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**Diverging destinies in international perspective:
Education, single motherhood, and child poverty**

Juho Härkönen

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Juho Härkönen

Department of Sociology

Stockholm University

juho.harkonen@sociology.su.se

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Abstract

Educational differences in family demography have gained wide attention, not least due to arguments that they amplify existing inequalities in child well-being and life chances. Despite the interest, there has been a lack of comprehensive cross-national descriptions of trends in educational differences in family demography, and just a few quantifications of their importance to social inequality. In this study, I used data from the Luxembourg Income Study (LIS) to describe trends in educational differences in single motherhood in 33 North American, European, and Asian countries, and to analyze whether these differences amplify differences in child poverty by maternal education. The prevalence of single motherhood has increased in almost all of the 33 countries. In many, educational differences in single motherhood have widened and single motherhood has increased particularly among the least educated. Educational differences in single motherhood can amplify differences in child poverty by maternal education, but only when both the educational gradient of single motherhood and the child poverty gap by single motherhood are large enough. These findings show that educational divergence in family demography is not limited to the United States, but that it is not a universal trend. Moreover, the study highlights the contingency of the inequality effects of these patterns and concludes that these effects can be countered by reducing the socioeconomic penalty of single motherhood.

Diverging destinies in international perspective: Education, single motherhood, and child poverty

Educational divergence in family demography caught social scientists' attention after McLanahan (2004) coined the term "diverging destinies" to characterize a trend in which the highly educated continue to lead stably married family lives, whereas those with less education have witnessed elevations in unpartnered and unmarried childbearing, family dissolution, and family complexity. Because children who grow up with both of their biological parents tend to attain higher education, higher incomes, and better health than those who do not, many scholars have argued that stratification in family lives is an increasingly important pathway in the intergenerational reproduction of inequality (McLanahan 2004; McLanahan and Percheski 2008; McLanahan and Jacobsen 2015; Putnam 2015).

Much of the previous scholarship on divergence in family demography has focused on the Unites States (Ellwood and Jencks 2004; McLanahan 2004; Carlson and England 2011; Manning and Brown 2014; McLanahan and Jacobsen 2014). Although this topic has gained attention elsewhere as well (cf., Härkönen and Dronkers 2006; Kennedy and Thomson 2010; Perelli-Harris et al. 2010; Kalmijn 2013; Perelli-Harris and Lyons-Amos 2016; Raymo and Iwasawa 2017), it is difficult to summarize the developments outside the United States because studies have focused on different family behaviors, countries, and time periods.

The first objective of this study is thus to contribute to the cross-national research on educational divergence in family change by describing trends in educational differences in single motherhood in 33 North American, European, and Asian countries. I focus on single motherhood, as it is a central indicator of diverging destinies by being directly or indirectly related to many of the family behaviors highlighted in the literature (McLanahan 2004; Cohen 2015; Raymo and Iwasawa 2017). The increase in single motherhood is also among the most visible features of the recent decades of family change (Heuveline, Timberlake and

Furstenberg 2003; Ellwood and Jencks 2004; Fokkema and Liefbroer 2008). A cross-national description of trends in educational differences in single motherhood thus helps in providing a portrait of diverging destinies in an international perspective. Such a description is also essential for developing explanations for the socioeconomic divergence in family behaviors.

My second objective is to analyze how much educational differences in single motherhood actually contribute to inequalities in children's living conditions and life chances. I focus on child poverty because of its well-documented strong relationship with single motherhood (Brady and Burroway 2012; Maldonado and Nieuwenhuis 2015). Child poverty is an important well-being indicator in its own right, and any effects of family structure should be particularly visible on such proximate outcomes. Despite the forceful arguments that family demographic divergence reproduces socioeconomic inequalities, the few studies to empirically assess this claim have concluded that family demography plays a limited role (Goldberg 2014; Bernardi and Boertien 2017). I argue that how much single motherhood contributes to differences in child poverty by mother's education depends not only on how large the educational differences in single motherhood are, but also on how large is the poverty gap between children living in single mother and two-parent families (cf. Cohen 2015; Bernardi and Boertien 2017). I illustrate this empirically by comparing countries that represent different welfare regimes (Esping-Andersen 1999) and vary in how wide the educational gradient of single motherhood as well as in the size of the single mother child poverty gap. The implications of this result reaches beyond single motherhood and child poverty by highlighting the conditions under which educational divergence in family trajectories can strengthen intergenerational inequalities.

I use data from the Luxembourg Income Study (LIS). An advantage of LIS is that it allows inclusion of several countries and time periods with harmonized measures of education, single motherhood, and incomes. In the first part of the empirical analysis, I

describe trends in the educational differences in single motherhood in 33 countries. The data coverage differs between the countries, but for most the data extend back to the 1990s (and all the way to the 1960s for the United States). In the second part of the empirical analysis, I focus on seven of the 33 countries to analyze the cross-national differences in the effects of educational gradients of single motherhood on inequality in child poverty by maternal education.

Uneven family change

McLanahan's (2004) "diverging destinies" thesis has become a standard heuristic for describing socioeconomically uneven family change. In a nutshell, the thesis posits that many of the family demographic behaviors commonly associated with the Second Demographic Transition (Lesthaeghe 1995; 2010) have increased particularly among women with low levels of education, leading to widening educational gaps in family demographic life courses (McLanahan 2004; Carlson and England 2011; Thomson, Winkler-Dworak and Kennedy 2013; Perelli-Harris and Lyons-Amos 2016). This bundle of behaviors includes single motherhood (McLanahan 2004; McLanahan and Jacobsen 2015), separation and divorce (Martin 2006; Härkönen and Dronkers 2006; Matysiak, Styrc and Vignoli 2014), early (Raymo et al. 2015) and nonmarital childbearing (Cherlin 2011; Perelli-Harris et al. 2010), and multipartnered fertility (Guzzo and Furstenberg 2007a, b). Because children experiencing these family forms typically have lower levels of well-being and poorer life chances than children growing up with both of their parents, the educational divergence in family life courses has the potential to amplify inequalities between children (McLanahan 2004; McLanahan and Percheski 2008).

Educational divergence in single motherhood is a core feature of "diverging destinies". It is directly or indirectly related to many of the family demographic behaviors listed above.

The incidence of single motherhood is directly affected by the incidences of unpartnered motherhood and union dissolution (and in rarer cases, death), both of which show educational differences in a range of countries (Martin 2006; Härkönen and Dronkers 2006; Perelli-Harris et al. 2010). Single motherhood prevalence is furthermore influenced by the single mother re-partnering rate. Because union dissolution rates vary by the age at union formation and parenthood as well as by marital status (e.g., Lyngstad and Jalovaara 2010; Andersson, Thomson and Duntava, forthcoming), and because family dissolution and single motherhood place mothers at risk of multipartnered fertility, educational differences in single motherhood are tightly related to diverging destinies in other family behaviors.

McLanahan's (2004) original analysis as well as much of the subsequent literature on diverging destinies has focused on the United States. Although a minority (<10%) of mothers were single in the 1960s and before, single motherhood was already then more common among those with the lowest levels of education (Ellwood and Jencks 2004; McLanahan 2004; McLanahan and Jacobsen 2015). The exact figures vary depending on how education and single motherhood are defined and measured, but all results point to a widening of the educational gap from the 1960s to the 1990s (Ellwood and Jencks 2004; McLanahan 2004; McLanahan and Jacobsen 2015), and again from 2000 to 2010 (Manning and Brown 2014; McLanahan and Jacobsen 2015).

Single motherhood remained relatively uncommon among highly educated women (up to 10-15%), but increased markedly among low educated women. Manning and Brown (2014) estimated that in 2010, around 30% of low educated (less than high school degree) families with children were single mother families, compared to around 10% of families where a parent has a college degree. McLanahan and Jacobsen (2015) reported that up to half of the mothers of a <1 year old in the lowest educational quartile were unmarried, placing them at risk of single motherhood. The prevalence of single motherhood among women in the middle

of the educational distribution is between the highest and the lowest educated. Single

motherhood prevalence in this group has approached that of low educated women towards the

latest periods, resulting in a growing gap between the highly educated and the rest (Ellwood

and Jencks 2004; McLanahan 2004; McLanahan and Jacobsen 2014). Similar patterns among

the moderately educated have been found for other family demographic behaviors (Cherlin

2011).

What do we know about educational divergence in family behaviors in other

countries? Overall, existing findings point to important cross-national variation but suggest

that diverging destinies is not only an American phenomenon. Regarding educational

gradients in single motherhood, McLanahan (2004) reported negative gradients in Canada,

Finland, Germany, the Netherlands, Sweden, and the United Kingdom, and others have

complemented these findings. For example, Kennedy and Thomson (2010) and Thomson and

Erikson (2013) found that the probability that a Swedish child born to a mother with less than

tertiary education experiences parental separation increased from approximately 20% in the

1970s to approximately 30% in the 1990s, whereas the corresponding probability for children

of tertiary educated mothers remained almost stable (at around 20%). Garriga, Sarasa and

Berta (2015) reported evidence of an emerging negative educational gradient in single

motherhood in Spain and in Northern Italy.

Findings from the comparative literature on educational differences in childbearing by

single women and in divorce add to this view. Childbearing by single women is less common

among the highly educated in many European countries as well, despite important cross-

national differences in its overall levels and educational gradients (Perelli-Harris et al. 2010).

The relationship between female education and divorce and separation shows more variation

between countries and over time. Today, less educated women divorce more than highly

educated ones in several European countries (cf. Dronkers and Härkönen 2006; Kalmijn 2013;

Matysiak, Styrc and Vignoli 2014) as well as in Japan (Raymo and Iwasawa 2017), Korea (Park and Raymo 2013), and Taiwan (Cheng 2016). Yet, the relationship between female education and divorce was the opposite only some decades ago, and the negative educational gradient of divorce has emerged relatively recently (e.g., Hoem 1997; Chan and Halpin 2005; De Graaf and Kalmijn 2006; Härkönen and Dronkers 2006; Raymo and Iwasawa 2017). In other countries, such as Spain (Bernardi and Martínez-Pastor 2011) and Italy (Salvini and Vignoli 2011), the positive gradient of divorce has disappeared during the last decade or so. Perelli-Harris and Lyons-Amos (2016) took a more holistic outlook on partnership trajectories, and concluded that whereas in the United States, trajectories characterized by divorce and separation have been consistently more common among low educated women, but the educational patterning is less consistent and less stable in much of Europe.

The comparative literature on educational differences in family life courses suggests a more nuanced account of educational patterns in single motherhood in a cross-national perspective. Even though the gradient has been negative in the United States since at least the 1960s (Ellwood and Jencks 2004; McLanahan 2004; McLanahan and Jacobsen 2015), it is not clear that this has been, or is, the case elsewhere. Previous studies have analyzed a variety of family demographic behaviors (e.g., single motherhood, divorce, non-marital and unpartnered motherhood, partnership trajectories) and sometimes measured the same outcome (e.g., single motherhood) in different ways. Furthermore, the countries and time periods (or cohorts) have differed, making it more difficult to draw comprehensive conclusions of educational divergence in family change. This motivates additional analysis of educational patterns in family life that uses harmonized measures over time from a broad range of countries.

Family structure and the reproduction of inequality

Much of the literature on diverging destinies has been motivated by the argument that educational divergence in family demography reproduces social inequality (e.g., McLanahan 2004; McLanahan and Percheski 2008; Putnam 2015). Yet the few studies that directly assessed this argument have not provided strong evidence in its support. For example, Goldberg (2014), and Bernardi and Boertien (2017) both concluded that educational differences in family structure had limited importance in the reproduction of social background inequalities in educational attainment.

Even large educational disparities in family demography will not reinforce existing social inequalities if family demography has no effect of the outcome of interest. More generally, the importance of family demography in the reproduction of inequality depends not only on how wide the disparities in family demography are, but also on the strength of its effects. This has at times been forgotten in the diverging destinies literature, which has mostly focused on the former of these two conditions (cf. Cohen 2015; Bernardi and Boertien 2017; Härkönen, Bernardi and Boertien 2017).

Child poverty, the focus of this study, is strongly related to single motherhood (Bradbury and Jäntti 2000; Heuveline and Weinshenker 2008; Brady and Burroway 2012; Maldonado and Nieuwenhuis 2015). Family structure explains part of the ethnic/racial differences in child poverty in the United States (Lichter and Landale 1995; Lichter, Qian, and Crowley 2005) and it is similarly probable that educational differences in single motherhood affect child poverty differences by maternal education. Yet, to what extent this is the case will likely vary cross-nationally not only because of cross-national variation in the educational differences in single motherhood prevalence but also—due to varying public policy approaches to support single mothers—because single motherhood has a stronger

association with child poverty in some countries than in others (Heuveline and Weinshenker 2008; Brady and Burroway 2012; Maldonado and Nieuwenhuis 2015).

Analysis

Educational gradients of single motherhood

In the first stage of the analysis, I described trends in the educational gradient of single motherhood in 33 European, North American, and Asian-Pacific countries. The data came from the Luxembourg Income Study (LIS), which is a cross-national data collection project based on harmonized national data (see www.lisdatacenter.org). A key advantage of LIS data is their cross-national comparability of key variables (such as educational attainment, family structure, and incomes) over multiple years. The countries included in this part of the analysis are Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, France, East Germany, West Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Luxembourg, Netherlands, Norway, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, South Korea, Sweden, Switzerland, Taiwan, United Kingdom, and the United States. Country choice was based primarily on participation in LIS as well as the countries' representation in the previous literature.

The time coverage of LIS data for the 33 countries ranges from multiple data points from the late 1960s onward in the United States to fewer data points in other countries. I constructed five-year periods, from 1966–70 to 2011–2015. I used all the available surveys, which included the necessary variables I used to construct single motherhood and educational attainment. Information on the national surveys can be found on the LIS homepage.[1] The analyses used the LIS personal weights (*pwgt*), and results from cells with fewer than 10 cases are not displayed.

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[1] http://www.lisdatacenter.org/our-data/lis-database/by-country/

I selected non-widowed mothers who co-reside with their own minor children (0–17 years). I excluded widows because the theories of uneven family change are generally not concerned with developments in widowhood. Their inclusion did not change the conclusions, but slightly increased the prevalence of single motherhood in the older time periods. I compared single mothers to partnered mothers. Single motherhood was defined by not having a co-resident partner. Additional information on marital status was not used because of differences in definitions across the surveys. Likewise, I defined mothers who reported having a partner but not living with him as single mothers, because the reason for non-residence was not known (e.g., separation versus "living apart together") and the question was not asked in every survey. Importantly, single mothers in my definition need not head their households. This decision was made because the focus is on partnership status and not on living arrangements. Co-residence in multigenerational households, or households headed by other relatives, varies cross-nationally and by education, which has implications for the results. Additionally, definitions of household headship may vary in the different surveys, also within countries, as was the case for the United States (cf. London 1998).[2] The definition adopted here allowed for the most comparable measure of single motherhood between the countries and over time.

Education is classified into three levels: low, medium and high. These are measured using the educational attainment variable provided in LIS, in which low education generally

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[2] In this case, a change from coding all single mothers as household heads, (variable "relation" in LIS) in the data drawn from the 1994 CPS, to not necessarily coding them as household heads (if they co-resided in a multigenerational household, for example), in the data from the 1997 CPS, led to an artificially large decline in single motherhood among the least educated—a misleading trend toward "converging destinies" due to changing data practices.

refers to incomplete secondary level education or less (corresponding to ISCED97 levels 0-2), medium education consists of completed secondary education (ISCED97 levels 3 and 4), and high education includes completed tertiary levels (ISCED97 levels 5 and 6).[3] The exception is the United Kingdom, where the LIS education variable exists only from 1999 onwards. For the UK, I grouped everyone leaving school at age 15 or earlier as having low education, at ages 16–19 as having middle education, and 20 and above as having high education. This enabled a trend analysis of educational differences in single motherhood.

I also tested a relative measure of education, similarly to McLanahan (2004), which was based on the more detailed educational attainment variable in LIS (*educ_c*). The measure differentiated between the (approximately) highest and lowest quartiles and the middle 50 %. A relative measure carries the benefit of taking educational expansion into account: the meaning and value of educational credentials, as well as the characteristics of those holding these credentials, may have changed. Yet this measure has various problems. First, defining the appropriate cut-off points was often difficult and rather arbitrary. The level of detail in the educational attainment variable varied between countries and over time. Furthermore, ranking educational degrees in horizontally differentiated educational systems such as the German one is far from straightforward. Second, because educational attainment levels are often concentrated to some specific degrees, the thresholds for the lowest and highest categories were often far from the ideal quartile cut-off point. This sometimes led to abrupt shifts, in which one (big) category shifted from one relative educational group to another. Also, in the earlier periods educational attainment was often heavily skewed towards the lower levels. Because of these problems, I decided to use attained educational levels as the education

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[3] In the United States, low education corresponds to having less than a high school degree, middle education comprises high school degrees and some post high school educations, and high education corresponds to college attendance (and especially, completion) and higher.

variable in this analysis. Sensitivity checks with the relative measure of education showed that the conclusions of the trends in single parenthood were remarkably robust.

Education, single motherhood, and child poverty

The analysis of how much educational gradients in single motherhood affect child poverty rates and educational differences therein focused on seven countries, which represent different welfare regimes (Esping-Andersen 1999). The United States and the United Kingdom represented the "Anglo-Saxon regime", Finland represented the Nordic countries, Germany the "Continental regime", Spain the "Southern European regime", Poland represented Eastern Europe, and South Korea the "East Asian" regime. Although welfare regimes are not homogeneous entities, these country selections were made in the interests of space. The countries have different educational gradients of single motherhood and represent different approaches to single mother support (Bradbury and Jäntti 2000; Chen and Corak 2008; Heuveline and Weinshenker 2008; Bradshaw et al. 2012; Brady and Burroway 2012; Maldonado and Nieuwenhuis 2015).

These analyses focused on the 2006–10 period. Choosing this period rather than the last one (2011–15) allowed including two or three income distribution surveys from each country and therefore larger sizes for the education-single motherhood-poverty cells. Although the poverty rate estimates are not the latest available, this analysis serves to demonstrate how educational gradients in single motherhood matter for the poverty rates of mothers with different educational levels.

This part of the analysis followed three stages. First, I estimated child poverty rates in single mother and two-parent households, separately by the mother's educational level. Children were defined as poor if their equivalence scaled disposable household income fell below 50% of the national median for the year in question. I used the square root of

household size to equalize incomes of individuals living in households of different size and structure. The unit of analysis is the child and the analyses are weighted by multiplying the household weight in LIS (*hpopwgt*) with the household's number of children aged 17 or less (*nhhmem17*).

Second, I analyzed whether educational gradients in single motherhood affected differences in child poverty by the mother's education. I standardized the poverty rates using the prevalence of single motherhood of the highly educated as the standard. In other words, I re-estimated the child poverty rates assuming that the fraction of children living with a single mother was in all educational groups the same as that of children of highly educated mothers, keeping the child poverty rates in each education-single motherhood cell at their actual values.[4] A comparison of the standardized to the actual poverty rates gives an impression of how much the educational gradients in single motherhood affect differences in child poverty by maternal education.

Third, I analyzed the cross-national variation in the importance of the educational gradient in single motherhood. As discussed above, educational gradients in single motherhood can enlarge child poverty rate differences by maternal education either because the educational gradient of single motherhood is large, or because children living with a single mother have much higher poverty rates than children in two-parent households. Equation (1) formalizes this intuition and shows (in percent) how different the child poverty rate in

[4] The single motherhood prevalence of the highly educated was chosen because of intuitive appeal. Das Gupta (1993) discussed alternative standardizations in the presence of more than two populations (here, educational groups). As a robustness check, I re-estimated the poverty threshold given the new distributions of family structures by educational level. The standardized poverty rates using this new threshold were lower than those calculated using the observed poverty threshold, but very close to the latter ones.

educational group i would be in the absence of educational differences in single motherhood. It expresses the relative difference between observed and standardized child poverty rates as a product of a) the difference between educational group i and the highly educated (h) in the fraction of children who live with a single mother, and b) the difference in the child poverty rate between single mother households (r_i^s) and two-parent households (r_i^p), respectively, in educational group i. Both factors are standardized by (square root of) the observed child poverty rate in the respective educational group.

$$\frac{r_i - \bar{r_i}}{r_i} = \frac{(a_i^s - a_h^s)}{\sqrt{r_i}} \times \frac{(r_i^s - r_i^p)}{\sqrt{r_i}}$$ (1).

The difference between the observed and standardized child poverty rates was expressed relative to (the square root of) the former in order to account for the large cross-national variation in child poverty rates. Proof of Equation (1) is given in the Appendix.

Equation (1) can be used to analyze why the educational gradient of single motherhood is more important for inequality in child poverty in some countries than in others. Comparing the United States to the other countries, I decomposed (Das Gupta 1993, pp. 19–20) country differences in the effect of the educational gradient in single motherhood into the effect due to the country difference in educational gaps in children's family structures (composition effect, F_c), and the effect due to the country difference in the single mother child poverty gap (rate effect, F_r). Denoting the United States with upper case and the comparison country with lower case letters, we get

$$F_c = \left(\frac{a_i^s - a_h^s}{\sqrt{r_i}} - \frac{A_i^s - A_h^s}{\sqrt{R_i}} \right) \times \frac{\left(\frac{r_i^s - r_i^p}{\sqrt{r_i}} \right) + \left(\frac{R_i^s - R_i^p}{\sqrt{R_i}} \right)}{2}$$ (2), and

$$F_r = \left(\frac{r_i^S - r_i^p}{\sqrt{r_i}} - \frac{R_i^S - R_i^p}{\sqrt{R_i}} \right) \times \frac{\left(\frac{a_i^S - a_h^S}{\sqrt{r_i}} \right) + \left(\frac{A_i^S - A_h^S}{\sqrt{R_i}} \right)}{2} \qquad (3).$$

In words, F_c tells how much smaller (larger) the effect of educational gradients in single motherhood is in, say the United Kingdom, than in the United States because of a smaller (larger) educational gap in children's family structures. F_r tells how much smaller (larger) the single motherhood effect between the countries is because of a smaller (larger) relative gap in poverty between children living in single mother versus two-parent households.

Results

Trends in education and single motherhood

Figure 1 presents the trends in single motherhood by educational attainment in 33 countries. The same information as well as total single motherhood prevalence is presented in numbers in the accompanying Appendix Table. There is major cross-national variation in the prevalence of single parenthood at all educational levels (cf. Fokkema and Liefbroer 2008). For example, around 2010, single motherhood remained relatively uncommon (at below 10%) in Southern Europe (Greece, Italy, Spain), former Yugoslavia (Serbia, Slovenia), as well as the Israel, Luxembourg, the Netherlands, and Taiwan. On the other hand, 20% or more of American, British, Estonian, Irish, and Russian mothers were single. Despite the prevailing cross-national differences, single motherhood prevalence has in most countries increased during the recent decades.

---Figure 1---

The educational differences in single motherhood have varied cross-nationally and over time. In most countries, there was a clear negative educational gradient in single motherhood in the last observed period. Highly educated mothers had the lowest prevalence of single motherhood (in most countries around 10% or below), followed by middle educated mothers, and finally the low educated mothers, whose single motherhood prevalence was often two to three times that of highly educated mothers. The clearest exceptions to this pattern are Greece, Hungary, Italy, Romania, Russia, Serbia, Spain, and Switzerland. In Russia, single motherhood is common in all education groups. In Italy, it is most common among women with middle-level of education, and in Switzerland, it is the least common among the low educated. Spain seems to be witnessing a gradual opening of a negative educational gradient (Garriga, Sarasa, and Berta 2015) but in the other countries single motherhood has been equally uncommon in all educational categories.

The educational gaps in single motherhood have grown in many countries. In the United States, single motherhood was most common among the low educated already in the late-1960s. There, the negative gradient peaked in the early-1990s, but it has closed somewhat thereafter due to a decrease in single motherhood among the least educated and an increase among the middle educated (cf. McLanahan 2004; Manning and Brown 2014; McLanahan and Jacobsen 2015).

The educational gradients of single motherhood used to be negligible in many countries where they today are clearly negative. These countries are Austria, Belgium, the Czech Republic, Denmark, Finland, France, West Germany, Luxembourg, Netherlands, Poland, Slovakia, Slovenia, and the UK. In the UK, which today has one of the largest gaps, the educational differences in single motherhood were small in the late 1980s. Single motherhood was the most common among the highly educated in 1990s Russia, and

indications of positive gradients of single motherhood could be found from other countries and periods as well.

In several countries, single motherhood increased rapidly among the least educated during the 1990s and 2000s or so, although from different starting levels. Meanwhile, single motherhood prevalence has remained remarkably stable or increased less among the highly educated, leading to a widening educational gradient. With the clearest exception of Russia, single motherhood prevalence among the highly educated has generally not exceeded 15%. Two-parent families are thus the general norm among highly educated mothers and in those countries in which single motherhood has increased, it has done so among the middle and particularly among the low educated.

One can detect some alignments according to common country groupings. The educational gradient of single motherhood was already negative in the late 1980s and early 1990s in the English-speaking countries, and widened further in the British Isles. There was, likewise, a visible negative gradient in Nordic countries by the early 1990s, which often widened since and the Nordic gradients are now among the largest ones found. The Mediterranean countries of Greece, Italy, and Spain have had low to moderate single motherhood prevalence in all educational groups, although there are signs of an emerging negative educational gradient in Spain. The Israeli pattern resembles the Spanish one.

In continental Europe, a negative educational gradient of single motherhood began to open up from the 1980s (Belgium, Germany and the Netherlands), 1990s (France), or the 2000s (Austria, Luxembourg). Switzerland is a possible exception, but there data are not found beyond 2001–05. The former socialist countries form a more mixed group. In Romania and Serbia, single motherhood has been relatively uncommon. Single motherhood prevalence has been somewhat higher in Hungary. No consistent educational differences can be found in any of these three countries. Russia is an exceptional case with high single motherhood

prevalence in each educational group. The Czech Republic, Estonia, and Slovakia have had negative educational gradients of single motherhood since the 1990s, as have Poland and Slovenia in the latest years. Regarding the two Asian countries, there is a negative educational gradient of single motherhood in in South Korea but less so in Taiwan.

Education, single motherhood, and child poverty

How much do the educational gradients in single motherhood matter for child poverty differences by mother's education? Table 1 presents the results from the standardization exercise for seven countries in 2006–10, in which the family structure of children of highly educated mothers was used as the standard.

The first column shows the share of children living with a single mother by the mother's education. The educational gradient of single motherhood was negative in each country, but varied cross-nationally from a large gradient in the US and the UK, a smaller one in Finland, Germany, Korea, and Poland, and to relatively small one in Spain. Because the unit of analysis here is the child, the exact figures differ somewhat from those in Figure 1.

---*Table 1*---

The next three columns show the observed child poverty rates by the mother's education and single motherhood. Maternal education and living with two parents protect children from poverty in each country. In percentage points, the child poverty gap by maternal education is the widest in the United States and the smallest in Finland, whereas the child poverty gap by single motherhood is the largest in West Germany and the smallest in Poland. In all countries, the highest child poverty rates are in low educated single mother families. However, the actual child poverty rates in these families range from 21% in Finland to 70% in

the United States. Overall, child poverty rates and differences therein show large cross-national variation, as is already known from previous research (Esping-Andersen 1999; Chen and Corak 2008; Brady and Burroway 2012).

The next column shows the standardized child poverty rates, that is, what the child poverty rate would be if all educational groups had the family structure of the highly educated. The last two columns show how they differ from the observed ones, first in percentage points, and second, relative to the observed child poverty rates (in %). The latter is also the left-hand side of Equation (1) above. The difference tells the effect of educational gradients in single motherhood on child poverty in each group.

The difference between the observed and standardized rates varies rather remarkably across countries, both in absolute and in relative terms. Child poverty rates in Spain would be very similar in the absence of educational differences in single motherhood, which is not surprising given that these differences are small. Maybe more surprisingly, child poverty rates would also be very similar in Poland, where the educational differences in single motherhood are much larger. More generally, large educational differences in single motherhood do not affect inequality in child poverty the same way in each country. Although the educational differences in single motherhood are similar in Finland, Germany, and Poland, their effects on child poverty are absent in Poland, visible in Finland, and strong in Germany. In Germany, the poverty rate of children with low educated mothers would fall by 27.5% (from 17.4% to 12.6%), and of children with middle educated mothers by 16.1% (from 7.2% to 6.0%) were their family structures the same as those of children with high educated mothers. The effect of the educational gradient of single motherhood is strong in Germany because children of single mothers have high poverty rates, especially among the low educated.

These results underline the fact that the effect of educational differences in family structure depends not only on how large these differences are, but also on the difference in

child poverty rates between single mother and two-parent families. In other words, what matters is not only how many children would be moved from a high poverty risk group (single mother family) to a low poverty risk group (two parent family), but also how much smaller their poverty risk would thus become (poverty rate difference between the groups).

---Table 2---

Table 2 formalizes the cross-national comparison of the effects of educational gradients in single motherhood by decomposing the difference in the effect in the United States and the six other countries. The first column shows the difference between the observed and standardized child poverty rates (in %), and this is the same information as in the last column of Table 1. The second column shows how this compares to the US. The third and fourth columns tell how much of this country difference is due to differences in the size of the educational gradient of single motherhood (composition effect, Equation 2) and how much is due to differences in the size of the single mother child poverty gap (rate effect, Equation 3) among the middle and low educated, respectively. Estimates with a positive sign tell that the respective effect is stronger than in the United States, and estimates with a negative sign tell the opposite.

Table 2 shows that both the composition and rate effects matter, but they matter differently for each country comparison. To illustrate, we can compare West Germany to the US. In West Germany, the poverty rate among children of low educated mothers would be 27.5% lower if they had the same family structure as the children of highly educated mothers. This effect is much larger than in the United States. However, this is not because the gap in single motherhood between the low and highly educated is so much bigger in West Germany than in the United States (the composition effect), but because single motherhood increases

child poverty rates more among West German compared to American low educated women (the rate effect). Indeed, the composition effect is bigger in the United States than in West Germany.

More generally, the composition effects are more important in the United States than in most of the other countries; in the United States, the larger educational gradient in single motherhood has a bigger effect on child poverty inequality by mother's education. The clearest exception is the United Kingdom, where the composition effects are larger than in the US. Among the low educated in Finland, the composition effects are of similar size as in the respective American educational category. The rate effects are smaller in Poland and the United Kingdom than in the United States. In these countries, the smaller relative difference in poverty rates of children living with a single mother compared to two parents reduces the importance of educational differences in single motherhood; indeed, in the United Kingdom the smaller rate effect cancels out the larger composition effect among the low educated, and reverses the sign of the total effect among the middle educated. In the other cases, the rate effects are either of similar size as in the United States (Finland, the low educated in Spain and South Korea) or smaller (the middle educated in the latter two countries). West Germany is the only country in which the rate effect is larger than in the United States, leading to the larger single motherhood effect especially among the low educated.

Conclusions and discussion

The diverging destinies thesis holds that adults' and their children's family demographic life courses have become increasingly differentiated by education (McLahanan 2004). In this study, I have assessed this thesis in 33 European, North American, and Asian countries by focusing on educational differences in single motherhood and their trends over time. Educational differences in single motherhood are a key marker of diverging destinies, as

single motherhood is closely related to the larger bundle of family demographic behaviors considered in the literature. The LIS data I used allowed examining these patterns and trends using harmonized measures of education and family structure across multiple countries and over several time periods, and thus enabled a broader portrait of them that has been possible in many earlier studies. Cross-national descriptions of these developments continue to be essential as we continue to form an understanding the extent of uneven family change and develop theoretical explanations to account for them.

Educational differences in single motherhood have increased visibly in many countries, and not only in the US, where these developments have gained the most attention. These findings add to the overall accumulating evidence of a trend toward uneven family change in a range of societies. Four observations are worth pointing out in addition to this general conclusion. First, the trend toward educational divergence in single motherhood has not been universal and in some countries single motherhood remains uncommon in all educational groups. Second, with the sole exception of Russia, in countries which witnessed a major increase in single motherhood, this increase mainly took place among mothers with low, and to a lesser extent, middle, education. Indeed, single motherhood prevalence among highly educated mothers does not generally exceed 10-15%. In Russia this pattern is very different and single motherhood is equally common in all educational groups, and has increased from medium to high levels since the early-1990s. Third, and related to the second observation, single motherhood prevalence began to increase among the low educated, but in some of the countries single motherhood among the middle educated has continued to increase, sometimes catching up with the low educated (for example, in Finland, West Germany, the UK and the US) and in other cases diverging from the highly educated. Cherlin (2011) has already suggested that more focus should be paid to this educational group. It remains to be seen whether the educational differences in family demography will change

from a gradient-like pattern to a more binary division between the highly educated and the

rest. Fourth, although one could observe clustering by common country groupings (such as

welfare regimes (Esping-Andersen 1999)), these clusters were not always homogeneous, nor

was there any obvious ranking of country groups in which educational gradients of single

motherhood are larger than in others.

Future research can tell whether these conclusions apply beyond single motherhood.

Nevertheless, these findings carry implications for the quest for understanding the reasons

behind uneven family change and their cross-national differences. As an example, American

debates—which have dominated the field—have often emphasized growing economic

inequality as a driving force behind these trends, and trends in American inequality and

family divergence have indeed generally overlapped (e.g., Ellwood and Jencks 2004;

McLanahan and Percheski 2008). Yet the cross-national differences and trends in other

countries call for nuance to these conclusions. For example, single motherhood is rather

similarly patterned in unequal UK and US as in the more egalitarian Nordic countries.

Moreover, in France, for example, income inequalities have remained stable (or decreased)

during the observation period, whereas the educational gap in single motherhood opened up.

Neighboring Italy, on the other hand, had higher income inequality, but no educational

differences in single motherhood (LIS 2017). More generally, additional comparative analysis

will add to the quest for theorizing the conditions under which educational divergence in

family behaviors is more likely. Some such research has already been undertaken (Härkönen

and Dronkers 2006; Kalmijn 2013; Matysiak, Styrc and Vignoli 2014) and future attempts

should rigorously combine theoretical thinking on the micro-level mechanisms that lead

educational groups to diverge in their family behaviors (e.g., Ellwood and Jencks 2004; Edin

and Kefalas 2005) with macro-level understanding of the social structures and institutions that

condition these behaviors (e.g., Goode 1962). Descriptive work provides a first step for a broader understanding of these patterns and this study has contributed to this effort.

The second aim of this study was to analyze how much educational differences in single motherhood contribute to differences in child poverty by maternal education. A core argument in the diverging destinies literature is that educational divergence in family demography increases social inequality by exposing the already-vulnerable children of less educated mothers to potentially disadvantaging family life courses (e.g., McLanahan 2004; McLanahan and Percheski 2008). Despite the appeal of this argument, there have been surprisingly few empirical assessments of it (cf. Goldberg 2015; Bernardi and Boertien 2017). I focused on child poverty, which is strongly linked to family structure and an important well-being indicator in itself. One could expect that educational differences in single motherhood have particularly visible effects on inequality in child poverty.

The key finding was that educational differences in single motherhood can indeed increase the educational differences in child poverty, but whether and to what extent it does is contingent on how large the child poverty gap between single mother and two-parent households is: if child poverty rates are similar in both types of households, educational differences in family structure cannot matter. This common-sense conclusion has important implications. First, as shown in the results, the single mother child poverty gap conditions how much educational differences in single motherhood matter. In other words, educational gradients of single motherhood do not affect children's outcomes in a vacuum, but are strongly dependent on their social policy environment. Second, the policy implication is that the inequality consequences of diverging destinies can be combatted through "traditional" means of income transfers and employment policies, which also shape the extent to which demographic change translates into social inequalities (Cohen 2015). Even so, family demographic change can put pressure on the effectiveness of welfare states in combating child

poverty (Esping-Andersen 1999) and these challenges can be particularly important when family demographic changes concentrate on groups which are the most vulnerable in terms of labor market opportunities and incomes. These developments have thus far not been much acknowledged in the welfare state literature, but deserve more attention.

Future research on the inequality effects of diverging destinies should build on these and related findings (Goldberg 2015; Bernardi and Boertien 2017) and consider potential effects over a wider range of outcomes than has hitherto been done. To date, however, the evidence suggests that although uneven family change can increase inequality, the pathways through which it happens are complex.

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Appendix: Proof of Equation (1)

We have two children's family structures, single mothers (s) and two-parent families (p). The observed child poverty rate in educational group i can be written as

$$r_i = a_i^s r_i^s + a_i^p r_i^p = a_i^s r_i^s + (1 - a_i^s)r_i^p = a_i^s r_i^s + r_i^p - a_i^s r_i^p \quad \text{(A1)},$$

where a_i^s and a_i^p are the fractions of children with single and partnered mothers in educational group i, and r_i^s and r_i^p are the poverty rates of these children, respectively. The child poverty rate standardized to the single motherhood prevalence of children with highly educated mothers (h) is given by

$$\bar{r}_i = a_h^s r_i^s + a_h^p r_i^p = a_h^s r_i^s + (1 - a_h^s)r_i^p = a_h^s r_i^s + r_i^p - a_h^s r_i^p \quad \text{(A2)}.$$

The difference between the observed and standardized rates is

$$r_i - \bar{r}_i = a_i^s r_i^s - a_i^s r_i^p - a_h^s r_i^s + a_h^s r_i^p = (a_i^s - a_h^s)(r_i^s - r_i^p) \quad \text{(A3)}.$$

This equation presents the difference between the observed and standardized child poverty rates in percentage points. To express the difference relative to the observed child poverty rate—that is, by how many percent the standardized rate is smaller (bigger) than the observed one—we divide both sides of Equation (A3) with the observed child poverty rate:

$$\frac{r_i - \bar{r}_i}{r_i} = \frac{(a_i^s - a_h^s)(r_i^s - r_i^p)}{r_i} = \frac{(a_i^s - a_h^s)}{\sqrt{r_i}} \times \frac{(r_i^s - r_i^p)}{\sqrt{r_i}} \quad \text{(A4)},$$

which is Equation (1).

Figures and tables

Figure 1. Single motherhood prevalence (% of all mothers) by education in 33 countries, 1966−2015.
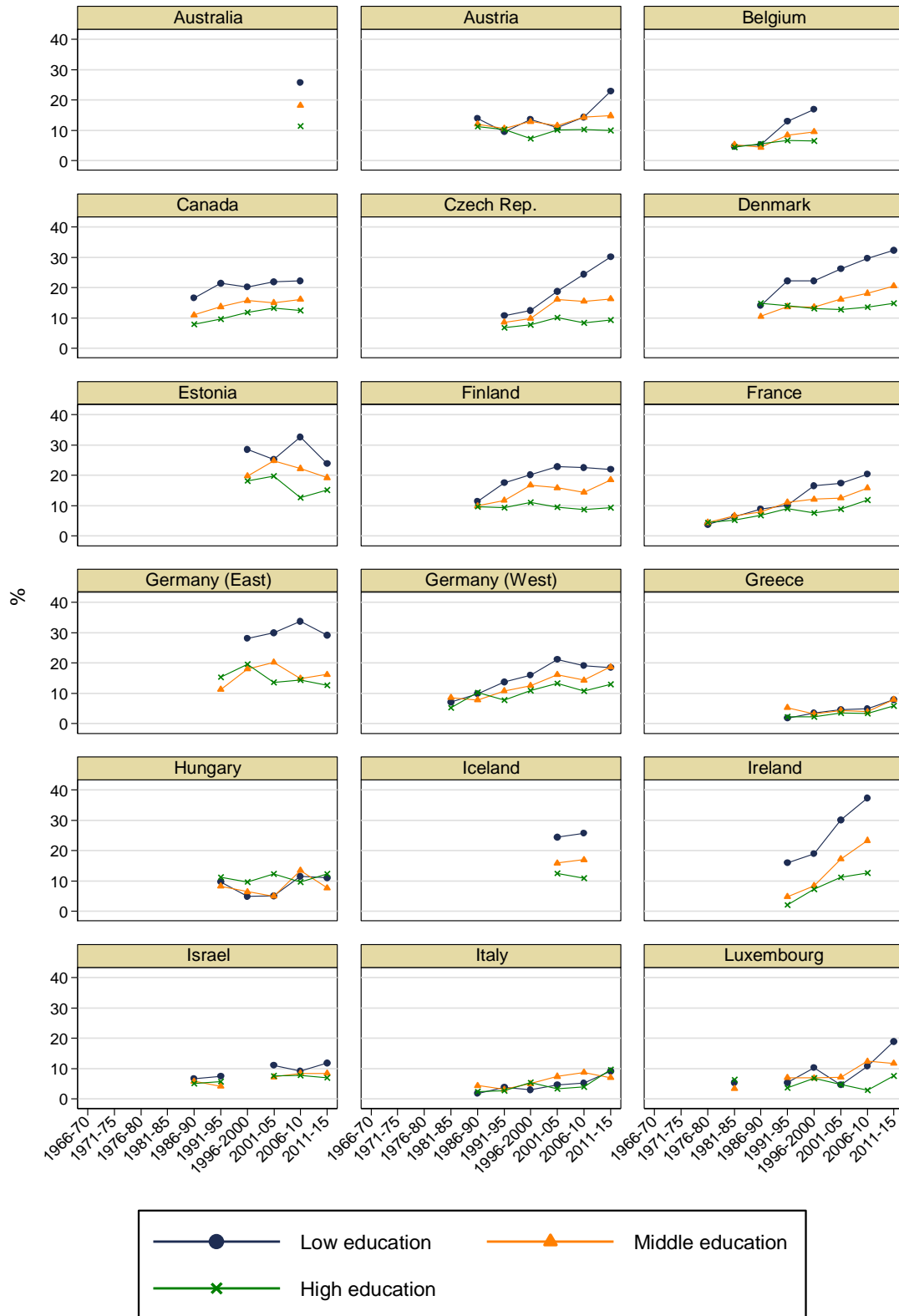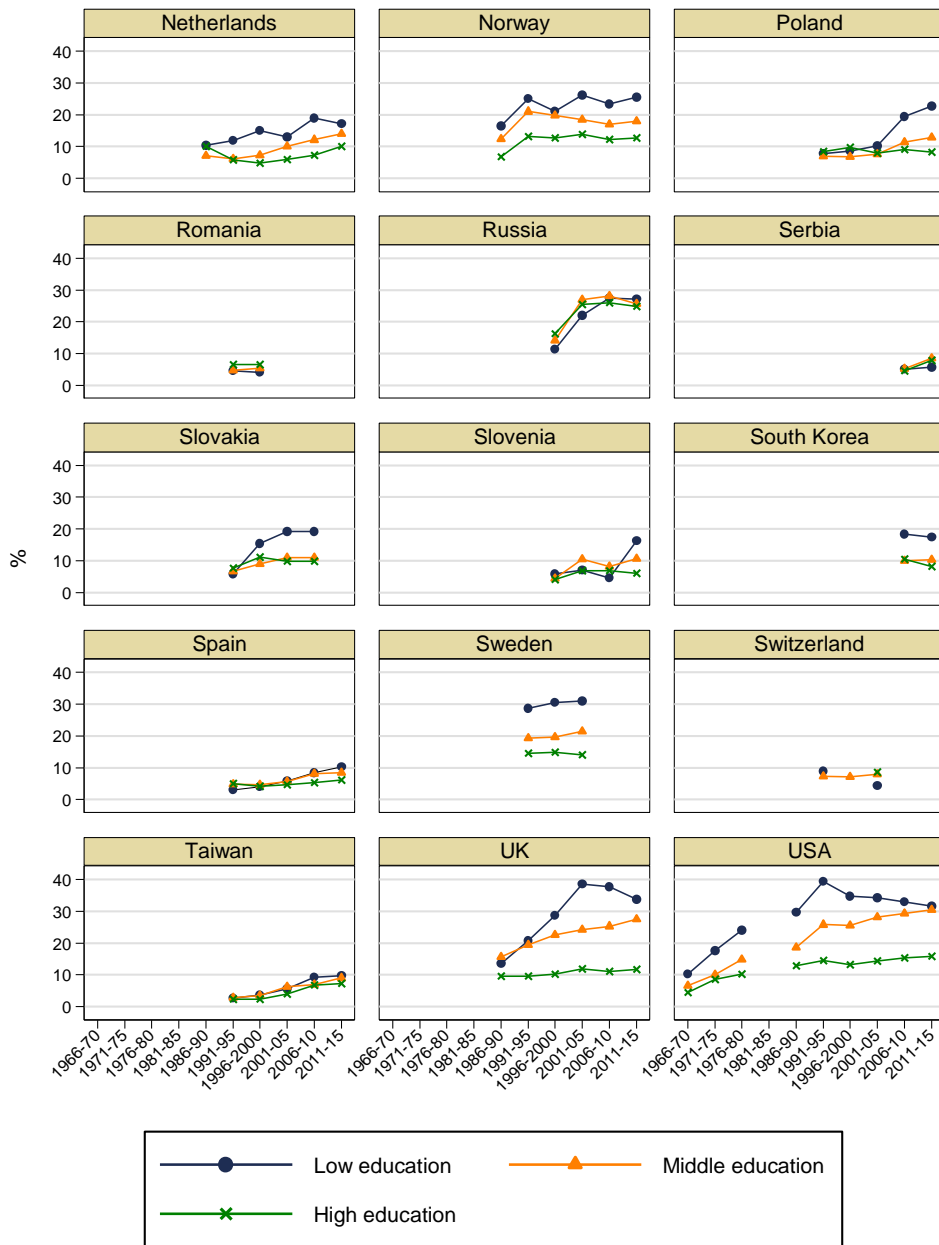
Table 1. Share of children with single mothers, and observed and standardized child poverty rates by mother's education in seven countries, 2006–10. %.

| | Mother's education | Children with single mothers | Child poverty rates | | | | | |
| | | | Observed | | | Standardized | Difference | |
			Single mother	Two parent	All	All	Δ	%
Finland	Low	16.80	20.79	8.54	10.60	9.49	1.11	10.44
	Middle	12.15	19.30	3.61	5.52	4.83	0.69	12.46
	High	7.78	5.87	0.95	1.33	1.33	0	0
	All	10.50	14.68	2.75	4.01	3.61	0.40	9.86
W-Germany	Low	17.89	64.24	7.26	17.45	12.66	4.79	27.46
	Middle	13.39	31.74	3.14	6.97	5.85	1.12	16.05
	High	9.48	27.73	2.36	4.77	4.77	0	0
	All	13.09	37.92	3.54	8.04	6.64	1.41	17.47
South Korea	Low	17.26	37.80	19.12	22.34	20.58	1.77	7.91
	Middle	9.90	19.29	8.57	9.63	9.41	0.23	2.33
	High	7.80	8.45	5.08	5.35	5.34	0	0
	All	9.78	18.99	8.15	9.21	8.93	0.27	2.95
Poland	Low	19.06	30.62	27.42	28.03	27.68	0.35	1.26
	Middle	10.20	15.69	11.57	11.99	11.90	0.09	0.75
	High	8.03	3.83	1.67	1.85	1.84	0	0
	All	10.78	16.96	11.20	11.82	11.73	0.10	0.86
Spain	Low	7.88	46.96	28.77	30.20	29.64	0.56	1.87
	Middle	7.28	27.82	13.80	14.82	14.47	0.35	2.36
	High	4.78	21.69	6.73	7.44	7.45	0	0
	All	6.67	36.02	17.65	18.88	18.56	0.32	1.70
UK	Low	33.38	29.49	19.29	22.69	20.37	2.33	10.25
	Middle	23.42	20.09	8.34	11.09	9.58	1.51	13.61
	High	10.57	8.52	4.68	5.08	5.09	0	0
	All	21.71	20.78	8.66	11.28	10.02	1.26	11.15
US	Low	32.67	70.46	43.21	52.12	46.92	5.19	9.97
	Middle	28.24	46.11	15.69	24.28	19.83	4.45	18.33
	High	13.61	22.72	4.09	6.62	6.62	0	0
	All	23.04	45.68	14.03	21.33	18.55	2.78	13.04

Table 2. Decomposition of the cross-national differences in the effects of educational gradients in single motherhood on child poverty rates by maternal education. The United States is the reference country.

| | | Difference between actual and stand. child poverty, % | Compared to the US | | |
			Δ	Due to composition effects	Due to rate effects
Finland	Low	10.44	0.47	0.50	-0.03
	Middle	12.46	-5.87	-7.10	1.23
West Germany	Low	27.46	17.49	-5.46	22.95
	Middle	16.05	-2.28	-12.65	10.37
South Korea	Low	7.91	-2.06	-2.47	0.41
	Middle	2.33	-15.99	-11.04	-4.96
Poland	Low	1.26	-8.71	-1.22	-7.49
	Middle	0.75	-17.58	-8.62	-8.96
Spain	Low	1.87	-8.10	-7.35	-0.75
	Middle	2.36	-15.96	-11.38	-4.58
UK	Low	10.25	0.29	6.35	-6.07
	Middle	13.61	-4.71	4.31	-9.03
USA	Low	9.97	Ref.	Ref.	Ref.
	Middle	18.33	Ref.	Ref.	Ref.

Note: The first column presents the effect on child poverty of equalizing the fraction of children living with a single mother to that among highly educated mothers (in %) for each country and educational group (from Table 1). The second column presents how this effect differs from that in the United States. The third and fourth columns present, respectively, how much these country differences are due to country differences in the size of the educational gradient of living with a single mother (composition effect), and to differences in poverty rates of children living with a single mother compared to a two-parent family (rate effect).

Appendix Table

Table A1 Single motherhood prevalence (% of all mothers) by education in 31 countries, 1966-2015.

		1971-75	1976-80	1981-85	1986-90	1991-95	1996-00	2001-05	2006-10	2011-15
Australia	Low								25.7	
	Middle								18.2	
	High								11.3	
	All								*18.0*	
Austria	Low				13.9	9.5	13.5	10.9	14.3	22.8
	Middle				12.0	10.6	12.9	11.6	14.3	14.8
	High				11.2	10.2	7.3	10.1	10.3	9.9
	All				*13.3*	*10.0*	*12.4*	*11.2*	*13.5*	*15.3*
Belgium	Low			4.8	5.2	12.9	16.8			
	Middle			5.2	4.4	8.4	9.5			
	High			4.5	5.6	6.6	6.5			
	All			*4.9*	*5.0*	*9.4*	*10.3*			
Canada	Low				16.5	21.4	20.2	21.9	22.2	
	Middle				11.0	13.7	15.7	15.0	16.1	
	High				7.9	9.7	11.9	13.2	12.5	
	All				*12.2*	*15.3*	*14.2*	*14.6*	*14.3*	
Czech Rep.	Low					10.7	12.4	18.8	24.4	30.1
	Middle					8.6	9.8	16.1	15.5	16.3
	High					6.8	7.8	10.1	8.4	9.3
	All					*8.9*	*10.1*	*15.2*	*14.9*	*15.8*
Denmark	Low				14.1	22.2	22.3	26.2	29.6	32.3
	Middle				10.5	13.7	13.6	16.2	18.1	20.5
	High				14.8	14.0	13.1	12.8	13.5	14.9
	All				*12.9*	*16.6*	*15.7*	*17.1*	*18.2*	*19.7*
Estonia	Low						28.5	25.2	32.6	23.8
	Middle						19.7	24.8	22.2	19.2
	High						18.2	19.7	12.7	15.1
	All						*19.8*	*22.9*	*20.3*	*17.9*
Finland	Low				11.3	17.5	20.2	22.8	22.6	21.9
	Middle				9.9	11.7	16.7	15.9	14.4	18.5
	High				9.6	9.3	11.1	9.4	8.7	9.3
	All				*10.4*	*12.5*	*15.0*	*13.9*	*12.2*	*13.8*
France	Low		3.8	6.3	8.8	10.1	16.6	17.3	20.3	
	Middle		4.4	6.6	7.9	11.1	12.1	12.5	15.8	
	High		4.5	5.2	6.8	9.0	7.6	8.9	11.8	
	All		*4.0*	*6.3*	*8.3*	*10.3*	*12.4*	*12.8*	*15.4*	
Germany	Low					*	28.0	30.0	33.8	29.2
East	Middle					11.2	18.0	20.2	14.9	16.2
	High					15.3	19.5	13.5	14.4	12.7
	All					*12.7*	*19.2*	*18.8*	*17.2*	*17.0*

39

		1966-70	1971-75	1976-80	1981-85	1986-90	1991-95	1996-00	2001-05	2006-10	2011-15
Germany	Low				7.1	9.8	13.8	16.0	21.1	19.0	18.4
West	Middle				8.6	7.8	10.8	12.5	16.1	14.3	18.7
	High				5.2	10.3	7.8	10.9	13.3	10.7	12.9
	All				*7.6*	*8.8*	*10.8*	*12.8*	*16.4*	*14.0*	*16.9*
Greece	Low						1.7	3.5	4.6	4.9	7.9
	Middle						5.2	3.1	4.3	3.9	7.9
	High						2.3	2.2	3.5	3.3	5.8
	All						*3.1*	*3.1*	*4.2*	*4.0*	*7.2*
Hungary	Low						9.6	4.9	5.0	11.5	11.1
	Middle						8.2	6.4	4.9	13.4	7.7
	High						11.2	9.7	12.3	9.6	12.3
	All						*9.3*	*6.8*	*7.1*	*11.4*	*10.4*
Iceland	Low								24.5	25.7	
	Middle								15.9	17.0	
	High								12.4	10.9	
	All								*17.4*	*16.6*	
Ireland	Low						15.9	18.9	30.1	37.4	
	Middle						4.8	8.4	17.2	23.3	
	High						2.1	7.3	11.2	12.7	
	All						*10.2*	*12.9*	*19.9*	*22.3*	
Israel	Low					6.7	7.4		11.0	9.1	11.9
	Middle					5.8	4.1		7.2	8.4	8.4
	High					5.1	5.7		7.6	7.8	6.9
	All					*6.1*	*5.6*		*8.2*	*8.2*	*8.0*
Italy	Low					1.8	3.8	3.0	4.6	5.2	9.2
	Middle					4.4	3.1	5.0	7.4	8.7	7.0
	High					2.4	2.7	5.4	3.3	4.0	9.7
	All					*2.5*	*3.5*	*4.0*	*5.7*	*6.7*	*8.3*
Luxembourg	Low				5.4		5.4	10.2	4.6	10.7	18.9
	Middle				3.4		7.0	6.9	7.1	12.4	11.7
	High				6.3		3.6	6.8	4.7	2.8	7.5
	All				*4.6*		*5.9*	*8.2*	*5.5*	*9.8*	*12.8*
Netherlands	Low					10.4	11.9	15.0	13.0	19.0	17.2
	Middle					7.1	6.1	7.2	10.0	12.1	14.0
	High					10.1	5.7	4.8	6.0	7.2	10.0
	All					*9.1*	*8.4*	*8.7*	*9.5*	*11.9*	*13.0*
Norway	Low					16.4	25.1	21.0	26.1	23.3	25.6
	Middle					12.4	21.0	19.7	18.5	17.0	17.9
	High					6.7	13.2	12.6	13.9	12.1	12.7
	All					*12.2*	*19.7*	*17.5*	*17.4*	*16.1*	*16.6*

		1966-70	1971-75	1976-80	1981-85	1986-90	1991-95	1996-00	2001-05	2006-10	2011-15
Poland	Low						7.7	8.5	10.2	19.5	22.7
	Middle						6.9	6.8	7.6	11.3	12.8
	High						8.4	9.8	7.9	9.1	8.2
	All						*7.1*	*7.4*	*8.0*	*11.6*	*12.2*
Romania	Low						4.5	4.1			
	Middle						4.8	5.4			
	High						6.5	6.5			
	All						*4.8*	*4.9*			
Russia	Low							11.3	22.0	27.4	27.1
	Middle							14.1	27.0	28.1	25.6
	High							16.3	25.5	25.9	24.8
	All							*14.7*	*25.3*	*26.7*	*25.3*
Serbia	Low									5.0	5.7
	Middle									5.3	8.5
	High									4.6	7.9
	All									*5.1*	*7.9*
Slovakia	Low						5.9	15.4	19.2	19.2	
	Middle						6.7	9.0	11.0	11.0	
	High						7.6	11.1	9.8	9.8	
	All						*6.3*	*9.7*	*11.1*	*11.1*	
Slovenia	Low							5.8	7.0	4.6	16.2
	Middle							4.4	10.4	8.1	10.7
	High							4.1	6.9	6.9	6.0
	All							*4.7*	*8.9*	*7.2*	*9.4*
South Korea	Low									18.4	17.3
	Middle									10.0	10.3
	High									10.5	8.1
	All									*11.0*	*9.6*
Spain	Low						3.1	4.0	5.9	8.5	10.3
	Middle						4.9	4.6	5.7	8.1	8.4
	High						5.0	4.2	4.6	5.3	6.2
	All						*3.7*	*4.2*	*5.5*	*7.3*	*8.4*
Sweden	Low						28.7	30.6	31.1		
	Middle						19.4	19.6	21.5		
	High						14.5	14.9	14.0		
	All						*20.0*	*19.7*	*20.0*		
Switzerland	Low						9.0	*	4.4		
	Middle						7.3	7.2	8.0		
	High						*	*	8.7		
	All						*8.1*	*7.0*	*7.5*		

		1966-70	1971-75	1976-80	1981-85	1986-90	1991-95	1996-00	2001-05	2006-10	2011-15
Taiwan	Low						2.7	3.6	5.6	9.2	9.7
	Middle						2.8	3.5	6.3	6.9	9.0
	High						2.3	2.4	3.9	6.7	7.3
	All						*2.6*	*3.4*	*5.4*	*7.3*	*8.4*
UK	Low					13.6	20.7	28.7	38.5	37.7	33.7
	Middle					15.7	19.4	22.6	24.3	25.3	27.5
	High					9.5	9.6	10.3	11.9	11.1	11.7
	All					*14.2*	*18.6*	*21.9*	*23.5*	*22.9*	*21.8*
US	Low	10.2	17.7	24.0		29.7	39.3	34.8	34.2	32.9	31.7
	Middle	6.6	10.0	14.8		18.7	25.8	25.5	28.2	29.3	30.5
	High	4.5	8.6	10.2		12.9	14.5	13.2	14.3	15.3	15.9
	All	*7.6*	*12.0*	*16.0*		*19.1*	*24.9*	*23.3*	*23.6*	*23.9*	*23.8*

Source: Author's calculations fom the Luxembourg Income Study.

Note: * cell size < 10