

Parental Separation and Children's High-School Performance: Further Evidence and Heterogeneity from Italy

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Abstract

This paper addresses the long-standing question of whether parental separation shapes children's educational outcomes. We provide three contributions. First, we shed additional light on this relationship drawing on retrospective data from university students in Italy, a country that has historically had very low separation rates but has experienced an important rise in family dissolution over the past two decades. Second, we obtain province-level data on demographic indicators related to union formation to assess whether the relationship is robust to the use of instrumental variables or it is simply due to selection. Third, we use these same province-level indicators to conduct heterogeneity analyses aimed at exploring whether parental separation is more or less harmful in provinces where divorce is more widespread or more commonly accepted. Preliminary results suggest that students whose parents separated before high-school completion scored on average 1-to-2 points less on the end-of-high-school exam relative to students whose parents did not separate or separated after high-school completion.

Research Question and Related Literature

Over the last decades, much research attention has been paid to the relationship between childhood family structure and educational attainment in adulthood. A common finding of many of these studies is that children who experienced parental separation or grew up with a single parent incur educational disadvantages compared to those who grew up with both biological parents at home (Ginther & Pollak, 2004; McLanahan & Sandefur, 1994). This seems to be the case also in the Italian context (Guetto & Panichella, 2019). Although the relationship is quite well-established – whether purely due to selection or to a true causal effect – more recent evidence suggests that there is widespread heterogeneity in terms of whom the association is most detrimental for (Härkönen, Bernardi, & Boertien, 2017). For instance, studies show that the negative effect of experiencing parental separation is stronger in more recent birth cohorts (Kreidl, Štípková, & Hubatková, 2017), varies across ancestries, and is weaker in groups or countries in which parental separation is a more common experience (Erman & Härkönen, 2017). Similarly, the latest research from the US suggests that parental divorce is not uniformly disruptive to children's educational attainment, but it is particularly detrimental among children whose parents had a low likelihood of divorcing (Brand, Moore, Song, & Xie, 2019).

This paper seeks to shed additional light on the relationship between parental separation and high-school students' educational outcomes by drawing on retrospective data from university students in Italy, a country that has historically had very low divorce/separation rates, but has experienced an

important rise in family dissolution over the past two decades (Guetto & Panichella, 2019). As a first contribution we thus explore the association between parental separation occurring before students' completion of high school and the grade in the end-of-high-school exam. Second, we obtain province-level data on demographic indicators related to union formation to assess whether the relationship is robust to the use of instrumental variables or it is simply due to selection. Third, we use these same province-level indicators to conduct heterogeneity analyses aimed at exploring whether parental separation is more or less harmful in provinces where divorce is more widespread or more commonly accepted.

Data, Variables, and Methods

This study is based on SELFY, a survey coordinated by a group of researchers from the Universities of Padua, Florence and Messina. The survey was carried out in the first half of 2017 in 28 Italian universities with the aim of drawing an updated picture of sexual and emotional attitudes and behavior among Italian university students. It reiterates an almost identical survey carried out 17 years previously. In 2000 4,998 students were surveyed and in 2017 8,094, all attending undergraduate courses in economics and statistics in Italian public universities. Only a minority of students – strongly selected for income – attend private universities in Italy as the cost of studying in public university is much cheaper. The questionnaires were filled in during a one-hour lesson of a compulsory course under the surveillance of both the teacher and a researcher, who presented the survey and was ready to answer any questions (Dalla Zuanna, Caltabiano, Minello, & Vignoli, 2019).

The SELFY data allow a good comparison between 2000 and 2017 for four reasons. First, the same questionnaire was used in both surveys; second, the same criteria were used to define the sample; third, the sizes of the two samples give enough room to perform meaningful comparisons; and fourth, unit nonresponses were practically absent on both occasions. In both 2000 and 2017, only 4.7% of questionnaires in 2000 and 3.1% in 2017 were eliminated because they had a large majority of missing answers. Thus, the database included 4,762 questionnaires for 2000 and 7,842 for 2017. While samples are not representative of the population of Italian young people as a whole, they can be deemed nationally representative of Italian university students.

Although the main focus of SELFY is on emotional attitudes and sexual behaviors, the dataset is useful for our purposes as it collects retrospective information on students – including students' educational outcomes such as the high-school diploma grade (“*esame di maturità*”) – and on parents – including when parents got together and whether – and, if so, in which year – parents got separated.¹ As such, we can identify students whose parents got separated before they completed high-school, and compare their performance with that of students whose parents got separated after they completed high-school or did not separate at all. Table 1 below provides descriptive statistics on the main variables of interest in the two survey waves (2000, left and 2017, right). The average age of the students at the time of the survey was about 20.5 in both waves, with a majority of females in the 2000

¹ Note that there is no formal distinction in the dataset between separation and divorce.

wave (0.62) and a gender-balanced sample in 2017. The mean diploma grade – measured on a scale from 0 to 100 where 60 is the passing threshold – was about 82 in both waves. As for the main predictor of interest, 3.2 percent of students experienced parental separation before they obtained their high-school diploma in 2000, while 10.5 percent of students experienced the same event in 2017, suggesting an increase in family instability, in line with the dramatic of the traditionally low divorce and separation rates observed in Italy (Guetto & Panichella, 2019; Ongaro & Mazzuco, 2009).

Table 1: Descriptive statistics on variables of interest, by survey wave

| Variable | 2000 Wave | | | 2017 Wave | | |
|--|-----------|----------------|---------|-----------|----------------|---------|
| | Obs. | Mean (or %) | (SD) | Obs. | Mean (or %) | (SD) |
| Female | 4,762 | 0.615 | (0.487) | 7,842 | 0.482 | (0.500) |
| Age (at survey) | 4,762 | 20.53 | (1.721) | 7,842 | 20.47 | (1.471) |
| First born | 4,742 | 0.507 | (0.500) | 7,789 | 0.472 | (0.499) |
| Working (at survey) | 4,737 | | | 7,772 | | |
| Never | 2,261 | 49.07 | | 4,185 | 50.85 | |
| Occasionally | 1,976 | 40.97 | | 2,507 | 33.41 | |
| Regularly | 500 | 9.950 | | 1,080 | 15.74 | |
| High school diploma grade | 4,716 | 82.86 | (12.23) | 7,727 | 81.17 | (11.51) |
| Parents separated (at survey) | 4,622 | 0.038 | (0.190) | 7,704 | 0.123 | (0.328) |
| Parents separated before S got diploma | 4,622 | 0.032 | (0.176) | 7,704 | 0.105 | (0.307) |
| Mom working when S growing up | 4,671 | 0.581 | (0.494) | 7,601 | 0.714 | (0.452) |
| Dad working when S growing up | 4,703 | 0.960 | (0.195) | 7,644 | 0.963 | (0.190) |
| Mother's education | 4,733 | | | 7,772 | | |
| Primary or less | 772 | 16.93 | | 279 | 3.720 | |
| Any secondary | 1,761 | 36.94 | | 2,230 | 27.90 | |
| High school | 1,514 | 31.55 | | 3,533 | 45.54 | |
| Bachelor or more | 686 | 14.58 | | 1,730 | 22.84 | |
| Father's education | 4,741 | | | 7,788 | | |
| Primary or less | 673 | 14.14 | | 322 | 3.850 | |
| Any secondary | 1,728 | 37.41 | | 2,549 | 33.12 | |
| High school | 1,519 | 31.79 | | 3,211 | 40.41 | |
| Bachelor or more | 821 | 16.66 | | 1,706 | 22.62 | |
| Close relationship with mother | 4,712 | 0.792 | (0.406) | 7,783 | 0.459 | (0.498) |
| Close relationship with father | 4,719 | 0.562 | (0.496) | 7,794 | 0.544 | (0.498) |
| High-school type | 4,720 | | | 7,797 | | |
| Academic | 2,528 | 54.82 | | 4,677 | 63.37 | |
| Technical | 2,051 | 42.25 | | 2,906 | 33.58 | |
| Professional | 141 | 2.930 | | 214 | 3.050 | |

Note: S: student. Weighted estimates and unweighted number of cases.

Methodologically, we start by conducting Ordinary Least Squares (OLS) regressions to get a sense of whether there is a negative association between parental separation before high-school completion and high-school diploma grade. We will run simple bivariate analyses, and multivariate

analyses accounting for controls such as sex, age, and work status of the student, and potential socio-economic confounders, such as parental education, whether parents were working when the student was a child, and the quality of the parent-child relationship. Next, we will run Instrumental Variable (IV) analyses using province-level demographic information from the Italian National Institute of Statistics (ISTAT), and conduct heterogeneity analyses to explore whether the association is weaker (less “detrimental”) in provinces where divorce is more common ([see next steps](#)).

Preliminary Evidence

Table 2 provides OLS estimates of the association between parental separation before high-school completion and performance in the end-of-high-school exam on the pooled sample (both waves). We present four models, the first two without controls and the last two with controls. In each of these two categories, model (1) does not account for province fixed-effects, while model (2) accounts for province fixed-effects. Uncontrolled estimates suggest that students whose parents separated before high-school completion scored on average 2 points less on the high-school exam relative to students whose parents did not separate or separated after high-school completion. The estimated coefficient decreases to about 1 point once controls are taken into account, yet it remains strongly statistically significant. Albeit purely associational, these estimates confirm findings from the relevant literature suggesting that parental separation may negatively affect children’s educational outcomes (Albertini & Dronkers, 2009; Erman & Härkönen, 2017; Harding, Morris, & Hughes, 2015; Keith & Finlay, 1988).

Next Steps

In the next steps of the paper, we plan to merge data from SELFY with time-series data on demographic variables obtained from ISTAT dating back to the 1990s. As the main dataset includes province-level identifiers for the province of residence and the province of high school attended, we will merge ISTAT data at the province-level. Province-level demographic variables will be useful for two purposes. First, we intend to construct province-level instrumental variables for parental separation using information on province-level divorce rates, sex-ratios in the number of unmarried individuals (surplus/deficit of marriageable women versus men), and information on the presence of foreign women – in line with findings from Vignoli, Pirani, & Venturini (2017) suggesting that an increasing presence of foreign migrant women is associated with higher separation risk among natives. These province-level demographic indicators will be lagged by one or two years with respect to the year of parental separation reported in the data. For students whose parents did not separate, we will use ISTAT data on average duration of unions by province to get a sense of what year parents would have been most likely to separate had they actually separated – given the year of marriage/union, which is reported in the data.

Second, province-level demographic variables will be instrumental for conducting heterogeneity analyses, such as investigating whether parental separation is more or less disruptive in contexts (in our case, Italian provinces) where divorce is more common and more widely accepted – in line with (Erman & Härkönen, 2017; Kreidl et al., 2017). For these analyses we will only use data

from the 2017 wave of the survey for two reasons. First, the share of students whose parents separated was almost three times higher in the 2017 wave (roughly 10 percent against 3 percent in 2000). Second, the majority of parents identified in the 2017 wave separated between 1995 and 2017, thus permitting to obtain and merge province-level information from ISTAT.²

Summary of Next Steps

1. Merge province-level demographic indicators from ISTAT dating back to the 1990s
 - a. Divorce rates
 - b. Sex-ratios in number of unmarried individuals by age
 - c. Size and composition of foreign women
2. Run instrumental-variable (IV) estimates using province-level information as instruments
3. Conduct heterogeneity analyses using province-level information as axes of heterogeneity

² Parental separation in the previous wave dates back to the 1970s, where time series from ISTAT are not be present.

Table 2: OLS estimates of the association between parental separation before high-school diploma and high-school diploma grade

| High-school diploma grade (0-100) | No controls | | Controls | |
|---|-------------|-----------|------------|------------|
| | (1) | (2) | (1) | (2) |
| Parents separated before S got diploma | -2.285*** | -1.873*** | -1.009*** | -0.852** |
| | (0.382) | (0.385) | (0.376) | (0.379) |
| Female (Ref.: Male) | | | 5.014*** | 4.792*** |
| | | | (0.212) | (0.212) |
| Age (at survey) | | | -1.229*** | -1.297*** |
| | | | (0.069) | (0.071) |
| First born (Ref.: Older siblings) | | | 0.190 | 0.351* |
| | | | (0.208) | (0.208) |
| Student works (Ref.: Never) | | | | |
| Occasionally | | | -1.451*** | -1.079*** |
| | | | (0.229) | (0.232) |
| Regularly | | | -2.014*** | -1.362*** |
| | | | (0.325) | (0.330) |
| Mom working when S growing up (Ref.: Not working) | | | -0.823*** | -0.478** |
| | | | (0.231) | (0.235) |
| Dad working when S growing up (Ref.: Not working) | | | -0.038 | -0.232 |
| | | | (0.596) | (0.595) |
| Mother's education (Ref.: Primary or less) | | | | |
| Any secondary | | | 0.385 | 0.551 |
| | | | (0.448) | (0.447) |
| High school | | | 0.922* | 0.988** |
| | | | (0.474) | (0.473) |
| Bachelor or more | | | 1.161** | 1.230** |
| | | | (0.536) | (0.536) |
| Father's education (Ref.: Primary or less) | | | | |
| Any secondary | | | -0.825* | -0.685 |
| | | | (0.444) | (0.442) |
| High school | | | -0.609 | -0.543 |
| | | | (0.468) | (0.467) |
| Bachelor or more | | | -1.147** | -0.997* |
| | | | (0.518) | (0.518) |
| Close relationship with mother (Ref.: No) | | | -0.026 | 0.094 |
| | | | (0.245) | (0.246) |
| Close relationship with father (Ref.: No) | | | 0.085 | 0.003 |
| | | | (0.231) | (0.229) |
| High school attended (Ref.: Academic) | | | | |
| Technical | | | 4.411*** | 4.359*** |
| | | | (0.225) | (0.227) |
| Professional | | | 4.587*** | 4.577*** |
| | | | (0.646) | (0.650) |
| Survey wave 2017 (Ref.: 2000) | | | -0.629*** | -1.076*** |
| | | | (0.243) | (0.268) |
| Constant | 82.176*** | 85.423*** | 104.373*** | 108.971*** |
| | (0.111) | (1.035) | (1.632) | (1.953) |
| Province fixed-effects | No | Yes | No | Yes |
| Obs. | 12,178 | 12,098 | 11,547 | 11,478 |
| R-squared | 0.003 | 0.043 | 0.121 | 0.152 |

Note: Robust standard errors in parentheses. *** p<0.01; ** p<0.05; * P<0.1.

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