		0.03	
	(0.03)		(0.03)		(0.03)	
Constant	8.33***	0.26	12.13***	0.66*	0.19	6.04***
	(0.91)	(0.27)	(0.96)	(0.31)	(0.98)	(0.33)
Observations	52602	52602	52602	52602	50516	50516
Joint Test	0.00	0.05	0.00	0.54	0.00	0.20

Standard errors in parentheses, clustered at the family level and bootstrapped using 500 replications. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Notes: Schooling is a proxy for the number of years of schooling. Earnings-weighted education is the wage value of the individual's highest qualification (compared to no qualification). Social position is the average earnings estimated separately for each gender on full-time workers with a Heckman procedure to account for the absence of part-time workers and inactive individuals. Outcome variables are standardized for a mean of 0 and a standard deviation of 1. See Section 2.2.1 for a more detailed description. Individual characteristics, such as sex, year of birth and its quadratic term, age and its quadratic term, birth order and a dummy indicating if the individual is the last born of the sibship are all controlled for, as are family background variables, such as parents' qualification and profession, parents' country of birth, mother's year of birth, family size and its quadratic term, and region of birth.We test whether the coefficients on the effect of parental separation before the age of 18 are simultaneously zero (Joint Test or F-Test), p-values are available at the bottom of each column.

Source: Estimation sample drawn from the Dataset "Formation et Qualification Profesionnelle" (INSEE), waves 2003 and 2014. Individuals were born between 1946 and 1988. Siblings who experience a parental separation in the same age group or with an age difference larger than ten years are excluded. Conditions (a), (b), (c) (d) and (e) are applied.

3.2 Heterogeneity of the effect of divorce

3.2.1 Gender heterogeneity.

Table 6 shows the effect of parental separation on labour market outcomes according to gender. Looking at the random effects model, results suggest that girls who experience a parental separation after the age of 18 do longer schooling, but this leads to lower earnings than those of girls whose parents did not separate. Among this age group, there is no difference in the effect of parental separation between boys and girls, except that the boys' schooling seems to lead to higher earnings. Before the age of 18, girls are negatively affected whatever the age at separation and the outcome considered. Boys' education suffers more as a result of parental separation than girls' education. Testing whether the coefficients on the difference in the effect of parental separation before the age of 18 ($\gamma_1^g XGender$) between genders are simultaneously zero, we reject the nul hypothesis only for the earnings-weighted education at a 1% (p-value is reported at the bottom of Table 6). Looking at social position, the difference is negative only for the 7 to 12-year-olds and statistically significant only for the 7 to 9-year-olds. Testing whether the coefficients on the difference in the effect of parental separation before the age of 18 (γ_1^g) between genders are simultaneously zero, we reject the nul hypothesis at a 5% level. [27]

Controlling for the family fixed effect, the interaction term between divorce and gender reveals that there is no gender effect within divorced families. Boys who experience a parental separation at 7-9 do shorter schooling than girls, but a joint test does not confirm a gendered effect when all coefficients are tested jointly. Boys who experience a parental separation before the age of 13 also obtain qualifications associated with lower earnings. Doing a joint test, we reject the nul hypothesis at a 10% level for this outcome. Looking at social position, differences between genders are much weaker, except for boys who experience a parental separation at 10-12, who have, on average, a social position associated with lower earnings than girls, but it is never statistically significant.

These findings are consistent with previous findings (Bertrand & Pan 2013; Frimmel et al. 2016). Boys' disadvantage is less marked when it comes to social position. This might be explained by a stronger effect of parental separation on boys' externalising behaviour (school attendance, concentration issues, suspension from school), while girls are more affected in terms of internalising behaviours such as depression (Lundberg 2017). This latter outcome may impact social position more than educational outcomes do.

[27] Using a random effects model, results are similar when the sample is broken down into boys and girls, results available upon request.

Table 6 – Heterogeneous divorce effect according to gender

	Nb. of Years of Schooling		Earnings-weighted Education		Social Position	
	Random Effects	Sibling Difference	Random Effects	Sibling Difference	Random Effects	Sibling Difference
0-3 at divorce=1	−0.39***	−0.20	−0.26***	−0.15	−0.21***	−0.08
	(0.07)	(0.14)	(0.07)	(0.13)	(0.05)	(0.13)
0-3 at divorce=1XMale=1	−0.05	−0.01	−0.19+	−0.07	0.06	0.02
	(0.10)	(0.19)	(0.11)	(0.19)	(0.09)	(0.16)
4-6 at divorce=1	−0.33***	−0.22+	−0.20***	−0.14	−0.23***	−0.19
	(0.06)	(0.12)	(0.06)	(0.12)	(0.05)	(0.13)
4-6 at divorce=1XMale=1	−0.03	0.06	−0.23*	−0.08	0.03	0.06
	(0.08)	(0.15)	(0.09)	(0.17)	(0.07)	(0.16)
7-9 at divorce=1	−0.17**	−0.06	−0.06	−0.01	−0.06	−0.05
	(0.05)	(0.11)	(0.05)	(0.11)	(0.05)	(0.11)
7-9 at divorce=1XMale=1	−0.17*	−0.13	−0.39***	−0.28+	−0.13+	−0.01
	(0.08)	(0.14)	(0.08)	(0.14)	(0.07)	(0.14)
10-12 at divorce=1	−0.22***	−0.18*	−0.05	−0.05	−0.11**	−0.10
	(0.05)	(0.09)	(0.06)	(0.10)	(0.04)	(0.10)
10-12 at divorce=1XMale=1	−0.13+	−0.05	−0.30***	−0.16	−0.08	−0.10
	(0.07)	(0.12)	(0.08)	(0.16)	(0.07)	(0.13)
13-15 at divorce=1	−0.23***	−0.23**	−0.11*	−0.15+	−0.13**	−0.12
	(0.05)	(0.08)	(0.05)	(0.09)	(0.04)	(0.08)
13-15 at divorce=1XMale=1	−0.07	0.06	−0.20*	0.01	0.03	0.06
	(0.07)	(0.12)	(0.09)	(0.16)	(0.07)	(0.14)
16-18 at divorce=1	−0.14*	−0.14	−0.07	−0.12	−0.10*	−0.11
	(0.06)	(0.09)	(0.06)	(0.09)	(0.04)	(0.08)
16-18 at divorce=1XMale=1	−0.04	0.02	−0.05	0.08	0.01	0.08
	(0.08)	(0.13)	(0.09)	(0.15)	(0.07)	(0.14)
Divorced	0.06		−0.04		0.01	
	(0.04)		(0.05)		(0.03)	
DivorcedXMale=1	0.01	−0.05	0.12+	0.01	0.04	0.00
	(0.06)	(0.11)	(0.07)	(0.12)	(0.06)	(0.11)
Observations	52602	52602	52602	52602	50516	50516
Joint Test	0.00	0.04	0.00	0.32	0.00	0.56
Heterogeneity - Joint Test	0.18	0.61	0.00	0.07	0.02	0.71

Standard errors in parentheses, clustered at the family level and bootstrapped using 500 replications. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Notes: See previous tables for the description of the outcomes and the controls. We test whether the coefficients on the effect of parental separation before the age of 18 are simultaneously zero (Joint Test or F-Test). We also test whether the differences in the effect of parental separation before the age of 18 between the two groups are jointly zero (Heterogeneity - Joint Test). P-values are reported at the bottom of each column.

Source: Estimation sample drawn from the Dataset "Formation et Qualification Profesionnelle" (INSEE), waves 2003 and 2014. Individuals were born between 1946 and 1988. Siblings who experience a parental separation in the same age group or with an age difference larger than ten years are excluded. Conditions (a), (b), (c) (d) and (e) are applied.

3.2.2 Heterogeneity according to family background

Table 7 shows the heterogeneity of the estimated effect of a parental separation according to mother's education. We define more highly educated mothers as mothers who have a qualification (vs those who have no qualifications).

Looking at random effects, individuals whose mother is more highly educated are not affected by a parental separation after the age of 18. Those whose mother is less highly educated are positively affected by a parental separation after the age of 18. This may reflect a positive selection of divorced families among this group. Individuals whose mother is more highly educated experiencing a parental separation before the age of 18 have poorer outcomes than the reference age group, whatever the outcome considered. This is also true when the family fixed effect is accounted for. For this group, we test whether the coefficients on the effect of parental separation before the age of 18 (γ_1^g) are simultaneously zero, we reject the nul hypothesis for the three outcomes using the random effects model, and for the number of years of schooling and social position using the siblings-difference models (at a 11% level). Under the random effects model, of the individuals whose mother is less highly educated, those who experience a parental separation before the age of 18 have on average lower outcomes than the reference age group. However, they suffer less from a parental separation than those with a more highly educated mother[28], in terms of all three outcomes. Neverthess, doing a joint test on the interaction terms, we reject the nul hypothesis only for the number of years of schooling.

When the family fixed effect is controlled for, results are different. Individuals are negatively affected by a parental separation, but those whose mother is less highly educated are more affected by their parents' separation, except for the youngest age group. The differences are however not statistically different from zero, and we are however not able to reject the equality between the coefficients for these two subgroups when we test them jointly ($\gamma_1^g X Mother Education$) ; p-values are reported at the bottom of Table 7. These mothers might be more vulnerable, since less education might mean a lower income. Because of homogamy, the father is likely to be poorer; therefore, these mothers may also receive lower child maintenance, or face a higher risk of fathers' failure to pay[29].

Results from the random effects model only reflect a positive selection of divorced families when the mother is less highly educated, which means that among less highly educated mothers, those

[28]The effects of a parental separation for the reference age group vary between the two sub-groups, therefore the effects of a parental separation for the other age group g are not comparable. For instance, the effect of a parental separation on education for the 4-6 year-olds whose mother is more highly educated is around -32% of a standard deviation, for those whose mother is less highly educated, the effect is around -19% (0,27 - 0,14 - 0,32) of a standard deviation, the difference between the two groups is around 0,13 (0,27 - 0,14) of a standard deviation.

[29]In France, child maintenance is not systematic and depends on father's income. If the father is considered too poor, he does not have to pay maintenance for his child, but the State provides 100 euros a month per child. In other cases, child support is on average 140 euros a month per child. The Yellow Jacket movement has highlighted the economic difficulties of single mothers in France facing their ex-husband's failure to pay.

Table 7 – Heterogeneous divorce effect according to mother's education

	Nb. of Years of Schooling		Earnings-weighted Education		Social Position	
	Random Effects	Sibling Difference	Random Effects	Sibling Difference	Random Effects	Sibling Difference
0-3 at divorce=1	−0.44***	−0.30*	−0.40***	−0.23	−0.17***	−0.10
	(0.06)	(0.13)	(0.07)	(0.15)	(0.05)	(0.14)
0-3 at divorce=1XLess=1	0.00	0.23	0.05	0.11	−0.10	0.04
	(0.11)	(0.22)	(0.11)	(0.23)	(0.10)	(0.24)
4-6 at divorce=1	−0.32***	−0.21*	−0.31***	−0.18	−0.21***	−0.16
	(0.05)	(0.10)	(0.06)	(0.13)	(0.04)	(0.12)
4-6 at divorce=1XLess=1	−0.14	0.01	−0.07	−0.05	−0.09	−0.06
	(0.09)	(0.20)	(0.10)	(0.20)	(0.09)	(0.22)
7-9 at divorce=1	−0.24***	−0.13	−0.25***	−0.13	−0.08+	−0.01
	(0.05)	(0.09)	(0.05)	(0.11)	(0.04)	(0.10)
7-9 at divorce=1XLess=1	−0.11	0.00	−0.04	−0.07	−0.19*	−0.16
	(0.09)	(0.18)	(0.09)	(0.18)	(0.08)	(0.19)
10-12 at divorce=1	−0.25***	−0.19*	−0.18***	−0.10	−0.15***	−0.16+
	(0.04)	(0.08)	(0.05)	(0.10)	(0.04)	(0.09)
10-12 at divorce=1XLess=1	−0.16+	−0.07	−0.11	−0.10	−0.06	0.00
	(0.08)	(0.16)	(0.09)	(0.17)	(0.08)	(0.17)
13-15 at divorce=1	−0.22***	−0.16*	−0.19***	−0.14+	−0.10*	−0.07
	(0.04)	(0.07)	(0.05)	(0.09)	(0.04)	(0.08)
13-15 at divorce=1XLess=1	−0.19*	−0.14	−0.07	−0.04	−0.10	−0.10
	(0.09)	(0.14)	(0.09)	(0.16)	(0.09)	(0.16)
16-18 at divorce=1	−0.16***	−0.13*	−0.11*	−0.09	−0.10*	−0.06
	(0.04)	(0.07)	(0.05)	(0.08)	(0.04)	(0.06)
16-18 at divorce=1XLess=1	0.00	0.02	0.02	0.03	−0.04	−0.04
	(0.09)	(0.13)	(0.09)	(0.14)	(0.08)	(0.13)
Divorced	0.00		−0.03		−0.03	
	(0.03)		(0.04)		(0.03)	
DivorcedXLess=1	0.27***		0.20**		0.25***	
	(0.07)		(0.08)		(0.07)	
Observations	52602	52602	52602	52602	50516	50516
Joint Test	0.00	0.10	0.00	0.71	0.00	0.11
Heterogeneity - Joint Test	0.05	0.39	0.41	0.81	0.23	0.64

Standard errors in parentheses, clustered at the family level and bootstrapped using 500 replications. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Notes: See previous tables for the description of the outcomes and the controls. We test whether the coefficients on the effect of parental separation before the age of 18 are simultaneously zero (Joint Test or F-Test). We also test whether the differences in the effect of parental separation before the age of 18 between the two groups are jointly zero (Heterogeneity - Joint Test). P-values are reported at the bottom of each column.

Source: Estimation sample drawn from the Dataset "Formation et Qualification Profesionnelle" (INSEE), waves 2003 and 2014. Individuals were born between 1946 and 1988. Siblings who experience a parental separation in the same age group or with an age difference larger than ten years are excluded. Conditions (a), (b), (c) (d) and (e) are applied.

who divorce have unobserved characteristics that positively affect their children[30].

3.2.3 Heterogeneity according to year of birth

In 1975, no-fault divorce law was adopted in France, which could reflect a change in the public perception of divorce. Here, being born in 1970 is taken as the threshold, rather than the date of separation: those born between 1970 and 1975 could have experienced a divorce either before or after the change in the law. The reform is considered more as a variable that reflects the social perception of divorce and the increasing demand for divorce, which had clearly started to change before 1975. More importantly, it allows for the same number of observations of children who experience a separation in both sub-samples, and makes it easier to have a comparison group in the non-divorced families (with no date of separation).

Table 8 shows the estimated effect of parental separation on labour market outcomes according to the cohort effect, measured as a dummy equal to one if the individual was born in 1970 or later. Looking at the random effects model, individuals born before 1970 who experience a parental separation after the age of 18 fare better than those whose parents are not separated, which might reflect a positive selection of this group. Those born after 1970 who experience a parental separation after the age of 18 fare worse than those born before 1970, and do the same as those who did not experience a parental separation. This reveals a different selection among these groups. Separated parents of individuals born before 1970 have unobserved characteristics that have positive effects on individuals' outcomes; whereas separated parents of individuals born after 1970 are similar to non-separated parents[31].

Individuals who experience a parental separation before the age of 18 fare worse than the reference group. Testing whether the coefficients on the effect of parental separation before the age of 18 (γ_1^g) are simultaneously zero, we reject the nul hypothesis for the three outcomes using the random effects model. The youngest appear to be the most affected ; this is also true for those born after 1970.

In terms of education, they are more affected than those born before 1970, except for the 10 to 15-year-olds[32]. Looking at social position, those born after 1970 are more affected only when they experience a parental separation before the age of 4 or after the age of 12. A joint test confirms the differences between these two subgroups only for the number of years of schooling.

Accounting for the family fixed effect, the effects on education are more pronounced for the youngest

[30] Results are similar for both models when we split the sample between the two subgroups. Results available upon request.

[31] This interpretation assumed that there is no positive (causal) impact of having separated parents after the age of 18; the positive coefficient is therefore interpreted as selection.

[32] The reference age group is not affected in the same way; therefore the effect of a parental separation on the other age group g is not directly comparable. For instance, the effect of a parental separation on education for the 0-3 year-olds born before 1970 is around -32% (-0,42 + 0,10) of a standard deviation, for those who are born after 1970, the effect is around -37% (-0,42 + 0,10 - 0,09 + 0,05) of a standard deviation, the difference between the two groups is around -0,04 (-0,09 + 0,05) of a standard deviation.

Table 8 – Heterogeneous divorce effect according to year of birth

	Nb. of Years of Schooling		Earnings-weighted Education		Social Position	
	Random Effects	Sibling Difference	Random Effects	Sibling Difference	Random Effects	Sibling Difference
0-3 at divorce=1	−0.42***	−0.13	−0.35***	−0.13	−0.17**	−0.06
	(0.08)	(0.15)	(0.07)	(0.17)	(0.06)	(0.15)
0-3 at divorce=1XAfter 1970=1	0.05	−0.27	0.01	−0.25	0.01	−0.09
	(0.11)	(0.18)	(0.10)	(0.22)	(0.09)	(0.18)
4-6 at divorce=1	−0.39***	−0.17	−0.30***	−0.12	−0.26***	−0.23
	(0.06)	(0.13)	(0.06)	(0.14)	(0.06)	(0.14)
4-6 at divorce=1XAfter 1970=1	0.11	−0.19	−0.00	−0.30	0.12	0.07
	(0.08)	(0.15)	(0.10)	(0.19)	(0.08)	(0.17)
7-9 at divorce=1	−0.25***	−0.12	−0.19***	−0.10	−0.18**	−0.15
	(0.06)	(0.11)	(0.06)	(0.12)	(0.06)	(0.12)
7-9 at divorce=1XAfter 1970=1	0.01	−0.16	−0.09	−0.27	0.13+	0.14
	(0.07)	(0.13)	(0.09)	(0.17)	(0.07)	(0.16)
10-12 at divorce=1	−0.34***	−0.29**	−0.22***	−0.17	−0.19***	−0.21+
	(0.05)	(0.10)	(0.06)	(0.11)	(0.05)	(0.11)
10-12 at divorce=1XAfter 1970=1	0.15*	0.04	0.05	−0.07	0.10	0.08
	(0.07)	(0.13)	(0.08)	(0.16)	(0.07)	(0.14)
13-15 at divorce=1	−0.34***	−0.29**	−0.24***	−0.20+	−0.12*	−0.08
	(0.05)	(0.09)	(0.06)	(0.11)	(0.05)	(0.11)
13-15 at divorce=1XAfter 1970=1	0.17*	0.10	0.09	−0.00	0.02	−0.04
	(0.07)	(0.11)	(0.08)	(0.15)	(0.07)	(0.14)
16-18 at divorce=1	−0.16**	−0.15+	−0.07	−0.07	−0.12*	−0.10
	(0.05)	(0.08)	(0.06)	(0.11)	(0.06)	(0.09)
16-18 at divorce=1XAfter 1970=1	0.03	−0.00	−0.04	−0.10	0.05	0.05
	(0.07)	(0.10)	(0.09)	(0.15)	(0.07)	(0.12)
Divorced	0.10*		0.04		0.08+	
	(0.04)		(0.05)		(0.05)	
DivorcedXAfter 1970=1	−0.09	0.10	−0.06	0.21	−0.13*	−0.00
	(0.06)	(0.11)	(0.07)	(0.15)	(0.06)	(0.11)
Observations	52602	52602	52602	52602	50516	50516
Joint Test	0.00	0.02	0.00	0.55	0.00	0.36
Heterogeneity - Joint Test	0.03	0.16	0.16	0.38	0.27	0.77

Standard errors in parentheses, clustered at the family level and bootstrapped using 500 replications. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Notes: See previous tables for the description of the outcomes and the controls. We test whether the coefficients on the effect of parental separation before the age of 18 are simultaneously zero (Joint Test or F-Test). We also test whether the differences in the effect of parental separation before the age of 18 between the two groups are jointly zero (Heterogeneity - Joint Test). P-values are reported at the bottom of each column.

Source: Estimation sample drawn from the Dataset "Formation et Qualification Profesionnelle" (INSEE), waves 2003 and 2014. Individuals were born between 1946 and 1988. Siblings who experience a parental separation in the same age group or with an age difference larger than ten years are excluded. Conditions (a), (b), (c) (d) and (e) are applied.

born after 1970, but less pronounced for those who experience a parental separation after the age of 10. Where social position is considered, the effect of parental separation is less pronounced for those born after 1970 and aged 4 to 12, and for the 16 to 18-year-olds. The differences are however no statistically different from zero ; and a joint test does not reject the equality in the coefficients across these two subgroups when the family fixed effect is accounted for.

Results are not clear-cut. Adolescents seem to be less affected by a parental separation if they were born after 1970, i.e. in a period when parental separation was more common. This suggests that adolescents might be more vulnerable to a stigmatisation effect. Nevertheless, the youngest are more affected by a parental separation if they were born after 1970. This reveals that there may be an even greater impact from parental separation on the youngest in more recent generations. [33]

[33] It should also be noted that those born after 1970 whose parents separated before the individuals were 3 were on

4 Sensitivity checks

4.1 Sample selection

Some sample restrictions were required by the use of the sibling-differences model. This section investigates possible effects of these restrictions on the results using a random effects model. As mentioned above, the causal interpretation of the following results relies on strong assumptions; any resulting effect should therefore be interpreted with care, indicating correlation rather than a causal relationship.

4.1.1 Excluding only children. (condition b)

The sibling-differences method necessarily excludes only-children from the analysis. This might be a concern: according to Caya & Liem (1998), individuals from high-conflict homes with high sibling support report more positive adjustment than do only-children and individuals with low sibling support. Sibling support also has a buffering effect. To test whether the exclusion of only-children might affect the results, the initial sample from the survey Formation et Qualification Professionnelle (INSEE, 2003 and 2014 waves) of individuals born between 1946 and 1989 was used, their siblings being excluded.

Table 9 shows the effect of parental separation on labour market outcomes for only-children compared to children with siblings using the random effects model. Children with no siblings do shorter schooling and have lower social position; the results suggest that they are slightly less affected by a parental separation, but the estimated difference is not statistically significant. Thus excluding only-children does not seem to affect the results on the estimation of divorce effect.

4.1.2 Excluding siblings who experience a divorce in the same age group. (condition d)

To be able to estimate the sibling-differences model, siblings in the same age group need to be excluded. The random effects, both when siblings in the same age group are excluded and when they are not excluded, are shown in Table 10. Columns 1, 3 and 5 show the results for the whole sample, and columns 2, 4 and 6 show the results excluding siblings who experience a divorce in the same age group. Results are similar, but those who experience a parental separation after the age of 18, which is the reference group, might be less positively affected. It is possible that the effect of divorce is somewhat under-estimated for the sample excluding siblings in the same age group, but by very little.

average closer to the beginning of the trend of increased divorce rates.

Table 9 – Sensitivity to the sample restriction: Exclusion of only-children

	Nb. of Years of Schooling	Earnings-weighted education	Social Position
Divorce	−0.14***	−0.14***	−0.10***
	(0.02)	(0.02)	(0.01)
Only child	−0.10***	−0.09***	−0.08***
	(0.02)	(0.02)	(0.02)
Only child X divorce	0.06	0.05	0.03
	(0.05)	(0.05)	(0.05)
Constant	16.90***	17.65***	7.31***
	(1.86)	(1.97)	(2.18)
Observations	34421	34421	33906

Standard errors in parentheses, bootstrapped using 500 replications. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Notes: Random effects results. Schooling is a proxy for the number of years of schooling. Earnings-weighted education is the wage value of the individual's highest qualification (compared to no qualification). Social position is the average earnings estimated separately for each gender on full-time workers with a Heckman procedure to account for the absence of part-time workers and inactive individuals. Outcome variables are standardized for a mean of 0 and a standard deviation of 1. See Section 2.2.1 for a more detailed description. Individual characteristics, such as sex, year of birth and its quadratic term, age and its quadratic term, birth order and a dummy indicating if the individual is the last born of the sibship are all controlled for, as are family background variables, such as parents' qualification and profession, parents' country of birth, mother's year of birth, family size and its quadratic term, and region of birth.

Source: All respondents from the Dataset "Formation et Qualification Professionnelle" (INSEE), waves 2003 and 2014, born between 1946 and 1988.

Table 10 – Sensitivity to the sample restriction: Exclusion of siblings from same age group

	Nb. of Years of Schooling		Earnings-weighted education		Social Position	
0-3 at divorce	−0.26***	−0.29***	−0.24***	−0.30***	−0.15***	−0.16***
	(0.03)	(0.04)	(0.03)	(0.03)	(0.02)	(0.03)
4-6 at divorce	−0.28***	−0.28***	−0.28***	−0.29***	−0.18***	−0.18***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)
7-9 at divorce	−0.17***	−0.18***	−0.20***	−0.22***	−0.10***	−0.09***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
10-12 at divorce	−0.21***	−0.21***	−0.18***	−0.18***	−0.14***	−0.12***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
13-15 at divorce	−0.19***	−0.21***	−0.17***	−0.19***	−0.10***	−0.10***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
16-18 at divorce	−0.08***	−0.09***	−0.07**	−0.08**	−0.06**	−0.06**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
19 and more at divorce	0.08***	0.04	0.08***	0.00	0.07***	0.03
	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)
Constant	9.45***	9.39***	12.42***	12.35***	2.07*	2.13*
	(0.77)	(0.83)	(0.86)	(0.89)	(0.85)	(0.84)
Observations	57932	56876	57932	56876	55572	54570
Joint Test	0.00	0.00	0.00	0.00	0.00	0.00
Siblings in the same age group	Included		Included		Included	

Standard errors in parentheses, clustered at the family level and bootstrapped using 500 replications. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Notes: Random effects results. See previous tables for a description of the outcomes and controls. We test whether the coefficients on the effect of parental separation before the age of 18 are simultaneously zero (Joint Test or F-Test), p-values are available at the bottom of each column.

Source: Formation et Qualification Professionnelle (INSEE), 2003 and 2014 waves, using individuals who report information on a sibling, and born between 1946 and 1988, in columns 1, 3 and 5 (conditions (a), (b) and (c) applied); and excluding siblings who experience a divorce in the same age group in columns 2, 4 and 6 (conditions (a) to (d) applied).

4.2 Controlling for question bias

The question asks about a parental separation *during schooling*, which means that those who declare a parental separation after age 16 (the age limit for compulsory schooling in France) should be still at school. This could bias the divorced families sample by introducing more highly-educated individuals. For example, if the individual is 25 years old when the parents separate, it is declared only if the subject is still at school. Therefore, the longer the schooling, the greater the probability that a separation will be declared. To investigate this potential bias, results for two different sub-samples are compared, one including families where the respondents declare a divorce after the age of 16, and the other excluding them. All the respondents' siblings who experience a parental separation after age 16 remain in the sample.

In both Tables 11 and 12, columns 1, 3 and 5 show the results when siblings with an age difference greater than 10 years are excluded from the sample (conditions (a) to (e) applied), while columns 2, 4 and 6 show the results when all the respondents and their siblings who declare a divorce after the age of 16 are also excluded from the sample (conditions (a) to (f) applied).

First, we consider the differences between the two sub-samples using a random effects model. The estimated effect of parental separation on all three outcomes is more negative (7 percentage points of a standard deviation in years of schooling) for those who experience a parental separation after the age of 19 in the second sub-sample, suggesting a small question bias for number of years of schooling for these individuals. The differences are negligible, and the other age groups are not impacted. The only thing that may change is the benchmark used to estimate the effect of divorce, but this change is very small[34].

Second, estimating a sibling-differences model, it is impossible to consider all the age groups because the reference age group of 18 and over is too small, which introduces some collinearity among age groups. Thus, only five age groups were considered, the reference age group being those who experience a parental separation after the age of 16. Since this reference group is more affected by parental separation than those over the age of 18, differences from this reference group are less marked. Some significance is lost because a loss of observations decreases the statistical power of the estimation.[35] Comparing the two sub-samples, results are similar on all three outcomes. Therefore, question bias can be ruled out.

[34] Testing whether the coefficients on the effect of parental separation are simultaneously zero, we reject the nul hypothesis for both subsamples

[35] Testing whether the coefficients on the effect of parental separation are simultaneously zero, we are not able to reject the nul hypothesis for any of the subsamples, but as mentionned before, the differences with those who experience a parental separation after the age of 16 rather than 19 are much smaller, and the differences between the two subsamples are more likely to be due to a loss of precision.

Table 11 – Question bias. Random effects results.

	Nb. of Years of Schooling		Earnings-weighted education		Social Position	
0-3 at divorce	−0.35***	−0.35***	−0.34***	−0.34***	−0.15***	−0.15***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.03)	(0.03)
4-6 at divorce	−0.28***	−0.28***	−0.30***	−0.30***	−0.19***	−0.19***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
7-9 at divorce	−0.19***	−0.20***	−0.23***	−0.24***	−0.09***	−0.10***
	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)
10-12 at divorce	−0.22***	−0.21***	−0.18***	−0.18***	−0.13***	−0.11***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
13-15 at divorce	−0.20***	−0.20***	−0.18***	−0.19***	−0.09***	−0.11***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
16-18 at divorce	−0.09***	−0.09*	−0.08**	−0.05	−0.07***	−0.08*
	(0.03)	(0.04)	(0.02)	(0.04)	(0.02)	(0.03)
19 and more at divorce	0.06*	−0.01	0.02	−0.03	0.03	−0.05
	(0.03)	(0.05)	(0.03)	(0.06)	(0.03)	(0.05)
Constant	8.33***	8.25***	12.13***	12.01***	0.19	0.28
	(0.87)	(0.96)	(0.98)	(1.00)	(0.93)	(0.95)
Observations	52602	51946	52602	51946	50516	49889
Joint Test	0.00	0.00	0.00	0.00	0.00	0.00
Question Bias	Non Treated	Treated	Non Treated	Treated	Non Treated	Treated

Standard errors in parentheses, clustered at the family level and bootstrapped using 500 replications. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Notes: Random effects results. See previous tables for a description of the outcomes and controls. We test whether the coefficients on the effect of parental separation before the age of 18 are simultaneously zero (Joint Test or F-Test), p-values are available at the bottom of each column.

Source: Estimation samples drawn from the Dataset "Formation et Qualification Professionnelle" (INSEE), waves 2003 and 2014. Columns 1, 3 and 5 show the results when siblings with an age difference larger than 10 years are excluded from the sample (conditions (a) to (e) applied), and columns 2, 4 and 6 show the results when all the families of respondents who declare a divorce after age 16 are also excluded from the sample (conditions (a) to (f) applied).

Table 12 – Question bias. Fixed effects results.

	Nb. of Years of Schooling		Earnings-weighted education		Social Position	
0-3 at divorce	−0.11	−0.10	−0.12	−0.16	−0.01	−0.02
	(0.10)	(0.10)	(0.11)	(0.12)	(0.10)	(0.10)
4-6 at divorce	−0.10	−0.10	−0.13	−0.16	−0.11	−0.11
	(0.09)	(0.09)	(0.09)	(0.10)	(0.08)	(0.09)
7-9 at divorce	−0.03	−0.03	−0.09	−0.13	0.00	−0.01
	(0.08)	(0.08)	(0.08)	(0.09)	(0.07)	(0.08)
10-12 at divorce	−0.11+	−0.09	−0.07	−0.09	−0.10+	−0.09
	(0.06)	(0.06)	(0.07)	(0.08)	(0.06)	(0.07)
13-15 at divorce	−0.11*	−0.09	−0.09	−0.12+	−0.05	−0.06
	(0.05)	(0.06)	(0.06)	(0.07)	(0.05)	(0.06)
Constant	0.26	0.21	0.65*	0.57+	6.04***	5.99***
	(0.32)	(0.28)	(0.30)	(0.30)	(0.33)	(0.35)
Observations	52602	51946	52602	51946	50516	49889
Joint Test	0.08	0.45	0.67	0.63	0.18	0.29
Question Bias	Non Treated	Treated	Non Treated	Treated	Non Treated	Treated

Standard errors in parentheses, clustered at the family level and bootstrapped using 500 replications. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Notes: Fixed effects results. Schooling is a proxy for the number of years of schooling. Earnings-weighted education is the wage value of the individual's highest qualification (compared to no qualification). Social position is the average earnings estimated separately for each gender on full-time workers with a Heckman procedure to account for the absence of part-time workers and inactive individuals. Outcome variables are standardized for a mean of 0 and a standard deviation of 1. See Section 2.2.1 for a more detailed description. Individual characteristics, such as sex, year of birth and its quadratic term, his age and its quadratic term, birth order and a dummy indicating if the individual is the last born of the sibship are all controlled for.We test whether the coefficients on the effect of parental separation before the age of 18 are simultaneously zero (Joint Test or F-Test), p-values are available at the bottom of each column.

Source: Estimation samples drawn from the Dataset "Formation et Qualification Professionnelle" (INSEE), waves 2003 and 2014. Columns 1, 3 and 5 show the results when siblings with an age difference larger than 10 years are excluded from the sample (conditions (a) to (e) applied), and columns 2, 4 and 6 show the results when all the families of respondents who declare a divorce after age 16 are also excluded from the sample (conditions (a) to (f) applied).

5 Concluding discussion

This paper examines the extent of the effect of parental separation on three specific outcomes: number of years of schooling, earnings-weighted education, which accounts for the value of the qualification obtained, and social position. The aim is to take into account divorced family selection, using a sibling-differences approach. Those who experience a parental separation after the age of 18 seem to have the same outcomes as those in a non-divorced family. Those who experience a parental separation before the age of 18 have lower outcomes than the reference age group. Using a random effects model, the estimated coefficients range from 30% to 12% of a standard deviation ; and from 30% to 8% of a standard deviation for number of years of education and earnings-weighted education, respectively. The effect differs across age groups. The least affected are the 16 to 18-year-olds, and the most affected are the youngest. Testing whether the coefficients are simultaneously zero, we reject the nul hypothesis for both models where the number of years of schooling is concerned and for the random effects model where earnings-weighted education is concerned. Where social position is concerned, the effects are weaker. When the family fixed effect is accounted for, the estimated effects are somewhat weaker for social position than for other outcomes, except for the 4 to 6 and the 10 to 12-year-olds who are the most strongly affected. Those who experience a divorce at ages 10 to 18 have a lower loss in terms of earnings-weighted education than in terms of number of years of schooling: their schooling is shorter but shows a relatively higher return. Results suggest that individuals recover partially from the shock when their occupation is considered, except for those who experience the shock at a more crucial period, such as entry to primary or secondary school. For the others, some variables might mitigate the effect of parental separation on social position.

These findings are difficult to compare to other studies, which use different variables to assess outcomes. Björklund & Sundström (2006) find no significant effect of parental separation on "earnings-weighted education" when divorced family selection is taken into account. The impact of parental separation can be expected to be greater in France than in Sweden, since inequality of opportunity is lower in the latter country. Francesconi et al. (2010), in Germany, Ermisch & Francesconi (2001), in Great Britain also find negative effects of parental separation on the probability of achieving a minimum qualification (A-level or equivalent), and smaller but still statistically significant effects when selection is accounted for. Surprisingly, in my study in France, the estimated effect of parental separation is the same when selection is taken into account. This may be due to the larger sample used here, which enables the retention of statistical power in the sibling-differences model. It could also indicate that divorce is more widespread throughout social categories in France, which would make any latent characteristics appear random and explain the lack of evidence of divorced family selection in France.

If this negative correlation results from a causal relationship, several mechanisms could be involved. Parental separation may impact parents' available resources. First, economic resources might decrease after the parental separation. This channel is relevant whatever the child's age at the time of the separation. In France, there are fiscal policies aimed at aiding separated single-parent families[36], but they seem to be insufficient. Child maintenance is not systematically awarded, and may only partially cover children's needs, since it depends on the father's income. If the father is considered too poor, he does not have to pay child maintenance; the State provides 100 euros a month per child. In other cases, child maintenance is on average 140 euros a month per child. The Yellow Jacket movement has highlighted the economic difficulties of single mothers in France facing their ex-husband's failure to pay. This might be a factor, especially where mothers are less highly educated. In the sibling-differences model, individuals experiencing a separation showed lower achievement than their older sibling, especially when the mother was less highly educated.

Second, time resources may be impacted, perhaps linked to the first mechanism (see Grätz 2017; Le Forner 2019). To compensate for loss of income, the custodial parent might increase their working hours. Consequently, time spent with at least one parent might decrease. Several studies (Del Boca et al. 2017; Del Bono et al. 2016) highlight the importance of time spent with the mother in early childhood, which suggests that this channel may be particularly important for young children. In this case, labour market policies encouraging shorter working hours or more flexible schedules could help decrease the causal effects of parental separation[37]. Moreover, the breakdown of parental time is likely to be affected: children might spend less time with both parents together and with the non-custodial parent, which may also affect their development.

A third parental resource that could be impacted is the non-custodial parent's social network. Promoting alternating custody might be a way to keep this channel open.

Additional mechanisms that may be involved include the psychological channel. If parental separation was unexpected, the children might blame themselves (see Amato & Booth 2001), particularly younger children (see Jenkins & Buccioni 2000). Moreover, children might be stigmatised by their parents' separation; this may particularly apply to adolescents, since I find that individuals who grew up in an environment where divorce was less stigmatised (after 1970) are less affected by a parental separation occurring in their teens.

Investigating the different channels through which parental separation may impact children's outcomes therefore appears to be a promising avenue for future research.

[36] There is a higher fiscal advantage to being widowed than separated

[37] Such policies might have adverse effects too, possibly negatively impacting the mother's future labour market outcomes and exacerbating gender discriminations on the labour market.

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Appendix

A 1 Estimation of the Outcomes

A 1.1 Number of years of schooling

Table A.1 reports the results of the estimation of Equation 2.1.

Table A.1 – Estimations of the Number of Years of Schooling

	Number of years of Schooling
Year of birth squared	-0.002***
	(0.000)
Grande Ecole	-0.090
	(0.103)
1st cycle at University	-1.994***
	(0.105)
BTS, DUT	-2.490***
	(0.066)

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Table A.1 – *Continued from previous page*

	Number of Years of Schooling
Paramedical or Social qualification	-1.543***
	(0.077)
Baccalaureat (general)	-4.214***
	(0.063)
Baccalaureat or Brevet (vocational track)	-4.381***
	(0.062)
Brevet de Technicien, Professionnel	-3.348***
	(0.119)
CAP, BEP	-5.766***
	(0.048)
Brevet des collèges	-6.767***
	(0.059)
CEP	-8.427***
	(0.073)
No qualification	-8.319***
	(0.056)
Man=1	0.483***
	(0.055)
Grande Ecole × Man=1	-0.214+
	(0.114)
1st cycle at University × Man=1	0.296+
	(0.154)
BTS, DUT × Man=1	-0.257**
	(0.081)
Paramedical or Social qualification × Man=1	0.406*

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Table A.1 – *Continued from previous page*

	Number of Years of Schooling
	(0.163)
Baccalaureat (general) × Man=1	-0.182*
	(0.091)
Baccalaureat or Brevet (vocational track) × Man=1	-0.147+
	(0.080)
Brevet de Technicien, Professionnel × Man=1	-0.507***
	(0.152)
CAP, BEP × Man=1	-0.598***
	(0.064)
Brevet des collèges × Man=1	-0.372***
	(0.083)
CEP × Man=1	-0.409***
	(0.093)
No qualification × Man=1	-0.225**
	(0.076)
Year of Birth	0.018***
	(0.003)
Grande Ecole × Year of Birth	0.017**
	(0.005)
1st cycle at University × Year of Birth	0.042***
	(0.008)
BTS, DUT × Year of Birth	0.023***
	(0.004)
Paramedical or Social qualification × Year of Birth	0.054***
	(0.006)

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Table A.1 – *Continued from previous page*

	Number of Years of Schooling
Baccalaureat (general) × Year of Birth	0.013**
	(0.004)
Baccalaureat or Brevet (vocational track) × Year of Birth	0.041***
	(0.004)
Brevet de Technicien, Professionnel × Year of Birth	0.054***
	(0.007)
CAP, BEP × Year of Birth	0.055***
	(0.003)
Brevet des collèges × Year of Birth	-0.002
	(0.004)
CEP × Year of Birth	0.055***
	(0.007)
No qualification × Year of Birth	0.090***
	(0.004)
Age	-0.065***
	(0.010)
Age squared	0.001***
	(0.000)
Constant	19.355***
	(0.237)
Observations	43822

Continued on next page

Table A.1 – *Continued from previous page*

	Number of Years of Schooling

Standard errors in parentheses. + $p < 0.1$, *$p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Notes: This table reports the regression of the number of years of schooling $Y_1 = year\ of\ end\ of\ schooling - year\ of\ birth - 6$ on the highest qualification, gender, year of birth, its quadratic term, age and its quadratic term and interaction terms. It is then used to predict the number of years of schooling of the respondent and their sibling.

Source: All respondents from the Dataset "Formation et Qualification Professionnelle" (INSEE), waves 2003 and 2014, born between 1946 and 1988.

Table A.2 shows that the median number of years of schooling for each qualification increased across cohorts, especially for the lowest levels (no qualification and CEP). Since 1959, schooling has been compulsory in France up to age 16. All the sample were younger than 16 at the time of the reform, but from the estimations, it appears that the oldest cohorts with less education left school before 16. Some may have ended their schooling before the reform, and therefore before the age of 16. Thus, the oldest cohorts could have stopped attending school before the age of 16, whereas the most recent cohorts have at least 10 years of schooling.

Table A.2 – The Number of Years of Schooling Measure

Cohort	1946 - 1950	1951 - 1960	1961 - 1969	1970 - 1980	1981 - 1989	"Normal Age"
No Qualification	6.06	7.33	8.79	9.91	10.58	?
CEP	6.18	7.02	8.31	9.26	9.76	5
Brevet des Collèges	8.62	9.19	9.87	10.15	9.89	9
CAP, BEP	8.82	9.77	10.99	11.78	12.22	11
Brevet de Technicien, Professionnel	11.02	11.96	13.07	14.11	14.74	12
Baccalaureat or Brevet (vocational qualification)	10.68	11.52	12.56	13.27	13.50	12
Baccalaureat (general)	11.13	11.71	12.51	13.00	12.85	12
Paramedical or Social qualification	13.34	14.10	15.34	16.26	16.54	14
BTS, DUT	12.75	13.42	14.31	14.81	14.88	14
1st cycle of University	13.12	13.67	14.94	15.76	15.87	14
Grande Ecole	15.21	15.83	16.75	17.12	17.18	17
Bachelor or Master	15.49	16.03	16.82	17.06	16.90	15 - 20

Notes: The table reports the predicted number of years of schooling for each qualification and each cohort.
Source: Formation et Qualification Professionnelle (INSEE), 2003 and 2014 waves, using individuals born between 1946 and 1988.

As a comparison, the number of years of schooling considered as the "normal age" (minus 6) is reported in the last column of Table A.2, and is the same across cohorts. The "CEP" is a certificate awarded at the end of primary school, between the ages of 11 and 13. The "Brevet des Collèges" is awarded at the age of 15. "CAP" and "BEP" are obtained two years later, normally at 17. "Brevet de Technicien", "Brevet Professionnel", "Baccalaureat" are awarded three years after the end of middle school, at the age of 18. "BTS", "DUT" and 1st cycle of University are taken 2 years after the Baccalaureat. The *Grandes Ecoles* deliver a Master's degree 5 years after the Baccalaureat. There

are several issues with the "normal age" measure. First, it is difficult to define a normal age for some qualifications. What is the normal age to obtain no qualification? Moreover, some variables group several qualifications within the same category: “Bachelor or more”, for example, includes degrees obtained after a normal number of years of schooling that ranges between 15 (Bachelor) and 20 (PhD). "Paramedical or Social qualification" groups different kinds of certification obtained with or without the Baccalaureat, taking the normal age as 2 years after the Baccalaureat[38]. Second, normal age is the same across cohorts, whereas the actual number of years at school has increased, and this reflects an increase in education across cohorts. As mentioned earlier, the oldest cohorts could end school before the age of 16, whereas the most recent cohorts have at least 10 years of schooling. Moreover, taking normal age at which the highest qualification is obtained means that all years of schooling after this qualification are omitted. For example, the normal number of years of schooling to obtain a CEP is 5 years, but these individuals' actual number of years of schooling is much higher, and this reflects their education, even if they obtain no further qualification.
This measure is not perfect either. As we can see in Table A.2, the number of years of schooling leading to no qualification is higher than the number leading to a "CEP"[39]. Staying at school can reflect either doing a higher qualification *or* repeating years, and this is not perfectly handled by taking the median.

A 1.2 Earnings-weighted education.

Table A.3 – The Earnings-weighted education Measure

	Men	Women
No Qualification	0.00	0.00
CEP	-0.05	0.03
Brevet des Collèges	0.12	0.05
CAP, BEP	0.08	0.05
Brevet de Technicien, Professionnel	0.09	-0.03
Baccalaureat or Brevet (vocational qualification)	0.06	0.06
Baccalaureat (general)	0.17	0.11
Paramedical or Social Qualification	0.25	0.18
BTS, DUT	0.24	0.17
1st cycle of University	0.18	0.07
Grande Ecole	0.51	0.40
Bachelor or Master	0.33	0.23

Notes: The Table reports wage value for each qualification, by gender. It reports the coefficients $\hat{\delta}^k$ of Equation 2.2, results are in Table A.4.
Source: Formation et Qualification Professionnelle (INSEE), 2003 and 2014 waves, using individuals born between 1946 and 1988.

Moreover, for the same number of years of schooling in France, it is possible to obtain qualifications of diverse quality or that are differently valued in the society. In an attempt to take into account the value of the qualification, I look at another measure of schooling: earnings-weighted education.

[38]This variable is the most comprehensive, since more detailed information on the respondent's sibling is not available.
[39]The "CEP" ceased in 1989. In the last cohort, there are only 20 individuals with a CEP.

Table A.3 summarises the measure for each gender.

A 1.3 Social Position

In Table A.4, we can see that for men, the results obtained from the two models are quite similar, but for women, while they remain qualitatively similar, the magnitude of the coefficients differs, especially the coefficients for occupation.

Table A.4 – Estimations of the Social Position

	Men		Women	
	OLS	Heckman	OLS	Heckman
main				
Age	0.07***	0.04+	-0.05	0.02
	(0.02)	(0.02)	(0.11)	(0.04)
Age squared	-0.00***	-0.00***	-0.00***	-0.00***
	(0.00)	(0.00)	(0.00)	(0.00)
Year of Birth	-0.00	0.00	0.01***	0.01**
	(0.00)	(0.00)	(0.00)	(0.00)
Year of birth squared	0.00+	0.00*	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Bachelor or Master	0.30***	0.33***	0.33***	0.23***
	(0.03)	(0.04)	(0.04)	(0.03)
Grande Ecole	0.49***	0.51***	0.44***	0.40***
	(0.04)	(0.04)	(0.06)	(0.06)
1st cycle at University	0.23***	0.18***	0.24***	0.07+
	(0.06)	(0.05)	(0.06)	(0.04)
BTS, DUT	0.26***	0.24***	0.29***	0.17***
	(0.03)	(0.03)	(0.04)	(0.04)
Paramedical or Social qualification	0.26**	0.25*	0.33***	0.18***
	(0.09)	(0.11)	(0.05)	(0.04)

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Table A.4 – *Continued from previous page*

	Men		Women	
	OLS	Heckman	OLS	Heckman
Baccalaureat (general)	0.19***	0.17***	0.20***	0.11***
	(0.03)	(0.03)	(0.03)	(0.03)
Baccalaureat or Brevet (vocational track)	0.09**	0.06*	0.20***	0.06*
	(0.03)	(0.03)	(0.03)	(0.03)
Brevet de Technicien, Professionnel	0.05	0.09	0.01	-0.03
	(0.06)	(0.10)	(0.07)	(0.06)
CAP, BEP	0.13***	0.08***	0.13***	0.05*
	(0.02)	(0.02)	(0.02)	(0.02)
Brevet des collèges	0.15***	0.12***	0.11***	0.05+
	(0.03)	(0.03)	(0.03)	(0.03)
CEP	-0.01	-0.05	0.04	0.03
	(0.04)	(0.03)	(0.04)	(0.04)
Grande EcoleXYear of Birth	0.00	-0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
1st cycle at UniversityXYear of Birth	0.00	0.00	-0.01	0.01+
	(0.01)	(0.00)	(0.01)	(0.00)
BTS, DUTXYear of Birth	0.01*	0.01*	0.00+	0.00*
	(0.00)	(0.00)	(0.00)	(0.00)
Paramedical or Social qualificationXYear of Birth	0.01+	0.02	0.01**	0.01***
	(0.01)	(0.01)	(0.00)	(0.00)
Baccalaureat (general)XYear of Birth	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Baccalaureat or Brevet (vocational track)XYear of Birth	0.02***	0.01***	0.00	0.01**
	(0.00)	(0.00)	(0.00)	(0.00)

Continued on next page

Table A.4 – *Continued from previous page*

	Men		Women	
	OLS	Heckman	OLS	Heckman
Brevet de Technicien, ProfessionnelXYear of Birth	0.01*	0.00	0.02***	0.01***
	(0.00)	(0.01)	(0.00)	(0.00)
CAP, BEPXYear of Birth	0.01***	0.01***	0.00+	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)
Brevet des collègesXYear of Birth	0.01*	0.01*	-0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
CEPXYear of Birth	0.00	0.01+	-0.00	0.01*
	(0.00)	(0.00)	(0.01)	(0.00)
No qualificationXYear of Birth	0.00	0.01*	-0.01+	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Middle-scale Farmer	-3.24*	-3.00+	-10.95	-9.34***
	(1.26)	(1.59)	(7.18)	(2.21)
Large-scale Farmer	-2.02*	-2.01+	-6.45	-2.02
	(0.99)	(1.13)	(6.55)	(2.13)
Craftsman	-2.39**	-2.32*	-7.38	-3.49+
	(0.92)	(0.97)	(6.50)	(2.08)
Retailer	-2.90**	-2.65**	-8.55	-3.70+
	(0.93)	(0.99)	(6.49)	(2.04)
Firm Manager (> 10 employees)	-1.39	-1.09	-7.57	-2.25
	(0.98)	(1.01)	(6.53)	(2.33)
Liberal profession	-1.55	-1.26	-7.83	-3.35+
	(0.95)	(1.07)	(6.49)	(2.03)
Civil servant	-1.42	-1.35	-7.72	-3.30+
	(0.93)	(0.95)	(6.49)	(2.00)

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Table A.4 – *Continued from previous page*

	Men		Women	
	OLS	Heckman	OLS	Heckman
Professor, scientific occupation	-2.03*	-1.78+	-7.86	-3.50+
	(0.92)	(0.95)	(6.49)	(2.00)
Information, Arts professions	-2.48**	-1.94+	-8.47	-3.68+
	(0.94)	(1.00)	(6.49)	(2.01)
Administrative, sales occupations	-0.96	-1.07	-7.21	-2.91
	(0.91)	(0.94)	(6.49)	(2.00)
Engineer	-1.35	-1.40	-7.62	-3.45+
	(0.91)	(0.94)	(6.49)	(2.00)
Teacher	-2.29*	-2.10*	-8.16	-3.56+
	(0.92)	(0.94)	(6.49)	(1.99)
Health and Social occupations	-1.68+	-1.33	-8.06	-3.88+
	(0.92)	(0.97)	(6.49)	(1.99)
Clerical Occupations	-2.55	-1.83	-9.29	-5.40**
	(3.03)	(1.30)	(7.09)	(2.00)
Public Sector Intermediate Occupations	-1.69+	-1.64+	-8.29	-3.71+
	(0.93)	(0.94)	(6.49)	(2.00)
Private Sector Intermediate Occupations	-1.53+	-1.54+	-7.88	-3.51+
	(0.91)	(0.94)	(6.48)	(1.99)
Technician	-1.36	-1.41	-7.97	-3.55+
	(0.91)	(0.94)	(6.49)	(2.00)
Foreman	-1.37	-1.32	-8.43	-3.66+
	(0.91)	(0.94)	(6.49)	(2.01)
Public Sector Employee	-1.55+	-1.67+	-7.99	-3.60+
	(0.91)	(0.94)	(6.48)	(1.99)

Continued on next page

	Men		Women	
	OLS	Heckman	OLS	Heckman
Monitoring Agent	-1.43	-1.48	-7.57	-3.43+
	(0.92)	(0.94)	(6.50)	(2.00)
Private Sector Administrative Employee	-1.77+	-1.76+	-8.11	-3.66+
	(0.92)	(0.95)	(6.48)	(1.99)
Sales Employee	-1.99*	-1.84+	-8.20	-3.73+
	(0.92)	(0.94)	(6.48)	(1.99)
Personal Services Employee	-1.96*	-1.86+	-8.60	-4.04*
	(0.93)	(0.96)	(6.48)	(1.99)
Skilled Worker in Industry	-1.32	-1.39	-7.86	-3.56+
	(0.91)	(0.94)	(6.49)	(2.00)
Skilled Craft Worker	-1.53+	-1.61+	-8.23	-4.04*
	(0.91)	(0.94)	(6.49)	(2.01)
Driver	-1.36	-1.45	-8.13	-3.07
	(0.91)	(0.94)	(6.50)	(2.09)
Skilled Worker in Carriage	-1.48	-1.56+	-8.19	-3.57+
	(0.92)	(0.94)	(6.50)	(2.01)
Unskilled Worker in Industry	-1.98*	-1.95*	-8.38	-3.90+
	(0.91)	(0.94)	(6.49)	(1.99)
Unskilled Craft Worker	-1.72+	-1.85+	-8.45	-3.89+
	(0.92)	(0.94)	(6.49)	(2.00)
Unskilled Farm Labourer	-2.52**	-2.29*	-8.14	-3.82+
	(0.93)	(0.96)	(6.49)	(2.01)
Middle-scale FarmerXAge	0.08**	0.07*	0.22	0.23***
	(0.03)	(0.04)	(0.14)	(0.04)

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	Men		Women	
	OLS	Heckman	OLS	Heckman
Large-scale FarmerXAge	0.06**	0.05*	0.10	0.02
	(0.02)	(0.03)	(0.12)	(0.04)
CraftsmanXAge	0.08***	0.07***	0.13	0.08*
	(0.02)	(0.02)	(0.11)	(0.04)
RetailerXAge	0.09***	0.08***	0.16	0.08*
	(0.02)	(0.02)	(0.11)	(0.04)
Firm Manager (> 10 employees)XAge	0.08***	0.07**	0.16	0.07+
	(0.02)	(0.02)	(0.12)	(0.04)
Liberal professionXAge	0.07***	0.06*	0.16	0.09*
	(0.02)	(0.02)	(0.11)	(0.04)
Civil servantXAge	0.08***	0.06**	0.16	0.09*
	(0.02)	(0.02)	(0.11)	(0.04)
Professor, scientific occupationXAge	0.09***	0.07**	0.17	0.09*
	(0.02)	(0.02)	(0.11)	(0.04)
Information, Arts professionsXAge	0.09***	0.07**	0.17	0.09*
	(0.02)	(0.02)	(0.11)	(0.04)
Administrative, sales occupationsXAge	0.07***	0.06**	0.16	0.08*
	(0.02)	(0.02)	(0.11)	(0.04)
EngineerXAge	0.08***	0.07**	0.17	0.09**
	(0.02)	(0.02)	(0.11)	(0.04)
TeacherXAge	0.08***	0.07**	0.16	0.09*
	(0.02)	(0.02)	(0.11)	(0.04)
Health and Social occupationsXAge	0.07***	0.06*	0.16	0.09**
	(0.02)	(0.02)	(0.11)	(0.04)

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Table A.4 – *Continued from previous page*

	Men		Women	
	OLS	Heckman	OLS	Heckman
Clerical OccupationsXAge	0.08	0.06*	0.19	0.11**
	(0.06)	(0.03)	(0.13)	(0.04)
Public Sector Intermediate OccupationsXAge	0.08***	0.06**	0.17	0.09*
	(0.02)	(0.02)	(0.11)	(0.04)
Private Sector Intermediate OccupationsXAge	0.07***	0.06**	0.16	0.09*
	(0.02)	(0.02)	(0.11)	(0.04)
TechnicianXAge	0.07***	0.06**	0.16	0.09*
	(0.02)	(0.02)	(0.11)	(0.04)
ForemanXAge	0.07***	0.06**	0.17	0.09*
	(0.02)	(0.02)	(0.11)	(0.04)
Public Sector EmployeeXAge	0.06***	0.06**	0.16	0.08*
	(0.02)	(0.02)	(0.11)	(0.04)
Monitoring AgentXAge	0.07***	0.06**	0.15	0.08*
	(0.02)	(0.02)	(0.11)	(0.04)
Private Sector Administrative EmployeeXAge	0.07***	0.06**	0.16	0.09*
	(0.02)	(0.02)	(0.11)	(0.04)
Sales EmployeeXAge	0.07***	0.06**	0.16	0.08*
	(0.02)	(0.02)	(0.11)	(0.04)
Personal Services EmployeeXAge	0.07***	0.06**	0.15	0.08*
	(0.02)	(0.02)	(0.11)	(0.04)
Skilled Worker in IndustryXAge	0.06***	0.05*	0.15	0.08*
	(0.02)	(0.02)	(0.11)	(0.04)
Skilled Craft WorkerXAge	0.06***	0.06*	0.16	0.09*
	(0.02)	(0.02)	(0.11)	(0.04)

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Table A.4 – *Continued from previous page*

	Men		Women	
	OLS	Heckman	OLS	Heckman
DriverXAge	0.06**	0.05*	0.15	0.07+
	(0.02)	(0.02)	(0.11)	(0.04)
Skilled Worker in CarriageXAge	0.06***	0.06*	0.16	0.08*
	(0.02)	(0.02)	(0.11)	(0.04)
Unskilled Worker in IndustryXAge	0.07***	0.06**	0.16	0.08*
	(0.02)	(0.02)	(0.11)	(0.04)
Unskilled Craft WorkerXAge	0.06**	0.06**	0.15	0.08*
	(0.02)	(0.02)	(0.11)	(0.04)
Unskilled Farm LabourerXAge	0.08***	0.07**	0.14	0.08*
	(0.02)	(0.02)	(0.11)	(0.04)
Constant	8.07***	9.02***	14.61*	11.10***
	(0.92)	(0.94)	(6.49)	(2.00)
select				
Married		0.14***		-0.07***
		(0.02)		(0.01)
Widowed		-0.17*		-0.11**
		(0.07)		(0.04)
Divorced		-0.08**		0.03+
		(0.03)		(0.02)
Number of children		-0.00		-0.12***
		(0.01)		(0.01)
Constant		0.57***		0.22***
		(0.02)		(0.02)
/				
athrho		-1.43***		-1.81***

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Table A.4 – *Continued from previous page*

	Men		Women	
	OLS	Heckman	OLS	Heckman
		(0.03)		(0.04)
lnsigma		-0.16***		0.05*
		(0.02)		(0.02)
Observations	18963	23203	18814	25624
R^2	0.235		0.255	
Adjusted R^2	0.231		0.252	

Standard errors in parentheses. + $p < 0.1$, *$p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Notes: This tables reports the regression of the log of earnings on the highest qualification, year of birth, it quadratic term, age and its quadratic term, dummies for the profession categories (31 categories) and interaction terms (Equation 2.2). The equation is estimated using an OLS model and a Heckman model. For the Heckman model, the individual is selected only if the individual works full time, i.e. under the following condition: $Full\ Time_i^* = b_0 + b_1 Number\ of\ children_i + b_2 Marital\ Status + \epsilon_i$. It is used to predict the individual's social position.

Source: All respondents from the Dataset "Formation et Qualification Professionnelle" (INSEE), waves 2003 and 2014, born between 1946 and 1988.

Some summary statistics for the two measures and the observed log of earnings for each gender are reported in Table A.5. The mean is the same as that observed with a smaller variance. Their distributions for each gender are shown in Figure A.1.

In the main body of the paper, I use the prediction from Heckman estimation. The results using the two different measures are compared in Tables A.6 and A.7 and are qualitatively similar, but the effects are slightly less negative using the Heckman procedure.

I add a residual from a normal distribution to the actual measures. Main results for the main model using these noisy measures are in Table A.8, and are qualitatively similar.

Table A.5 – Observed Earnings and Predicted Earnings (Social Position)

Panel A : Men

	mean	sd	min	max
Observed	9.91	0.80	0.00	14.87
Predicted with Heckman model	10.18	0.38	7.91	11.70
Predicted with OLS model	9.87	0.41	6.81	11.25
Observations	15421			

Panel B : Women

	mean	sd	min	max
Observed	9.66	0.89	0.69	12.53
Predicted with Heckman model	10.39	0.38	8.41	11.64
Predicted with OLS model	9.53	0.47	7.64	10.70
Observations	11079			

Notes: The table reports separately for men and women the mean, the standard deviation, the minimum and the maximum of the observed earnings in the survey, the predicted earnings using a Heckman model (social position) and using an OLS model.

Source: Respondents to "Formation et Qualification Professionnelle" survey (INSEE), waves 2003 and 2014, for whom earnings are provided.

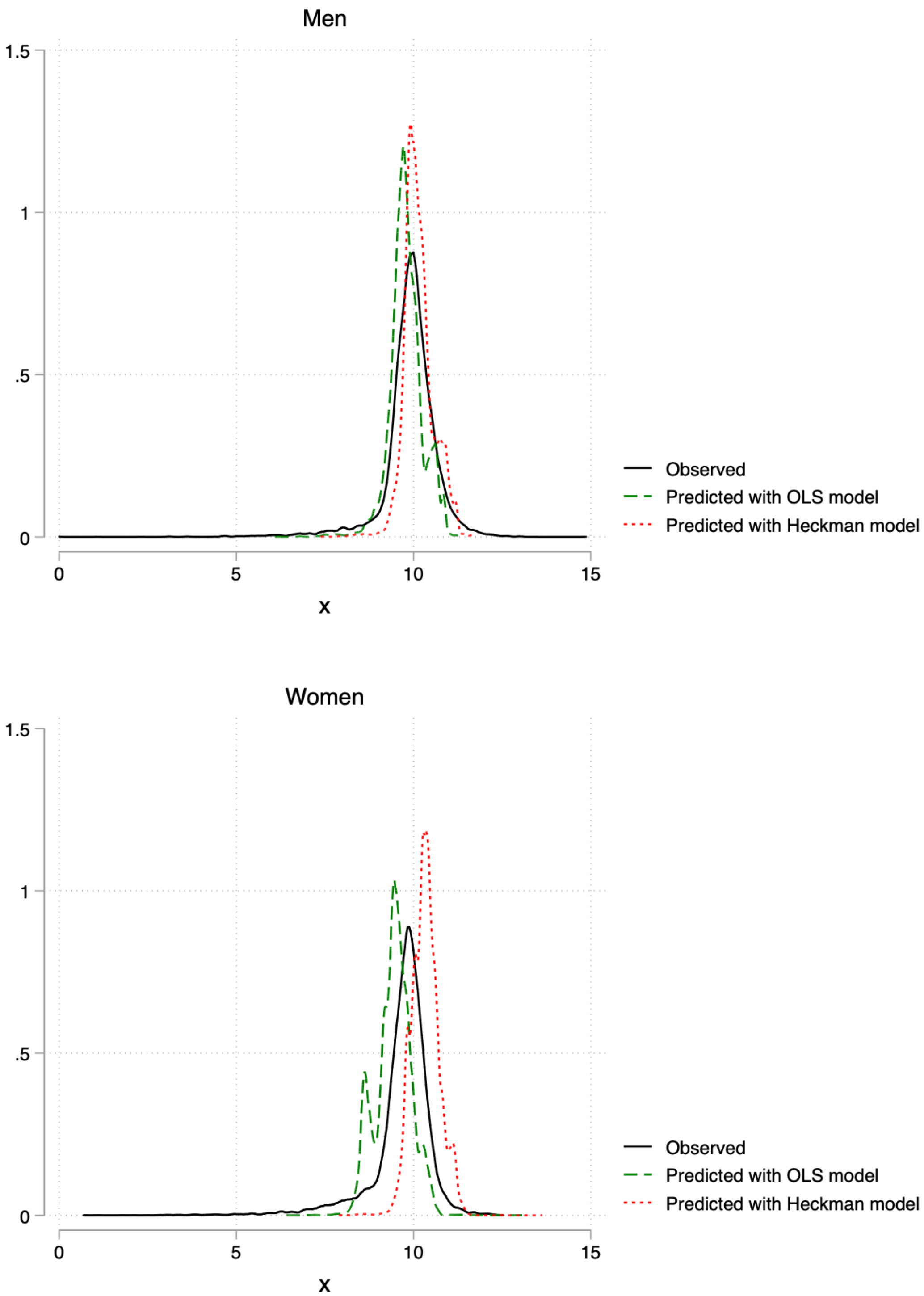

Fig. A.1. Comparison of the two Social Position measures and the observed Earnings.

Table A.6 – Effect of a parental separation on Social Position

	Social Position estimated by OLS		Social Position estimated by Heckman procedure	
	Random Effects	Sibling Difference	Random Effects	Sibling Difference
0-3 at divorce	−0.17***	−0.13	−0.19***	−0.12
	(0.04)	(0.11)	(0.04)	(0.11)
4-6 at divorce	−0.20***	−0.23*	−0.21***	−0.21*
	(0.04)	(0.09)	(0.03)	(0.09)
7-9 at divorce	−0.09**	−0.07	−0.12***	−0.09
	(0.03)	(0.08)	(0.03)	(0.07)
10-12 at divorce	−0.12***	−0.19**	−0.15***	−0.19**
	(0.03)	(0.07)	(0.03)	(0.07)
13-15 at divorce	−0.11***	−0.11+	−0.12***	−0.12*
	(0.03)	(0.06)	(0.03)	(0.06)
16-18 at divorce	−0.08*	−0.07	−0.09**	−0.08+
	(0.03)	(0.06)	(0.03)	(0.05)
Ref. Group : 19+ at divorce	0.01		0.03	
	(0.03)		(0.03)	
Constant	2.67**	5.60***	2.13*	5.76***
	(0.85)	(0.26)	(0.86)	(0.28)
Observations	54570	54570	54570	54570
Joint Test	0.00	0.02	0.00	0.11

Standard errors in parentheses, clustered at the family level and bootstrapped using 500 replications. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Notes: Social position is the average earnings estimated separately for each gender by OLS (Columns 1 and 2), or on full-time workers with a Heckman procedure to account for the absence of part-time workers and inactive individuals (Columns 3 and 4). Individual characteristics, such as sex, year of birth and its quadratic term, age and its quadratic term, birth order and a dummy indicating if the individual is the last born of the sibship are all controlled for, as are family background variables, such as parents' qualification and profession, parents' country of birth, mother's year of birth, family size and its quadratic term, and region of birth.

Source: Estimation sample drawn from the Dataset "Formation et Qualification Profesionnelle" (INSEE), waves 2003 and 2014. Individuals were born between 1946 and 1988 (condition (a)) and provide information on one sibling (condition (b)) who is not a half-sibling (condition (c)). Siblings who experience a parental separation in the same age group are excluded, to avoid identification issues (condition (d)).

Table A.7 – Effect of a parental separation on Social Position, excluding siblings with a large age difference

	Social Position estimated by OLS		Social Position estimated by Heckman procedure	
	Random Effects	Sibling Difference	Random Effects	Sibling Difference
0-3 at divorce	−0.16***	−0.07	−0.18***	−0.07
	(0.05)	(0.13)	(0.04)	(0.11)
4-6 at divorce	−0.19***	−0.18+	−0.22***	−0.16+
	(0.04)	(0.11)	(0.04)	(0.10)
7-9 at divorce	−0.08*	−0.02	−0.12***	−0.05
	(0.04)	(0.09)	(0.04)	(0.09)
10-12 at divorce	−0.12***	−0.15+	−0.15***	−0.16*
	(0.03)	(0.08)	(0.03)	(0.08)
13-15 at divorce	−0.10**	−0.09	−0.12***	−0.10
	(0.03)	(0.08)	(0.03)	(0.07)
16-18 at divorce	−0.09**	−0.06	−0.10**	−0.07
	(0.03)	(0.06)	(0.03)	(0.06)
Ref. Group : 19+ at divorce	0.00		0.03	
	(0.03)		(0.03)	
Constant	1.09	5.85***	0.19	6.04***
	(0.99)	(0.36)	(0.98)	(0.33)
Observations	50516	50516	50516	50516
Joint Test	0.00	0.09	0.00	0.20

Standard errors in parentheses, clustered at the family level and bootstrapped using 500 replications. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Notes: Social position is the average earnings estimated separately for each gender by OLS (Columns 1 and 2), or on full-time workers with a Heckman procedure to account for the absence of part-time workers and inactive individuals (Columns 3 and 4). Individual characteristics, such as sex, year of birth and its quadratic term, age and its quadratic term, birth order and a dummy indicating if the individual is the last born of the sibship are all controlled for, as are family background variables, such as parents' qualification and profession, parents' country of birth, mother's year of birth, family size and its quadratic term, and region of birth.

Source: Estimation sample drawn from the Dataset "Formation et Qualification Profesionnelle" (INSEE), waves 2003 and 2014. Individuals were born between 1946 and 1988. Siblings who experience a parental separation in the same age group or with an age difference larger than ten years are excluded. Conditions (a), (b), (c) (d) and (e) are applied.

Table A.8 – Effect of a parental separation (measures with noise)

	Nb. of Years of Schooling		Earnings-weighted Education		Social Position	
	Random Effects	Sibling Difference	Random Effects	Sibling Difference	Random Effects	Sibling Difference
0-3 at divorce	−0.32***	−0.16+	−0.29***	−0.17+	−0.26***	−0.18*
	(0.04)	(0.10)	(0.05)	(0.09)	(0.04)	(0.09)
4-6 at divorce	−0.31***	−0.19*	−0.29***	−0.19*	−0.26***	−0.25**
	(0.04)	(0.09)	(0.04)	(0.09)	(0.04)	(0.09)
7-9 at divorce	−0.21***	−0.11	−0.22***	−0.15+	−0.17***	−0.11
	(0.04)	(0.08)	(0.04)	(0.08)	(0.03)	(0.07)
10-12 at divorce	−0.24***	−0.20**	−0.18***	−0.13+	−0.20***	−0.21**
	(0.04)	(0.07)	(0.04)	(0.07)	(0.03)	(0.07)
13-15 at divorce	−0.24***	−0.20**	−0.19***	−0.15*	−0.16***	−0.13*
	(0.03)	(0.06)	(0.04)	(0.07)	(0.04)	(0.06)
16-18 at divorce	−0.12***	−0.11*	−0.08*	−0.08	−0.11***	−0.09+
	(0.03)	(0.05)	(0.04)	(0.06)	(0.03)	(0.05)
Ref. Group : 19+ at divorce	0.03		0.00		0.06*	
	(0.03)		(0.03)		(0.03)	
Constant	9.88***	0.03***	12.67***	−0.12***	7.67***	0.50***
	(0.84)	(0.01)	(0.88)	(0.01)	(0.91)	(0.01)
Observations	56876	56876	56876	56876	54570	54570

Standard errors in parentheses, clustered at the family level and bootstrapped using 500 replications. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Notes: Schooling is a proxy for the number of years of schooling. Earnings-weighted education is the wage value of the individual's highest qualification (compared to no qualification at all). Social position is the average earnings estimated separately for each gender on full-time workers with a Heckman procedure to account for the absence of part-time workers and inactive individuals. A noise is added to each outcome variable. Individual characteristics, such as sex, year of birth and its quadratic term, age and its quadratic term, birth order and a dummy indicating if the individual is the last born of the sibship are all controlled for, as are family background variables, such as parents' qualification and profession, parents' country of birth, mother's year of birth, family size and its quadratic term, and region of birth.

Source: Estimation sample drawn from the Dataset "Formation et Qualification Profesionnelle" (INSEE), waves 2003 and 2014. Individuals were born between 1946 and 1988 (condition (a)) and provide information on one sibling (condition (b)) who is not a half-sibling (condition (c)). Siblings who experience a parental separation in the same age group are excluded, to avoid identification issues (condition (d)).

A 2 More descriptive statistics

A 2.1 Representativeness of the sample

Table A.9 presents the summary statistics for three samples: "All" which refers to the entire population of the dataset, "Sample 1" which refers to the sample excluding only-children and "Sample 2" which refers to the sample used in the main body of the paper and that excludes siblings experiencing a divorce in the same age group. Clearly, the sub-samples are quite similar. Therefore the sample I am using is still representative of the whole population.

Table A.9 – Comparison of our sample to whole population of the dataset

	All	Sample 1	Sample 2
	mean	mean	mean
Schooling	13.465	13.478	13.466
Social Position	10.235	10.235	10.235
Earnings-weighted Education	0.117	0.118	0.117
0-3 at divorce	0.006	0.006	0.003
4-6 at divorce	0.007	0.007	0.006
7-9 at divorce	0.010	0.010	0.008
10-12 at divorce	0.012	0.012	0.010
13-15 at divorce	0.014	0.014	0.012
16-18 at divorce	0.012	0.012	0.010
Man	0.494	0.494	0.494
Year of birth	1964.217	1964.217	1964.129
Father: No Qualification	0.289	0.286	0.286
Father: Primary, Secondary School Certificate	0.348	0.349	0.351
Father: CAP, BEP	0.193	0.194	0.194
Father: Brevet-vocational qualification	0.013	0.013	0.013
Father: Baccalaureat	0.053	0.054	0.053
Father: BAC + 2	0.028	0.028	0.028
Father: Higher than BAC + 2	0.075	0.075	0.075
Father: Farmer	0.104	0.104	0.105
Father: Self-employed	0.118	0.118	0.117
Father: White Collar	0.100	0.101	0.100
Father: Mid-level Profession	0.136	0.136	0.136

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Table A.9 – *Continued from previous page*

	All	Sample 1	Sample 2
Father: Employee	0.088	0.088	0.088
Father: Manual Worker	0.373	0.371	0.372
Father: Retired	0.064	0.064	0.064
Father: Other	0.018	0.018	0.017
Mother: No Qualification	0.340	0.337	0.339
Mother: Primary, Secondary School Certificate	0.398	0.399	0.401
Mother: CAP, BEP	0.117	0.118	0.117
Mother: Brevet-vocational qualification	0.009	0.009	0.009
Mother: Baccalaureat	0.056	0.056	0.056
Mother: BAC + 2	0.044	0.044	0.043
Mother: Higher than BAC + 2	0.036	0.036	0.036
Mother: Farmer	0.080	0.080	0.081
Mother: Self-employed	0.050	0.050	0.050
Mother: White Collar	0.022	0.022	0.022
Mother: Mid-level Profession	0.074	0.074	0.073
Mother: Employee	0.214	0.214	0.212
Mother: Manual Worker	0.076	0.076	0.076
Mother: Retired	0.023	0.023	0.023
Mother: Other	0.461	0.460	0.464
Sibling Size	2.731	2.719	2.727
Sibling Size squared	11.447	11.336	11.400
Region of birth: Ile de France	0.139	0.139	0.138
Region of birth: North West	0.200	0.199	0.199
Region of birth: North	0.099	0.098	0.098
Region of birth: East	0.107	0.107	0.108
Region of birth: West	0.168	0.168	0.169
Region of birth: South West	0.094	0.094	0.094
Region of birth: South East	0.183	0.184	0.183
Region of birth: Corsica	0.002	0.002	0.002
Region of birth: Overseas territories	0.008	0.008	0.008
Mother nationality: French	0.938	0.938	0.938
Mother nationality: European	0.042	0.042	0.042

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Table A.9 – *Continued from previous page*

	All	Sample 1	Sample 2
Mother nationality: Other	0.020	0.020	0.020
Father nationality: French	0.927	0.928	0.928
Father nationality: European	0.049	0.048	0.049
Father nationality: Other	0.024	0.024	0.024
Mother Year of Birth	1937.346	1937.356	1937.224
Last born	0.379	0.379	0.378
Age	43.210	43.115	43.184
1st born	0.371	0.374	0.373
2nd born	0.310	0.311	0.310
3rd born	0.158	0.157	0.157
4th born	0.074	0.073	0.074
5th born	0.040	0.039	0.040
6th born	0.021	0.020	0.020
7th born	0.012	0.011	0.011
8th born	0.007	0.006	0.006
Observations	58903	57932	56876
Only_Child	Included	Excluded	Excluded
Same_age_group	Included	Included	Excluded

Notes: Summary statistics for the three samples. "All" refers to the entire population of the dataset (only condition (a) is applied). "Sample 1" refers to the sample excluding the only-children (condition (b) is applied), and "Sample 2" refers to the sample used in the main body of the paper, which excludes siblings experiencing a divorce in the same age group (condition (d) is applied).
Source: Formation et Qualification Professionnelle, waves 2003 and 2014.

A 2.2 Summary statistics about separated parents families

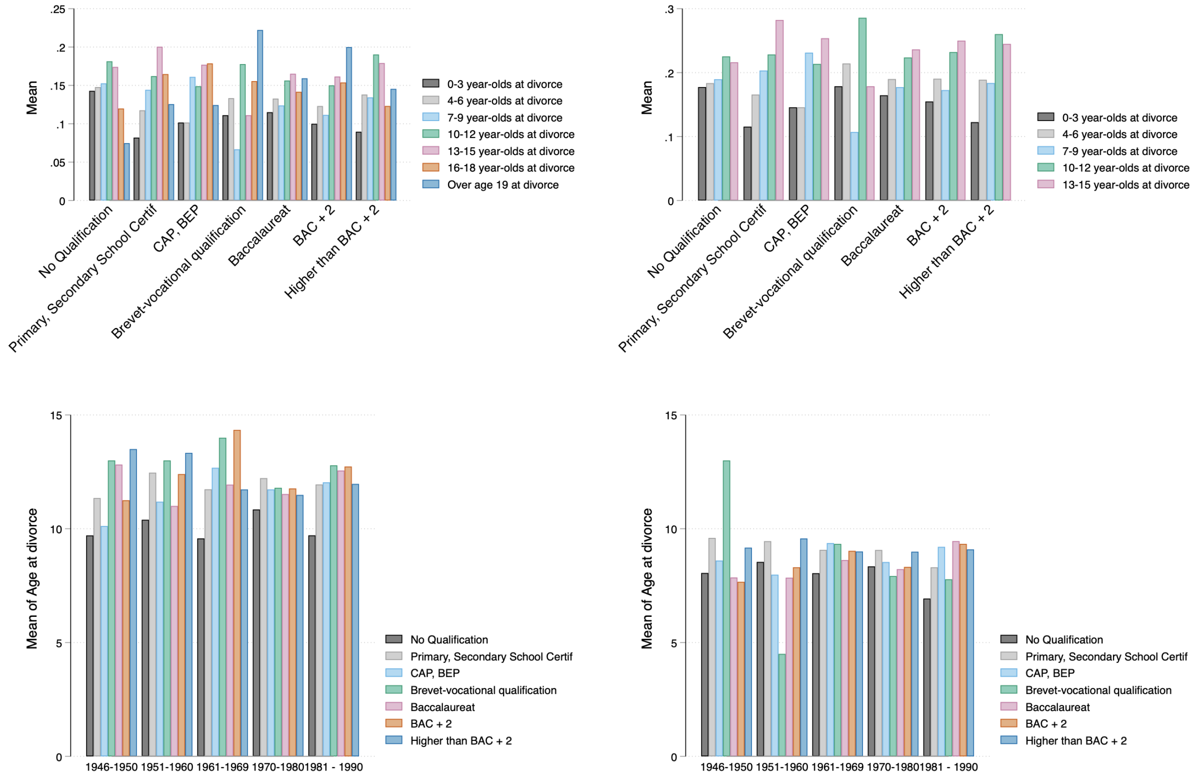

Fig. A.2. Child's age at separation across parents' education and cohorts. The upper graph shows the distribution of children of divorced families by age group over mother's education. (Graph on left shows that of children of divorced families whose mother has Bac+2 and more: 15% are over 18 at separation.). The bottom graph shows child's age at divorce across generations and across mother's education. (Children of divorced families, born in 1946-1950, whose mothers have no qualification are on average 10 years old when the divorce occurs) In the two graphs at the right, all the individuals who declare a divorce after age 16 are excluded from the sample.

Table A.10 – Differences between respondent groups with separated and non-separated parents.

	Non separated parents	Separated parents	Gap (b/se)
Year of birth	1964.09	1969.31	-5.217**
			(0.18)
Mother: No Qualification	0.40	0.32	0.071**
			(0.01)
Mother: Primary, Secondary School Certificate	0.36	0.30	0.064**
			(0.01)
Mother: CAP, BEP	0.11	0.14	-0.036**
			(0.01)
Mother: Brevet (vocational qualification)	0.01	0.01	-0.002
			(0.00)
Mother: Baccalaureat	0.05	0.09	-0.034**

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Table A.10 – *Continued from previous page*

	Non separated parents	Separated parents	Gap (b/se)
			(0.00)
Mother: BAC + 2	0.04	0.07	-0.029**
			(0.00)
Mother: Higher than BAC + 2	0.03	0.07	-0.035**
			(0.00)
Mother: Farmer	0.08	0.01	0.066**
			(0.00)
Mother: Self-employed	0.05	0.05	0.000
			(0.00)
Mother: White Collar	0.02	0.04	-0.023**
			(0.00)
Mother: Mid-level Profession	0.07	0.13	-0.065**
			(0.00)
Mother: Employee	0.20	0.35	-0.153**
			(0.01)
Mother: Manual Worker	0.08	0.11	-0.029**
			(0.00)
Mother: Retired	0.02	0.02	0.001
			(0.00)
Mother: Other	0.49	0.29	0.203**
			(0.01)
Father: No Qualification	0.33	0.28	0.046**
			(0.01)
Father: Primary, Secondary School Certificate	0.33	0.26	0.065**
			(0.01)
Father: CAP, BEP	0.18	0.21	-0.031**
			(0.01)
Father: Brevet (vocational qualification)	0.01	0.01	-0.002
			(0.00)
Father: Baccalaureat	0.05	0.08	-0.025**
			(0.00)
Father: BAC + 2	0.03	0.04	-0.014**

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Table A.10 – *Continued from previous page*

	Non separated parents	Separated parents	Gap (b/se)
			(0.00)
Father: Higher than BAC + 2	0.08	0.12	-0.038**
			(0.01)
Father: Farmer	0.10	0.02	0.080**
			(0.01)
Father: Self-employed	0.12	0.14	-0.029**
			(0.01)
Father: White Collar	0.10	0.14	-0.039**
			(0.01)
Father: Mid-level Profession	0.13	0.16	-0.029**
			(0.01)
Father: Employee	0.09	0.11	-0.024**
			(0.01)
Father: Manual Worker	0.38	0.35	0.032**
			(0.01)
Father: Retired	0.07	0.05	0.018**
			(0.00)
Father: Other	0.01	0.02	-0.009**
			(0.00)
Sibling Size	2.93	2.61	0.324**
			(0.04)
Region of birth: Ile de France	0.13	0.19	-0.056**
			(0.01)
Region of birth: North West	0.20	0.20	0.002
			(0.01)
Region of birth: North	0.10	0.09	0.012*
			(0.01)
Region of birth: East	0.11	0.09	0.015*
			(0.01)
Region of birth: West	0.17	0.13	0.042**
			(0.01)
Region of birth: South West	0.09	0.09	0.001

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Table A.10 – *Continued from previous page*

	Non separated parents	Separated parents	Gap (b/se)
			(0.01)
Region of birth: South East	0.18	0.18	-0.003
			(0.01)
Region of birth: Corsica	0.00	0.00	0.000
			(0.00)
Region of birth: Overseas territories	0.01	0.02	-0.012**
			(0.00)
Observations	40657		

Notes: + p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001.

The first column shows the means for respondents whose parents are not separated, the second columns shows the means for respondents whose parents are separated, the last column is a t-test.

Sources: Estimation sample drawn from the Dataset "Formation et Qualification Professionnelle" (INSEE), waves 2003 and 2014.

A 2.3 Question bias

Table A.11 compares age at divorce for respondents and their siblings. The respondents' siblings are 8 months older on average at the time of the divorce, with a higher proportion found in the 0 to 3-year-olds and over-19s. Table A.12 compares the family characteristics of respondents who declare a divorce after age 16, and respondents' siblings who experience a divorce after age 16. Respondents declaring divorce after the age of 16 are on average younger. Their fathers are more likely to be white-collar workers and less likely to be manual workers, and their family is smaller, than Siblings older than 16 when their parents separated. These differences are significant, but robustness checks show that the question bias is negligible.

Table A.11 – Differences in age at divorce between Respondents and Respondents' Siblings

	Respondents' Siblings	Respondents	Gap (b/se)
Age at divorce	13.17	12.62	0.544^{**}
			(0.19)
0-3 at divorce	0.09	0.07	0.015^{+}
			(0.01)
4-6 at divorce	0.10	0.10	-0.000
			(0.01)
7-9 at divorce	0.14	0.13	0.001
			(0.01)
10-12 at divorce	0.15	0.16	-0.013
			(0.01)
13-15 at divorce	0.16	0.21	-0.054^{**}
			(0.01)
16-18 at divorce	0.14	0.17	-0.037^{**}
			(0.01)
19 and more at divorce	0.23	0.14	0.087^{**}
			(0.01)
Observations	4405		

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Notes: The first column is the average age at separation for respondents' siblings, the second column shows the average age at separation for respondents. The last column shows the results of a t-test.

Source: Estimation sample drawn from the Dataset "Formation et Qualification Profesionnelle" (INSEE), waves 2003 and 2014.Only individuals whose parents are separated are included.

Table A.12 – Differences between Respondents and Siblings older than 16 at the time of the divorce among divorced families.

	Respondents' Siblings	Respondents	Gap (b/se)
Year of birth	1966.88	1969.72	-2.845**
			(0.55)
Mother: No Qualification	0.22	0.19	0.033
			(0.02)
Mother: Primary, Secondary School Certificate	0.36	0.36	0.007
			(0.03)
Mother: CAP, BEP	0.17	0.17	-0.004
			(0.02)
Mother: Brevet (vocational qualification)	0.02	0.02	-0.000
			(0.01)
Mother: Baccalaureat	0.08	0.09	-0.013
			(0.02)
Mother: BAC + 2	0.08	0.10	-0.014
			(0.02)
Mother: Higher than BAC + 2	0.07	0.07	-0.008
			(0.01)
Mother: Farmer	0.01	0.02	-0.005
			(0.01)
Mother: Self-employed	0.05	0.06	-0.007
			(0.01)
Mother: White Collars	0.04	0.06	-0.014
			(0.01)
Mother: Mid-level Profession	0.14	0.16	-0.025
			(0.02)
Mother: Employee	0.37	0.33	0.032
			(0.03)
Mother: Manual Worker	0.08	0.06	0.013
			(0.01)
Mother: Retired	0.03	0.02	0.009
			(0.01)
Mother: Other	0.28	0.29	-0.004

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Table A.12 – *Continued from previous page*

	Respondents' Siblings	Respondents	Gap (b/se)
			(0.03)
Father: No Qualification	0.23	0.19	0.035
			(0.02)
Father: Primary, Secondary School Qualification	0.29	0.26	0.024
			(0.02)
Father: CAP, BEP	0.22	0.24	-0.025
			(0.02)
Father: Brevet (vocational track)	0.02	0.02	0.003
			(0.01)
Father: Baccalaureat	0.08	0.10	-0.020
			(0.02)
Father: BAC + 2	0.05	0.05	-0.005
			(0.01)
Father: Higher than BAC + 2	0.12	0.13	-0.013
			(0.02)
Father: Farmer	0.03	0.03	0.004
			(0.01)
Father: Self-employed	0.13	0.16	-0.028
			(0.02)
Father: White Collars	0.15	0.19	-0.049*
			(0.02)
Father: Mid-level Profession	0.17	0.18	-0.014
			(0.02)
Father: Employee	0.12	0.12	-0.002
			(0.02)
Father: Manual Worker	0.30	0.23	0.069**
			(0.02)
Father: Retired	0.07	0.05	0.016
			(0.01)
Father: Other	0.04	0.04	0.005
			(0.01)
Sibling Size	2.41	2.20	0.208*

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Table A.12 – *Continued from previous page*

	Respondents' Siblings	Respondents	Gap (b/se)
			(0.09)
Region of birth: Ile de France	0.19	0.20	-0.012
			(0.02)
Region of birth: North West	0.20	0.18	0.015
			(0.02)
Region of birth: North	0.08	0.07	0.009
			(0.01)
Region of birth: East	0.10	0.08	0.017
			(0.02)
Region of birth: West	0.12	0.13	-0.010
			(0.02)
Region of birth: South West	0.09	0.10	-0.005
			(0.02)
Region of birth: South East	0.20	0.20	-0.005
			(0.02)
Region of birth: Corsica	0.00	0.00	-0.002
			(0.00)
Region of birth: Overseas territories	0.01	0.02	-0.006
			(0.01)
Observations	1293		

Notes: + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.
The first column shows the means for respondents' siblings who were older than 16 when their parents separated, the second columns shows the means for respondents who were older than 16 at the time of the separation. This last group might be affected by a question bias.
The last column is a t-test.
Sources: Estimation sample drawn from the Dataset "Formation et Qualification Professionnelle" (INSEE), waves 2003 and 2014. Only those experiencing parental separation after age 16 are included

A 3 More results : Continuous models

Table A.13 – Continuous model

	Nb. of Years of Schooling		Earnings-weighted education		Social Position	
	Random Effects	Sibling Difference	Random Effects	Sibling Difference	Random Effects	Sibling Difference
Age at divorce	−0.00744***	0.00623	−0.00754***	0.00813+	−0.00427***	0.00807+
	(0.000781)	(0.00453)	(0.000760)	(0.00466)	(0.000624)	(0.00462)
Constant	8.740***	0.131	11.76***	0.350	1.829*	5.747***
	(0.814)	(0.225)	(0.803)	(0.247)	(0.871)	(0.271)
Observations	56876	56876	56876	56876	54570	54570

	Nb. of Years of Schooling		Earnings-weighted education		Social Position	
	Random Effects	Sibling Difference	Random Effects	Sibling Difference	Random Effects	Sibling Difference
Age at divorce	−0.0355***	0.000329	−0.0360***	0.00277	−0.0214***	0.00378
	(0.00266)	(0.0126)	(0.00299)	(0.0127)	(0.00239)	(0.0133)
Age at divorce squared	0.00164***	0.000221	0.00167***	0.000201	0.00102***	0.000160
	(0.000156)	(0.000485)	(0.000178)	(0.000451)	(0.000143)	(0.000476)
Constant	9.111***	0.134	12.12***	0.353	2.013*	5.749***
	(0.880)	(0.187)	(0.856)	(0.222)	(0.904)	(0.296)
Observations	56876	56876	56876	56876	54570	54570

Standard errors in parentheses, clustered at the family level and bootstrapped using 500 replications. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Notes: Schooling is a proxy for the number of years of schooling. Earnings-weighted education is the wage value of the individual's highest qualification (compared to no qualification). Social position is the average earnings estimated separately for each gender on full-time workers with a Heckman procedure to account for the absence of part-time workers and inactive individuals. Outcome variables are standardized for a mean of 0 and a standard deviation of 1. See Section 2.2.1 for a more detailed description. Individual characteristics, such as sex, year of birth and its quadratic term, age and its quadratic term, birth order and a dummy indicating if the individual is the last born of the sibship are all controlled for, as are family background variables, such as parents' qualification and profession, parents' country of birth, mother's year of birth, family size and its quadratic term, and region of birth.

Source: Estimation sample drawn from the Dataset "Formation et Qualification Professionnelle" (INSEE), waves 2003 and 2014. Individuals were born between 1946 and 1988. The sample used is the same than for the previous specification. Siblings who experience a parental separation in the same age group are excluded.

A 4 Other Sensitivity Checks

Table A.14 – Effect of a parental separation (without controlling for Mother's occupation)

	Schooling		Earnings-weighted Education		Social Position	
	Random Effects	Sibling Difference	Random Effects	Sibling Difference	Random Effects	Sibling Difference
0-3 at divorce	−0.92***	−0.45	−0.04***	−0.02	−0.08***	−0.05
	(0.13)	(0.28)	(0.01)	(0.01)	(0.02)	(0.04)
4-6 at divorce	−0.88***	−0.54*	−0.03***	−0.02*	−0.09***	−0.09*
	(0.11)	(0.24)	(0.00)	(0.01)	(0.02)	(0.04)
7-9 at divorce	−0.60***	−0.32	−0.03***	−0.02+	−0.05***	−0.04
	(0.10)	(0.22)	(0.00)	(0.01)	(0.01)	(0.03)
10-12 at divorce	−0.70***	−0.55**	−0.02***	−0.01*	−0.06***	−0.08**
	(0.10)	(0.19)	(0.00)	(0.01)	(0.01)	(0.03)
13-15 at divorce	−0.68***	−0.55**	−0.02***	−0.02*	−0.05***	−0.05*
	(0.09)	(0.17)	(0.00)	(0.01)	(0.01)	(0.03)
16-18 at divorce	−0.35***	−0.32*	−0.01*	−0.01	−0.04**	−0.04
	(0.09)	(0.16)	(0.00)	(0.01)	(0.01)	(0.02)
Ref. Group : 19+ at divorce	0.11		0.00		0.01	
	(0.07)		(0.00)		(0.01)	
Constant	39.10***	13.76***	1.54***	0.16***	10.87***	12.64***
	(2.36)	(0.60)	(0.11)	(0.03)	(0.37)	(0.12)
Observations	56876	56876	56876	56876	54570	54570

Standard errors in parentheses, clustered at the family level and bootstrapped using 500 replications. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Notes: Schooling is a proxy for the number of years of schooling. Earnings-weighted education is the wage value of the individual's highest qualification (compared to no qualification). Social position is the average earnings estimated separately for each gender on full-time workers with a Heckman procedure to account for the absence of part-time workers and inactive individuals. Outcome variables are standardized for a mean of 0 and a standard deviation of 1. See Section 2.2.1 for a more detailed description. Individual characteristics, such as sex, year of birth and its quadratic term, age and its quadratic term, birth order and a dummy indicating if the individual is the last born of the sibship are all controlled for, as are family background variables, such as parents' qualification and father's profession, parents' country of birth, mother's year of birth, family size and its quadratic term, and region of birth.

Source: Estimation sample drawn from the Dataset "Formation et Qualification Profesionnelle" (INSEE), waves 2003 and 2014. Individuals were born between 1946 and 1988 (condition (a)) and provide information on one sibling (condition (b)) who is not a half-sibling (condition (c)). Siblings who experience a parental separation in the same age group are excluded, to avoid identification issues (condition (d)).