The Impact of Teenage Motherhood on the Education and Fertility Decisions of Their Children: Evidence for Europe

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Abstract

This paper deals with the intergenerational effects of teenage motherhood on their children's education and fertility outcomes. We quantify the causal effect of being born to a teenage mother on children's outcomes in an IV framework, exploiting both compulsory schooling changes and peer effects associated with mother's month of birth. Our findings suggest that the child's probability of post compulsory education decreases when born to a teenage mother, and that the daughters of teenage mothers are significantly more likely to become teenage mothers themselves.

KEY WORDS: Teenage Motherhood, Education, Fertility, Children, Instrumental Variables, Compulsory schooling laws, Month of birth
JEL Classification: I2, J13, J62.

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1 Introduction

Over the last decades, governments in developed countries have increasingly targeted the reduction of teenage pregnancies and births. This reflects a growing concern that teenage motherhood is linked to adverse socio-economic outcomes for the mother and the child.

There is, however, large variation in the extent to which teenage motherhood is viewed as a problem within specific countries. This is explained by a variety of factors such as traditional values to marriage, the extent to which teenage motherhood occurs within marriage,[1] and large country differences in teenage motherhood rates.[2] Such heterogeneity in views has lead to a large range of policy responses which, in part, accounts for the varying degrees to which reductions in teenage birth rates have been achieved. Nevertheless, despite these policy concerns, little is known about the causal effects of teenage motherhood on children's socio-economic outcomes. This is particularly noteworthy because any effect on children would be an important channel through which intergenerational disadvantage is transmitted.

The contribution of this paper is to provide the first causal evidence on the intergenerational effects of teenage motherhood on second generation

[1] A study carried out by UNICEF (2001) suggests that traditional values still explain the low rates of teenage motherhood in Italy. Moreover, the fact that most of the cases occur within marriage in Greece and Portugal may contribute to the perception that it is not an important social problem.

[2] The lowest and highest teenage birth rates in Europe, 5% and 26% in 2006 (that is the last year available) are found in the Netherlands and the UK, respectively (EUROSTAT, 2009).

outcomes across Europe.[3] In particular, our goal is to examine the causal effects of being born to a teenage mother on the probability of children dropping out of school soon after compulsory education and on the probability of daughters becoming teenage mothers themselves. To that end, we adopt an IV framework, exploiting both compulsory schooling changes and peer effects associated with mother's month of birth. Like Berthoud and Robson (2003),[4] we apply our methodology to data from the European Community Household Panel (ECHP) spanning the period 1994 to 2001. Unlike them we seek estimates of causal effects. The benefit of using cross-country data that is based on a harmonised and comparable dataset is that it allows us to exploit policy reforms across countries and enables direct comparisons.

Our preferred estimate from our empirical results reveal that the probability of not continuing school after compulsory education is 3.1% higher for children born to a teenage mother compared to a child born to a mother whose first birth was at the age of 20-25. We also observe that the daughters of teenage mothers are 4.2% more likely to give birth as teenagers themselves. When we turn on the microscope and relax the complete exogeneity condition the effect drops to, for example, only 2.7% for those girls born to a mother that was below 20 years old when she gave birth.

[3]The majority of the literature covers the US and UK experience, partly reflecting the relatively high teenage birth rates in these two countries. Only Francesconi (2008) has attempted to address this issue for UK data. However, his study employed inevitably a very small sample of sisters from the British Household Panel Survey (BHPS) dataset so as to estimate siblings fixed effects.

[4]They present correlations for teenage motherhood and mother's and household outcomes but not for children.

The remainder of the paper is organized as follows. The next section provides a brief discussion of previous research in this area. In Section 3, the identification strategy is discussed and we show that the raising of school leaving age (henceforth RoSLA) leads to a reduction on the likelihood of giving birth as a teenager, and being young in one's school cohort increases one's probability of becoming a teenage mother. Section 4 describes the data set employed. Section 5 presents the results of the econometric analysis where we show that offspring's education and fertility outcomes seem to be adversely affected by being born to a teenage mother. The final section concludes.

2 Previous literature on mother's and children's outcomes

The existing literature on the impact of teenage motherhood on second generation outcomes is primarily non-causal. The most common approach adopted is to compute correlation coefficients between teenage motherhood and children outcomes. Typically, these estimated coefficients are large and negative, indicating poor performance of the offspring of teenage mothers. For instance, a large negative correlation of being born from a teenage mother and education outcomes of adult children has been found in the US (Card, 1981), the UK (Pevalin, 2003) and New Zealand (Jaffee et al., 2001). Furthermore, there is evidence of young adults being more likely of becoming

teenage parents themselves in the UK (Bonell et al., 2006; Pevalin, 2003; Ermisch and Pevalin, 2003; Manlove, 1997) and the US (Card, 1981; Hardy et al., 1998; Kahn and Anderson, 1992). The above results can be attributed, at least in part, to nonrandom selection into teenage motherhood caused by factors - such as prior disadvantage - that lower the opportunity cost of early childbearing (Wolfe et al., 2001).

To our knowledge, the empirical literature dealing with the possible endogeneity of teenage motherhood is scarce. An important exception is the study of Francesconi (2008), which suggests worse outcomes in adult children born from a teenage mother in the UK with respect to education, labour market, inactivity, earnings, teenage childbearing, and health. For the US, Geronimus and Korenman (1993) analyze children's health and find an effect only for low-income black women in their twenties by exploiting sibling fixed effects across sisters. In contrast, no effect is found in test scores of cousins whose mothers are sisters (Geronimus et al., 1994).

On the contrary, studies examining mother's outcomes have employed a variety of innovative methods - treating teenage motherhood as an evaluation problem - to control for unobserved characteristics influencing selection into teenage motherhood. These studies suggest that the negative causal effects of giving birth as a teenager on mother's outcomes are small or negligible.[5] Or

[5]For the US, Geronimus and Korenman (1992) exploit family fixed effects employing sisters that gave birth at different ages. Bronars and Grogger (1994) identify the effect from comparing giving birth to twins versus a single child as a teenager, and Pepper et al. (2002) use difference in differences and double difference-in-difference (DDD) estimates. An alternative approach is to use miscarriages as a mechanism for exogenously delaying

to put it differently, the poor performance of teenage mothers can be mainly attributed to prior disadvantage. There is a second body of causal research that has been more successful in finding effects of teenage births on mother's outcomes.[6] Establishing the size of the causal effects of teen motherhood is important in determining the extent to which policies should be designed to reduce it. Drawing any robust conclusions from this literature has so far been difficult because of the sensitivity of the results to the empirical methodology chosen. Hoffman (1998) points out that each of the methodologies employed may underestimate the true effects of teenage motherhood because of factors such as economies of scale when giving birth to twins versus a single teenage birth, misreporting and non-randomness in the case of miscarriages as an IV, and non-representativeness if the elderly sibling left the household when estimating sisters fixed effects. Moreover, there will be imprecision in the resulting estimates because both the implied treatment and control groups turn out to be very small in the datasets being used.

age at first birth. For the US, higher labour market earnings and hours of work are found for teenage mothers (Hotz et al., 1997, 2005) as well as a small but negative effect on subsequent schooling (Ashcraft and Lang, 2006). For the UK, no statistically significant effect of teenage motherhood is found on household worklessness using RoSLA and the mothers' MoB as instruments (Walker and Zhu, 2009).

[6]For instance, using propensity score matching techniques a reduction in education achievement was found in the US (Levine and Painter, 2003) and in the UK (Goodman et al., 2004). Moreover, using miscarriages as a contaminated IV in the US, Fletcher and Wolfe (2009) find a reduction in the probability of receiving a high school diploma, annual income and years of schooling, allowing for community fixed effects. Using the same framework in the UK, Goodman et al. (2004) find that teenage mothers are less likely to be in work, work fewer hours, earn a lower hourly wage and tend to have partners with lower education qualifications and labour market status as in (Pevalin and Ermisch, 2003). Furthermore, Chevalier and Viitanen (2003) find qualitatively similar results where the instrumental variable is age at menarche.

It follows that any attempt to isolate the causal effects of teenage motherhood on child outcomes should make use of the insights provided by the literature on mother's outcomes. In this paper, we exploit the existence of peer effects across young girls within their school cohorts, and changes in schooling laws as instruments for teenage motherhood so as to estimate the causal effect of teenage childbearing on children education and fertility outcomes. This approach is motivated by the findings of Fort (2007), which indicates an effect of compulsory schooling laws changes on fertility behaviour, and Black et al. (2008) who illustrate that raising the minimum school leaving age reduces the chances of teenage pregnancy in the US and Norway. The identifying assumption is that these affect the outcomes for the child only through their effect in teen motherhood.

3 Methodology

The identification of the effect of teenage motherhood on children's outcomes is complicated by a number of factors. The most critical is that there are likely to be common unobservable factors that influence both the probability of giving birth as a teenager and that of children socio-economic outcomes. The sources of unobserved variable bias include omitted individual, family or background effects that lower the opportunity cost to early motherhood. Technically, this gives rise to an endogeneity problem leading to biased and inconsistent estimates of the causal effect of being born to a teenage mother

on children outcomes. One solution to the potential endogeneity problem is to adopt an instrumental variable approach for teenage childbearing.

An instrumental variable must be relevant and yet validly excluded. The relevance condition requires that there is correlation between the instrument Z and the likelihood of being a teenage mother T. As far as the exogeneity condition is concerned, changes in compulsory schooling laws must affect the outcomes of children only through the potential endogenous variable, that is, the likelihood of a teenage birth in the children's outcomes equation. Therefore the matrix of instruments are assumed to be uncorrelated with ε_i the error term in Equation (1), $E[Z'\varepsilon_i] = 0$ (Wooldridge, 2002).

This paper relies on the use of "instrumental variables" to identify the effect of teenage childbearing on children education and fertility outcomes. In particular we aim to exploit maternal date of birth. There are two ways in which the date of birth affects the probability of having a first birth at an early age. The first relies on the existence of "peer effects" whereby younger children imitate older ones. Young girls spend a large proportion of their time mixing with peers who are close to the same age - schools are organised into year cohorts. All children within a 12 month birth window are grouped together at school. Within this window there is some age variation and older girls will, on average, become sexually active at an earlier point in calendar than their slightly younger peers. But there is peer pressure, which we expect to be stronger from older to younger than vice versa, and so the youngest girls imitate. Unfortunately, younger girls are also likely to be

less able to access advice, support, contraception and abortion, and so will be more likely to become teenage mothers than older children in the same cohort. Previous studies have illustrated that the quarter of birth generates exogenous variation in education that can be used to estimate the impact of compulsory schooling on education and earnings (Angrist and Krueger, 1991; Levin and Plug, 1999; Leigh and Ryan, 2008; Puhani and Weber, 2007). Walker and Zhu (2009) are the first ones that exploit MoB as an IV to analyze the effect of teenage motherhood, in their work, on household worklesness.

The second way that MoB works is through a developmental effect. All children in a cohort reach achievement milestones at different ages that affects their progression. The third way is through timing of entry which affects the duration of schooling before these milestones occur. RoSLA has been proved a successful instrument for schooling in the returns to education literature across a number of countries within our analysis, including the UK (Harmon and Walker, 1995; Oreopoulos, 2007; Grenet, 2008), Germany (Pischke and von Wachter, 2008), France (Grenet, 2008), Italy (Brunello and Miniaci, 1999), Ireland (Denny and Harmon, 2000), the Netherlands (Levin and Plug, 1999), Portugal (Vieira, 1999), and Spain (Pons and Gonzalo, 2002). Changes in compulsory schooling laws also appear to have an effect on other individual outcomes.[7] Indeed, a recent paper by Black et al. (2008)

[7]They include lifetime wealth, health, unemployment and overall happiness (Oreopoulos, 2007), as well as political interest and involvement in Britain and the US (Milligan et al., 2003). Moreover, these laws have been found to lower the likelihood of committing crime or ending up in jail (Lochner and Moretti, 2004), to increase life expectancy (Lleras-Muney, 2005) and productivity (Chevalier et al., 2004).

provides both an empirical and a theoretical justification for using RoSLA as an instrumental variable for teenage motherhood. They show how reforms in the school leaving age laws contribute to a reduction of the likelihood of teenage childbearing due to both an incarceration and a human capital effect. The former reduces the time out of school available to have a child, while the latter increases the current and expected future human capital which has a corresponding impact on delaying fertility through raising the opportunity costs. An appealing feature of our cross-country setting is that we can exploit the wide natural variation in the data caused by exogenous changes in compulsory schooling laws in 13 European Union countries since 1959. Table 2 lists the reforms that have taken place in each of the countries studied.[8]

In Section 5, we present OLS and IV estimates of the effects of teenage childbearing on children outcomes based on the following model:

$$\mathrm{Y}_i = \alpha_i + \beta \mathrm{T(J)}_i + \gamma \mathrm{Z}_i + \delta \mathrm{X}_i + \varepsilon_i, \quad \mathrm{J} \in \{16, 17, 18, 19\}, \tag{1}$$

$$\mathrm{T(J)}_i = \delta \mathrm{RoSLA} + \eta \mathrm{Mob}_i + \phi \mathrm{BIRTHYEAR}_i + \upsilon_i \tag{2}$$

where J= $16 \ldots 19$ is the age of the mother at the child's birth. The first equation examines the effect of being born to a teenage mother on adult children outcomes. X is a matrix of exogenous regressors, Z the matrix of excluded instruments where γ is the parameter that measures the plausi-

[8]Fort (2006) provides a survey of these changes as part of her review of the effects of individual's qualification levels on earnings.

bility of the exclusion restriction. We are worried that our instruments, Z, affect children outcomes not only via their effects on teenage motherhood and thus violate the exclusion restriction $E[Z'\varepsilon_i] \neq 0$. For example, Buckles and Hungerman (2008) shows that winter born mothers in disadvantaged environments are more exposed to extreme weather conditions and thus are more likely to have worse health and education outcomes later on. In accordance with the previous finding, child educational achievement would be affected directly by mother's MoB if for example having a depressed mother makes them do worse at school. Thus we also attempt to exploit the recent development of "plausible exogeneity" in Conley et al. (2008)[9] to try to make inferences about the effect of early motherhood without the assumption that the exclusion restriction $\gamma \neq 0$ holds exactly. While, Equation (2) relates the probability of having a first birth as a teenager, defined by J, to the RoSLA vector of dummies, a third order polynomial on mother's year of birth and a dummy variable which indicates whether (or not) the mother belongs to the younger group in her school cohort (country and year dummies are also included).

We note that the structure of the ECHP can also be used to reduce the contaminating effect of unobserved family influences. It is a longitudinal survey that interviews households and the individuals living in them in the first wave and follow them within the period of study, that is, from 1994 to

[9]ltz STATA code to implement the method is available on Hansen's website http://faculty.chicagogsb.edu/christian.hansen/research/.

2001. This provides details about the fertility of family members relations that enables us to match parents with their children and one sibling with another. First differences or fixed effects estimation in a sample of siblings then allows us to control for time-invariant unobserved family characteristics that could be affecting children's outcomes directly and not just through being born to a teenage mother. A drawback of this method is that it does not deal with the unobserved characteristics at the individual level that are potentially correlated with children's outcomes. Moreover, sample sizes of matched siblings are inevitably small.

4 Data

Our empirical analysis employs data from the European Community Household Panel – a longitudinal survey conducted by Eurostat from 1994 to 2001 for the countries of the EU 15.[10]

The appealing feature of this data set is that it enables us to identify mothers and their biological children and, thus, allows us to observe the correlates of being a teenage mother and how this relates to their child's outcomes. Moreover, it allows us to make cross-country comparisons regarding the negative effects of being born to a teenage mother on children.

For our analysis we select mothers and their biological children, aged from 16 to 18 years old, keeping multiple observations of siblings in the

[10] Austria and Finland joined the survey in 1995 and 1996, respectively.

same household.[11] A key issue in this framework is to specify an appropriate control group to act as a counterfactual. We choose young adults who were born to a mother who was 20-25 years old, rather than the more extensive definition of all non teens that is usually used.

Furthermore, we choose to give several definitions of "teen". T is defined as a mother that had her first birth at or below the age of 16, 17, 18, and 19. By varying the definition of teenage motherhood we observe whether childbearing in the early adolescent years[12] affects child outcomes more than in the later teens. That is, alternative definitions can help us to identify the critical age at which early motherhood matters for the child.

(Insert Table 1)

Table 1 reports the number of observations for the estimation sample for the pool of countries and, for each country separately. In total there are 7891 mothers who had their first birth by the age of 25. 1.10% gave birth at the age of 16, 3.24% at 17, 7.01% when they were 18 years old and 13.03% of them gave birth before their twentieth birthday.

The dependent variables are children completed education levels (ISCED) and daughter's teenage motherhood. The latter can be deduced from the dataset by combining information regarding the births within the household

[11] This procedure would not have detected those whose mother was a teenager when she gave birth to an older sibling in such a way that mother's age at first birth may be over-estimated. And thus, the effect is a lower-bound estimate of the effect of being born to a teenage mother.

[12] A tighter definition implies that the treatment group becomes smaller so that the precision of the estimates may fall.

during the period and the identity of the recipient of the associated child and maternity benefits. In Figure 1, we observe that the probability of continuing school after compulsory education is lower for children born from a teenage mother than for those born to a mother that was 20-25 when she gave birth. We can also see that the probability of giving birth in their teens is higher for daughters born to a teenage mother.

(Insert Figure 1)

We also employ a set of appropriate control variables for the mother and the child. They consist of education of the mother, net monthly wage of the mother and third order polynomial for mother's year of birth. The remaining explanatory variables include a third order polynomial for child's year of birth, year dummies and country fixed effects.

We now turn to the description of the employed instruments, mother's month of birth and the raising of school leaving age. Regarding the former, the variable Younger is a dummy variable which is set equal to unity if the mother belonged to the younger group in her school cohort and zero otherwise. Younger corresponds to the period March-August in the UK and Ireland, September-March in Luxembourg and Portugal and July-December for the rest of the countries.[13] Say that there was noticed by differences in school cohort definition across countries. Generally, girls who are young for their cohort are substantially more likely to be teenage mothers than those

[13]Estimates for Germany are identified with schooling laws only as month of birth is not available.

who are old for their cohort. It seems that young girls imitate the behaviour of their (slightly) older peers, but are not as clever at avoiding or mitigating the consequences.

(Insert Table 2)

RoSLA is a vector of three dummy variables describing the effect of legal changes in the compulsory level of education for each country. The RoSLA dummy takes the value of unity if the mother belongs to a birth cohort that was subject to extended compulsory schooling in that particular country and zero otherwise. This dummy is expected to pick up the effects of the reform in column 3 of Table 2. While, column 2 of the same Table indicates the year of birth of the first cohort affected by the reform in each of the countries. The remaining RoSLA variables aim at capturing the fact that the fathers of babies born to teenage mothers are older than the teen mother (Furstenberg et al., 1990). The rationale is that compulsory schooling laws may have an impact on potential fathers, and this would have a subsequent effect in reducing teenage births in addition to the immediate effect via mothers.

5 Results

5.1 OLS and IV estimates of the effect of teenage motherhood on children outcomes

Our findings provide evidence that, despite the fact that we can attribute most of the impact of teenage motherhood to previous disadvantage, such a negative effect fails to vanish with IV estimation.

(Insert Table 3)

Table 3 reports our regression estimates of the effect of teenage childbearing for each of the 13 countries in our sample by a Linear Probability Model (LPM). The first panel of the table shows estimated coefficients between adult children education outcomes and teenage motherhood by the age of 16, 17, 18 and 19 years old. While the second panel shows the probability of daughter's giving birth in their teens. Both panels correspond to our second specification, which includes a third order polynomial for child's year of birth –so as to take into account cohort effects– and their cohort-country interactions for the pool of countries sample. The rows labeled OLS show estimates under the assumption that teenage motherhood is exogenous. Overall, we observe that continuing school after compulsory education decreases by 4.3, (3.6 and 1.9) percentage points when born to a teenage mother at age 17, (18 and 19) comparing to being born to mothers between 20 and 25 years old. Large negative education effects are found for Belgium, Spain and the UK whereas they are very small in Denmark, Finland and France, although

we cannot say why these teens in these countries are less affected. The rows labeled IV present results from an over-identified instrumental variable procedure, which instruments teenage motherhood on both RoSLA and mother's month of birth.[14] In this case, we take into account the bias due to omitted variables and find a slightly larger negative effect of teenage motherhood on adult children education outcomes (4.6 with IV where 3.6 with OLS and 3.1 with IV where 1.9 with OLS). Note, however, that we might expect IV to be lower than OLS coefficients, given that unobserved determinants of fertility and socioeconomic status are negatively related.

The fact that we find higher IV than OLS can be explained through a Local Average Treatment Effect (LATE). That is, the average effect that we are capturing is that of those children born to a teenage mother for young adults whose mother has delayed childbearing as the reform was implemented. One possible explanation is that the RoSLA does not have the same effect in the whole population but affects the behaviour of just a small percentage of those exposed to the instrument (Oreopoulos, 2006). Specifically, it affects those that would have had offspring as teenagers if the reform would not have been implemented, but not those that were not going to become pregnant without the law. As a consequence, children's outcomes can be better if their mothers are influenced by the exclusion restrictions and have less expectations regarding education, worse socio-economic background or

[14]We also employ as exclusion restrictions a third order polynomial for mother's year of birth –to take into account mother's cohort effects– and their corresponding cohort-country interactions when pooling data across countries.

preferences for bigger families.[15] Another explanation is that RoSLA and teenage motherhood are weakly correlated. In this case, IV estimates expose a weak IV problem and are even more biased than OLS (Bound et al., 1995).

Turning to Panel 2 of Table 3, we observe the probability for daughters of teenage mothers of becoming teenage mothers themselves, by the age of the mother at her first birth. Starting with the OLS rows, we point out that the effect of being born to a teenage mother on daughters giving birth at 16 or below is 5.7%. That is, it is worse for a tighter definition of being a teenage mother. However, it decreases to 3.8%, 3.1%, and 4.0% as we move on through the different definitions of teenage motherhood. The IV estimates of teenage motherhood on second generation fertility behavior exhibit a similar pattern with the OLS case. In particular, the causal effects decrease from 5.7%, to 4.2%. Overall, the daughters of teenage mothers are significantly more likely to also give birth as teenagers.[16] These results are very close to those of Francesconi (2008) for the UK (2.7% likelihood of becoming a teenage mother) but not to those of Ermisch and Pevalin (2003) and Pevalin (2003) (2 to 4 times more likely to give birth as teens for daughters of teenage mothers).

We now move to the comparison of the results–displayed in Panel 2 of Table 3– across countries. Initially, we focus on daughter's of mothers that

[15]LATE coincides with the average treatment effect (ATE) among those exposed to the treatment if mother's childbearing responses to compulsory schooling laws are independent of those that determine children outcomes.

[16]There seems to be a gender difference as it is weaker for sons than for daughters (Hardy et al., 1998).

gave birth before 19 or 20. In Germany, Finland, Italy, Portugal and Spain, daughters born to a teenage mother seem to behave as the average of the pool of countries. Whereas, in Belgium, Ireland and the UK second generation girls seem to imitate their parent's past behavior regarding fertility at 18 and 19 years old. This is also true for Italy and Portugal for age 16 and younger, and for Italy, Spain and the UK when mothers give birth below 18 years old. The failure of detecting statistical significance coefficients in some countries such as Denmark and the Netherlands might be due to the small sample size of the variable in these countries as teenage birth rates are very low or to national policies that are effective.

(Insert Table 4)

In order to shed light on the stability of our coefficients, we conduct a sensitivity analysis based on four specifications that utilize different control variables. The first specification has no covariates apart from teenage motherhood and year and country dummies (if required). Specification 2 includes also a third order polynomial for child's year of birth and its corresponding cohort-country interactions. Specification 3 adds to the previous specification two dummy variables for mother's education level. Finally, the last specification further includes mother's net monthly wage. OLS, IV and PE estimates, as well as, the number of observations in each of the samples, the Partial R^2, the F-test for exclusion restrictions and the corresponding p-values, and the Sargan test of over-identification for all the specifications for the pool of countries are shown in Table 4. Our findings for Europe as a

whole are qualitatively similar with those of the ISER research for the UK (see, e.g., Ermisch and Pevalin, 2003; Pevalin, 2003; Francesconi, 2008) in the sense that children of teenage mothers tend to have lower educational attainment and exhibit a higher risk of becoming teenage parents themselves. The former result holds also for the remaining specifications.[17] That is, including a larger number of controls does not appear to have an impact on the coefficient and its statistical significance. Overall, we find that there is a causal negative effect of being born to a teenage mother on children education and fertility outcomes which is robust to a number of different specifications.

The above results of the different specifications for each of the countries separately are shown in the Appendix. Where Tables A.1-A.4 present OLS and IV estimates of teenage motherhood on second generation education outcomes and Tables A.5-A.8 report the likelihood of teenage motherhood for the sample of daughters.

To conclude with the findings of this subsection we should note the rows PE in Table 4. They are giving us the point estimate of teenage motherhood and its corresponding confidence interval allowing for violation of the complete exogeneity condition in an IV framework. To supplement this idea we draw a distribution for γ that corresponds to the restricted variance covariance matrix of Equation (1). In such a way that we set the mean of γ to 0

[17]Abortion rates for the different years and countries have been taken from Historical Abortion Statistics by country in http://www.johnstonsarchive.net/policy/abortion/index.html and do not change our results when introduced so as to predict the likelihood of teenage motherhood.

but we allow the matrix of instruments to have a VCM structure. We observe that (for a loose definition of teenage motherhood) we can still provide inference of the causal effect of teenage motherhood on children outcomes even allowing for a direct effect of the matrix of instruments in both children education (7.5% and 3% for specifications 1 and 2, respectively) and fertility outcomes (2.6% and 2.7% for specifications 1 and 2 respectively).

5.2 Sisters fixed effects estimates of teenage motherhood

Following the literature on mothers' outcomes we provide estimates of sisters fixed effects by making use of different siblings within the same household during the same year (Geronimus et al., 1994). This methodology mitigates the endogeneity problem that is produced by unobserved family characteristics that are common within siblings or sisters. The results presented in Table 5 suggest that daughters of teenage mothers are 8.8% more likely of becoming teenage mothers themselves. However, such a percentage is reduced to 4.2 when we deal with unobserved individual characteristics through IV techniques (see Table 4).

(Insert Table 5)

5.3 Standardized effects of teenage motherhood

Finally, in order to allow comparison of our findings with the empirical literature on teenage motherhood on different dependent variables,[18] that come from other IV and alternative methods, we adopt the methodology that appears in Blau (1999). In what follows, we standardize the results by dividing the coefficient obtained in the different studies by the standard deviation of the corresponding dependent variable.

Starting with child outcomes: the effect of being born to a teenage mother ranges from 350% to 878.13% of an SD increase in age at first birth of second generation in Manlove (1997). Whereas, it increases age at birth by 6.13% of an SD in Card (1981).

Turning to the existing literature on mother's outcomes, we observe a wide range of standarized coefficient values even in the same study. For instance, Bronars and Grogger (1994) find a decrease from 1.29% to 916.36% of an SD in mother's and family earnings respectively and a reduction of 1590.60% of an SD in years of education. Ribar (1999) adopts a DD framework and shows a reduction between 3.69% and 419.04% of an SD. The above numbers correspond to log family income accounting for family fixed effects and to completed years of education when using sisters IV, respectively. In Goodman et al. (2004), where miscarriages are used as an IV, we observe a reduction of 21.23% for log equivalised family income and 9.93% for the age they left full-time education. Furthermore, in Fletcher and Wolfe (2009) a

[18] Outcomes of both first and second generation.

lower bound decrease of 6.47% and 51.39% with and without fixed effects of an SD of the years of education is obtained as a result of having given birth as a teenager.

An interesting study is that of Pepper et al. (2002) for which we estimate a reduction of the education scores by 2.54% to 22.19% of an SD for the sample of non-blacks, and an improvement across some of the different outcomes for the sample of blacks. Finally, for the study of Chevalier and Viitanen (2003) the largest impact corresponds to a 73.97% reduction of an SD in labour participation whereas in Goodman et al. (2004) that was calculated to be a 34.6%.

6 Conclusions

This is the first paper that provides evidence in favour of a causal effect of teenage motherhood on second generation education and fertility outcomes across Europe. First, we illustrate that the likelihood of giving birth as a teenager is reduced with the raising of the minimum school leaving age while it increases when the mother belongs to the youngest group in her school cohort. Second, by employing OLS, IV and sisters fixed effect techniques we find that: i) the probability of continuing school after compulsory education decreases when born to a teenage mother even when we account for the potential omitted variable bias; ii) daughters of teenage mothers are significantly more likely to give birth as teenagers themselves with the magnitude

of the effect reducing, but not vanishing, when we take into account unobserved factors. Third, we can still make inferences about the causal effect of teenage motherhood on children outcomes when we relax the complete exogeneity condition in an IV framework. Finally, we adopt a standardization procedure which enables our results to be compared with the existing literature that is concerned with other outcomes.

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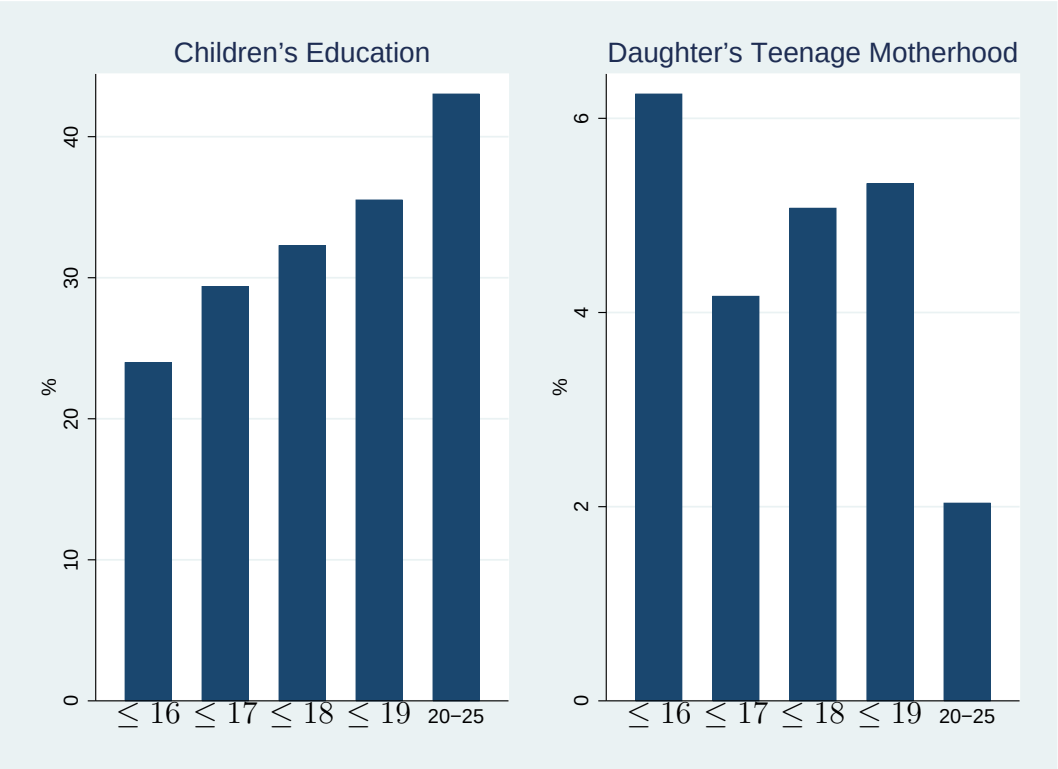

Figure 1: Proportion of children continuing school after compulsory education and daughter's giving birth in their teens by their mother's age at his/her birth

Table 1: Number and proportion of mothers in the corresponding age groups

Country	20-25	TeenMum16			TeenMum17			TeenMum18			TeenMum19		
	N	N	Total	%	N	Total	%	N	Total	%	N	Total	%
Austria	416	9	425	2.12	17	433	3.93	36	452	7.96	66	482	13.69
Belgium	214	1	215	0.47	3	217	1.38	7	221	3.17	17	231	7.36
Germany	826	6	832	0.72	26	852	3.05	57	883	6.46	137	963	14.23
Denmark	172	1	173	0.58	2	174	1.15	9	181	4.97	20	192	10.42
Spain	880	8	888	0.90	33	913	3.61	72	952	7.56	122	1,002	12.18
Finland	363	1	364	0.27	8	371	2.16	16	379	4.22	36	399	9.02
France	477	1	478	0.21	2	479	0.42	18	495	3.64	45	522	8.62
Greece	666	20	686	2.92	43	709	6.06	89	755	11.79	170	836	20.33
Netherlands	374	2	376	0.53	6	380	1.58	14	388	3.61	25	399	6.27
Ireland	337	2	339	0.59	6	343	1.75	17	354	4.80	39	376	10.37
Italy	825	5	830	0.60	25	850	2.94	54	879	6.14	99	924	10.71
Luxembourg	74	0	74	0.00	1	75	1.33	4	78	5.13	8	82	9.76
Portugal	701	18	719	2.50	43	744	5.78	85	786	10.81	158	859	18.39
UK	538	2	540	0.37	15	553	2.71	39	577	6.76	86	624	13.78
Total	6,863	76	6,939	1.10	230	7,093	3.24	517	7,380	7.01	1,028	7,891	13.03

Note: Teen Mum 16, 17, 18 or 19 stands for the age of the mother at the child's birth.

Table 2: Schooling Reforms in European Countries

Country	First cohort	Year Reform	Reform	References
Austria	1947	1962	$14 \rightarrow 15$	
Belgium	1969	1983	$14 \rightarrow 18$	
Denmark	1957	1971	$14 \rightarrow 16$	Bingley et al, 2005
Finland	1961	1972-1977	$13 \rightarrow 16$	
France	1953	1959	$14 \rightarrow 16$ (14 in 1967)	Grenet, 2008
Germany	1953	1949-1967	$14 \rightarrow 15$ (14 in 1967)	Pischke and Von Watcher, 2005
Greece	1952	1964	$12 \rightarrow 15$	
Ireland	1958	1972	$14 \rightarrow 15$	Denny and Harmon, 2000
Italy	1949	1963	$11 \rightarrow 13$ (14 in 1963)	
Netherlands	1959	1975	$15 \rightarrow 16$	
Portugal	1952	1964	$12 \rightarrow 14$	
Spain	1958	1970	$12 \rightarrow 14$	Pons and Gonzalo, 2002
UK	1958	1973	$15 \rightarrow 16$	Harmon and Walker, 1995

Note: Information in this table is taken from (Fort, 2006) and Eurybase (2009): the Eurydice database on education systems in Europe.

Table 3: Effect of being born to a teenage mother on adult children's education and fertility outcomes (LPM)

	POOL	AU	BE	DK	FI	FR	GER	GR	IRE	IT	NT	PO	SP	UK
Panel 1. Dependent variable: Children's Education														
TeenMum 16														
OLS	-0.020	0.031	-0.172	-0.012	-0.017	0.025	-0.010	-0.082	-0.124	0.101	-0.076	0.035	-0.040	-0.381
	(0.037)	(0.088)	(0.344)	(0.187)	(0.117)	(0.190)	(0.064)	(0.087)	(0.272)	(0.122)	(0.179)	(0.058)	(0.149)	(0.325)
IV	0.010	0.116	-0.652	-0.239	-0.038	-0.066	-0.004	-0.154	0.289	0.083	-0.144	0.151^{a}	-0.123	-0.466
	(0.057)	(0.139)	(0.889)	(0.456)	(0.122)	(0.564)	(0.104)	(0.119)	(0.358)	(0.198)	(0.376)	(0.082)	(0.284)	(1.086)
Observations	6939	425	215	173	364	478	832	686	339	830	376	719	888	540
TeenMum 17														
OLS	-0.043^{b}	-0.024	-0.328^{a}	-0.007	-0.018	0.001	0.016	-0.069	0.040	0.017	-0.108	0.003	-0.173^{b}	-0.093
	(0.021)	(0.064)	(0.196)	(0.131)	(0.042)	(0.134)	(0.031)	(0.060)	(0.159)	(0.055)	(0.104)	(0.038)	(0.074)	(0.120)
IV	-0.036	0.043	-0.740^{a}	-0.063	-0.007	-0.486	0.047	-0.132^{a}	0.370^{a}	-0.019	-0.105	0.070	-0.242^{b}	-0.054
	(0.031)	(0.088)	(0.437)	(0.222)	(0.059)	(0.470)	(0.048)	(0.078)	(0.219)	(0.088)	(0.166)	(0.050)	(0.108)	(0.217)
Observations	7093	433	217	174	371	479	852	709	343	850	380	744	913	553
TeenMum 18														
OLS	-0.036^{b}	0.027	-0.193	-0.029	-0.015	0.024	-0.005	-0.045	0.066	0.031	-0.003	-0.031	-0.109^{b}	-0.195^{c}
	(0.015)	(0.046)	(0.126)	(0.061)	(0.029)	(0.045)	(0.021)	(0.043)	(0.096)	(0.039)	(0.069)	(0.027)	(0.051)	(0.075)
IV	-0.046^{b}	0.062	-0.381^{a}	-0.041	-0.002	-0.033	0.015	-0.113^{b}	0.270^{b}	-0.004	-0.048	0.013	-0.174^{c}	-0.173
	(0.020)	(0.062)	(0.227)	(0.091)	(0.040)	(0.071)	(0.031)	(0.054)	(0.130)	(0.058)	(0.097)	(0.034)	(0.067)	(0.112)
Observations	7380	452	221	181	379	495	883	755	354	879	388	786	952	577
TeenMum 19														
OLS	-0.019^{a}	-0.019	-0.053	-0.027	-0.012	-0.009	0.015	-0.025	0.057	0.014	0.004	-0.014	-0.077^{a}	-0.119^{b}
	(0.011)	(0.035)	(0.083)	(0.041)	(0.019)	(0.029)	(0.015)	(0.033)	(0.067)	(0.029)	(0.053)	(0.021)	(0.040)	(0.052)
IV	-0.031^{b}	0.035	-0.144	-0.032	0.000	-0.048	0.019	-0.083^{b}	0.187^{b}	-0.003	-0.039	0.005	-0.128^{b}	-0.115
	(0.014)	(0.047)	(0.122)	(0.054)	(0.026)	(0.043)	(0.021)	(0.042)	(0.090)	(0.041)	(0.070)	(0.026)	(0.051)	(0.071)
Observations	7891	482	231	192	399	522	963	836	376	924	399	859	1002	624
Panel 2. Dependent variable: Daughter's teenage motherhood														
TeenMum 16														
OLS	0.057^{c}	-0.024			-0.095	-0.000	-0.008	0.000	-0.071	0.238^{c}		0.117^{b}	-0.003	
	(0.019)	(0.064)			(0.195)	(0.066)	(0.050)	(0.000)	(0.154)	(0.049)		(0.049)	(0.036)	
IV	0.057^{b}	-0.024			-0.083	0.012	-0.001	0.000	-0.081	0.171^{c}		0.126^{a}	-0.049	
	(0.027)	(0.091)			(0.194)	(0.152)	(0.066)	(0.000)	(0.292)	(0.064)		(0.066)	(0.080)	
Observations	3361	207			192	239	409	328	160	402		347	407	
TeenMum 17														
OLS	0.038^{c}	-0.021			-0.030	-0.012	-0.010	0.000	-0.024	0.081^{c}	0.000	0.048	0.110^{c}	0.157^{a}
	(0.012)	(0.046)			(0.074)	(0.047)	(0.025)	(0.000)	(0.088)	(0.030)	(0.000)	(0.036)	(0.024)	(0.094)
IV	0.047^{c}	-0.017			0.077	0.037	-0.026	0.000	-0.042	0.123^{c}	0.000	0.059	0.104^{c}	0.222
	(0.016)	(0.060)			(0.090)	(0.118)	(0.037)	(0.000)	(0.110)	(0.047)	(0.000)	(0.045)	(0.034)	(0.179)
Observations	3432	212			198	240	418	336	162	409	189	359	420	264
TeenMum 18														
OLS	0.031^{c}	-0.022	0.500^{c}	0.000	0.049	-0.005	0.028	0.000	0.098^{a}	0.037^{a}	0.000	0.044	0.047^{c}	0.023
	(0.008)	(0.032)	(0.056)	(0.000)	(0.059)	(0.020)	(0.019)	(0.000)	(0.057)	(0.022)	(0.000)	(0.028)	(0.016)	(0.054)
IV	0.040^{c}	-0.014	0.500^{c}	0.000	0.078	0.010	0.004	0.000	0.122^{a}	0.068^{b}	0.000	0.054	0.049^{b}	0.069
	(0.011)	(0.041)	(0.132)	(0.000)	(0.073)	(0.029)	(0.028)	(0.000)	(0.068)	(0.033)	(0.000)	(0.035)	(0.020)	(0.080)
Observations	3565	222	103	95	203	249	433	356	168	419	189	378	442	274
TeenMum 19														
OLS	0.040^{c}	0.011	0.242^{c}	0.000	0.011	-0.005	0.035^{b}	0.000	0.137^{c}	0.039^{b}	0.000	0.052^{b}	0.044^{c}	0.100^{b}
	(0.007)	(0.027)	(0.045)	(0.000)	(0.045)	(0.015)	(0.015)	(0.000)	(0.045)	(0.017)	(0.000)	(0.023)	(0.014)	(0.040)
IV	0.042^{c}	0.008	0.252^{c}	0.000	0.056	0.007	0.018	0.000	0.133^{b}	0.056^{b}	0.000	0.044	0.047^{c}	0.127^{b}
	(0.009)	(0.035)	(0.073)	(0.000)	(0.057)	(0.021)	(0.021)	(0.000)	(0.056)	(0.023)	(0.000)	(0.029)	(0.017)	(0.059)
Observations	3808	236	109	101	212	259	472	393	178	443	195	415	466	294

Note: a, b and c indicate statistical significance at the 10%, the 5 % and the 1% levels, respectively. Standard Errors in Parentheses. Country dummies are included in the equations for the pool estimation but not reported. Each cell represents a separate regression. IV: instrumental variables using Stata's 9.1. ivreg2 with RoSLA and Mob as instruments.

Table 4: Effect of being born to a teenage mother on adult children's education and fertility outcomes

Outcomes	Panel 1. Children's Education				Panel 2. Daughter's Teenage Motherhood			
Specifications	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
TeenMum 16								
OLS	-0.022	-0.020	-0.011	-0.010	0.058^{c}	0.057^{c}	0.058^{c}	0.058^{c}
	(0.040)	(0.037)	(0.037)	(0.037)	(0.019)	(0.019)	(0.019)	(0.019)
IV	-0.157^{b}	0.010	0.025	0.028	0.070^{b}	0.057^{b}	0.059^{b}	0.059^{b}
	(0.065)	(0.057)	(0.057)	(0.057)	(0.029)	(0.027)	(0.027)	(0.027)
PE	-0.152	0.004	0.019	0.022	0.050	0.042	0.044	0.043
	[-0.350 0.046]	[-0.181 0.188]	[-0.166 0.203]	[-0.162 0.207]	[-0.004 0.104]	[-0.011 0.094]	[-0.009 0.096]	[-0.010 0.096]
Obs	6939	6939	6939	6939	3361	3361	3361	3361
Part R^2	0.3736	0.4115	0.4102	0.4102	0.4154	0.4709	0.4695	0.4695
F-test IVs	89.12	103.86	103.26	103.23	50.92	62.97	62.57	62.56
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	634.72	46.44	45.94	44.77	65.56	58.68	59.87	59.31
	0.0000	0.4129	0.4330	0.4816	0.0243	0.0828	0.0681	0.0748
TeenMum 17								
OLS	-0.050^{b}	-0.043^{b}	-0.037^{a}	-0.036^{a}	0.037^{c}	0.038^{c}	0.040^{c}	0.039^{c}
	(0.023)	(0.021)	(0.021)	(0.021)	(0.012)	(0.012)	(0.012)	(0.012)
IV	-0.145^{c}	-0.036	-0.026	-0.024	0.046^{c}	0.047^{c}	0.049^{c}	0.049^{c}
	(0.035)	(0.031)	(0.031)	(0.031)	(0.017)	(0.016)	(0.016)	(0.016)
PE	-0.142	-0.036	-0.026	-0.024	0.040	0.040	0.042	0.042
	[-0.252 -0.032]	[-0.140 0.067]	[-0.130 0.078]	[-0.127 0.080]	[0.009 0.071]	[0.010 0.071]	[0.011 0.073]	[0.011 0.072]
	7093	7093	7093	7093	3432	3432	3432	3432
Part R^2	0.4407	0.4706	0.4682	0.4681	0.4579	0.5059	0.5032	0.5031
F-test IVs	120.37	135.01	133.69	133.62	61.82	74.02	73.16	73.13
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	641.57	60.56	61.12	59.50	62.53	51.41	52.26	51.46
	0.0000	0.0605	0.0549	0.0724	0.0428	0.2372	0.2127	0.2358
TeenMum 18								
OLS	-0.041^{c}	-0.036^{b}	-0.031^{b}	-0.029^{b}	0.030^{c}	0.031^{c}	0.032^{c}	0.031^{c}
	(0.016)	(0.015)	(0.015)	(0.015)	(0.008)	(0.008)	(0.008)	(0.008)
IV	-0.106^{c}	-0.046^{b}	-0.038^{a}	-0.036^{a}	0.042^{c}	0.040^{c}	0.042^{c}	0.041^{c}
	(0.022)	(0.020)	(0.020)	(0.020)	(0.011)	(0.011)	(0.011)	(0.011)
PE	-0.108	-0.045	-0.038	-0.035	0.033	0.033	0.034	0.033
	[-0.181 -0.035]	[-0.114 .024]	[-0.108 0.032]	[-0.105 0.034]	[0.011 0.054]	[0.011 0.054]	[0.012 0.055]	[0.012 0.055]
	7380	7380	7380	7380	3565	3565	3565	3565
Part R^2	0.4998	0.5209	0.5169	0.5167	0.5088	0.5434	0.5399	0.5397
F-test IVs	158.92	171.91	169.12	168.98	78.81	89.48	88.15	88.07
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	633.16	67.12	68.24	66.82	60.16	53.14	53.98	53.28
	0.0000	0.0179	0.0143	0.0190	0.0648	0.1893	0.1688	0.1857
TeenMum 19								
OLS	-0.024^{b}	-0.019^{a}	-0.016	-0.016	0.040^{c}	0.040^{c}	0.041^{c}	0.040^{c}
	(0.011)	(0.011)	(0.011)	(0.011)	(0.007)	(0.007)	(0.007)	(0.007)
IV	-0.069^{c}	-0.031^{b}	-0.026^{a}	-0.025^{a}	0.042^{c}	0.042^{c}	0.043^{c}	0.043^{c}
	(0.016)	(0.014)	(0.014)	(0.014)	(0.009)	(0.009)	(0.009)	(0.009)
PE	-0.075	-0.030	-0.025	-0.024	0.026	0.027	0.028	0.028
	[-0.127 -0.022]	[-0.081 0.020]	[-0.076 0.026]	[-0.075 0.027]	[0.009 0.043]	[0.010 0.044]	[0.0114 0.045]	[0.011 0.045]
	7891	7891	7891	7891	3808	3808	3808	3808
Part R^2	0.5362	0.5497	0.5445	0.5446	0.5314	0.5493	0.5448	0.5447
F-test IVs	196.66	206.55	202.26	202.26	92.29	98.08	96.25	96.17
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	641.91	69.66	70.84	69.42	61.65	63.19	63.85	62.32
	0.0000	0.0106	0.0083	0.0112	0.0500	0.0380	0.0336	0.0445

Note: a, b and c indicate statistical significance at the 10%, the 5 % and the 1% levels, respectively. Standard Errors in Parentheses. Each cell represents a separate regression. Specification (1) has no controls, (2) includes a third order polynomial for child's year of birth and its corresponding cohort-country interactions, (3) adds two dummy variables for mother's education level, (4) adds mother's net monthly wage.

Table 5: Effect of Teenage Motherhood on daughter's probability of giving birth in their teens. Sisters fixed effect estimation

Countries	Obs	Teen motherhood
POOL	1074	0.088^{c}
	675	(0.022)
AU	70	0.000
	44	(0.000)
BE	24	1.000
	16	(0.000)
DK	28	0.000
	18	(0.000)
FI	44	0.000
	30	(0.277)
FR	64	0.000
	41	(0.000)
GER	130	0.167^{b}
	79	(0.067)
GR	123	0.000
	70	(0.000)
IRE	71	0.187
	47	(0.160)
IT	123	0.000
	84	(0.091)
NT	49	0.000
	32	(0.000)
PO	131	0.119^{a}
	79	(0.070)
SP	154	0.064
	98	(0.047)
UK	60	0.200
	35	(0.122)

Appendix

Table A.1: Effect of being born to a mother below 17 on adult children's education outcomes

TeenMum 16	POOL	AU	BE	DK	FI	FR	GER	GR	IRE	IT	NT	PO	SP	UK
Specification (1): no controls														
OLS	-0.022	0.005	-0.455	-0.000	-0.019	0.024	-0.007	-0.049	-0.146	0.100	-0.129	0.035	-0.072	-0.311
	(0.040)	(0.096)	(0.347)	(0.181)	(0.118)	(0.190)	(0.064)	(0.091)	(0.276)	(0.121)	(0.187)	(0.058)	(0.151)	(0.324)
IV	-0.157^b	-0.034	-0.711	-0.307	-0.046	-0.035	-0.018	-0.169	0.243	0.074	-0.330	0.134	-0.414	-0.850
	(0.065)	(0.152)	(1.043)	(0.480)	(0.124)	(0.569)	(0.105)	(0.125)	(0.365)	(0.198)	(0.413)	(0.083)	(0.293)	(1.147)
Obs	6939	425	215	173	364	478	832	686	339	830	376	719	888	540
Part R^2	0.3736	0.3901	0.1066	0.1365	0.8963	0.1090	0.3700	0.5240	0.5625	0.3726	0.2008	0.4919	0.2663	0.0790
F-test IVs	89.12	66.20	6.06	3.57	433.35	8.09	80.06	105.54	59.51	121.44	12.96	97.36	45.26	6.44
Prob > F	0.0000	0.0000	0.0001	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	634.72	2.93	5.14	5.48	1.35	17.24	8.17	25.73	5.28	0.96	4.68	4.82	12.73	2.25
	0.0000	0.4023	0.1619	0.4839	0.9689	0.0085	0.1473	0.0002	0.5087	0.8102	0.5851	0.5667	0.0475	0.8950
Specification (2): child's cohorts and cohorts*country interactions														
OLS	-0.020	0.031	-0.172	-0.012	-0.017	0.025	-0.010	-0.082	-0.124	0.101	-0.076	0.035	-0.040	-0.381
	(0.037)	(0.088)	(0.344)	(0.187)	(0.117)	(0.190)	(0.064)	(0.087)	(0.272)	(0.122)	(0.179)	(0.058)	(0.149)	(0.325)
IV	0.010	0.116	-0.652	-0.239	-0.038	-0.066	-0.004	-0.154	0.289	0.083	-0.144	0.151^a	-0.123	-0.466
	(0.057)	(0.139)	(0.889)	(0.456)	(0.122)	(0.564)	(0.104)	(0.119)	(0.358)	(0.198)	(0.376)	(0.082)	(0.284)	(1.086)
Obs	6939	425	215	173	364	478	832	686	339	830	376	719	888	540
Part R^2	0.4115	0.3895	0.1429		0.8968	0.1108	0.3722	0.5269	0.5622	0.3721		0.4937	0.2735	0.0876
F-test IVs	103.86	65.56	8.33		431.85	8.19	80.53	106.28	58.88	120.72		97.64	46.80	7.16
Prob > F	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000
Sargan	46.44	4.01	3.10		4.14	16.74	12.85	17.56	3.33	0.94		3.31	7.72	4.39
	0.4129	0.2601	0.3766		0.6577	0.0103	0.0248	0.0074	0.7660	0.8158		0.7695	0.2597	0.6246
Specification (3): adds to specif (2) two dummy variables for mother's highest education level reached														
OLS	-0.011	0.030	-0.212	-0.009	-0.015	0.040	-0.012	-0.076	-0.116	0.098	-0.062	0.043	-0.016	-0.348
	(0.037)	(0.089)	(0.343)	(0.189)	(0.118)	(0.190)	(0.064)	(0.088)	(0.274)	(0.122)	(0.183)	(0.056)	(0.149)	(0.324)
IV	0.025	0.109	-1.151	-0.323	-0.037	0.053	-0.008	-0.141	0.309	0.069	-0.123	0.170^b	-0.088	-0.334
	(0.057)	(0.143)	(0.897)	(0.466)	(0.123)	(0.568)	(0.103)	(0.120)	(0.359)	(0.198)	(0.382)	(0.080)	(0.283)	(1.087)
Obs	6939	425	215	173	364	478	832	686	339	830	376	719	888	540
Part R^2	0.4102	0.3773	0.1416		0.8954	0.1088	0.3746	0.5239	0.5610	0.3721		0.4933	0.2731	0.0864
F-test IVs	103.26	61.96	8.17		423.08	7.99	81.18	104.68	58.24	120.46		97.22	46.59	7.03
Prob > F	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000
Sargan	45.94	3.91	3.83		3.41	16.54	13.12	17.60	3.33	1.16		3.20	7.12	5.58
	0.4330	0.2711	0.2807		0.7565	0.0111	0.0223	0.0073	0.7669	0.7637		0.7832	0.3095	0.4716
Specification (4): adds to specif (2) two dummy variables for mother's highest education level reached and mother's net monthly wage														
OLS	-0.010	0.031	-0.210	0.004	-0.014	0.039	-0.012	-0.074	-0.098	0.096	-0.061	0.043	-0.015	-0.303
	(0.037)	(0.089)	(0.344)	(0.190)	(0.118)	(0.190)	(0.064)	(0.088)	(0.272)	(0.122)	(0.183)	(0.056)	(0.149)	(0.323)
IV	0.028	0.110	-1.135	-0.341	-0.035	0.064	-0.008	-0.139	0.317	0.067	-0.125	0.171^b	-0.085	-0.020
	(0.057)	(0.143)	(0.898)	(0.463)	(0.123)	(0.566)	(0.103)	(0.121)	(0.356)	(0.198)	(0.380)	(0.080)	(0.282)	(1.096)
Obs	6939	425	215	173	364	478	832	686	339	830	376	719	888	540
Part R^2	0.4102	0.3773	0.1413		0.8954	0.1093	0.3750	0.5210	0.5612	0.3720		0.4934	0.2731	0.0843
F-test IVs	103.23	61.79	8.10		421.70	8.01	81.21	103.33	58.10	120.27		97.10	46.53	6.82
Prob > F	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000
Sargan	44.77	3.90	3.87		3.45	16.06	13.14	17.56	3.03	1.10		3.15	7.18	5.21
	0.4816	0.2724	0.2758		0.7501	0.0134	0.0221	0.0074	0.8056	0.7769		0.7903	0.3041	0.5166

Note: a, b and c indicate statistical significance at the 10%, the 5 % and the 1% levels, respectively. Standard Errors in Parentheses. Country dummies are included in the equations for the pool estimation but not reported. Each cell represents a separate regression.

Table A.2: Effect of being born to a mother below 18 on adult children's education outcomes

TeenMum 17	POOL	AU	BE	DK	FI	FR	GER	GR	IRE	IT	NT	PO	SP	UK
Specification (1): no controls														
OLS	-0.050^b	-0.035	-0.313	0.000	-0.020	-0.001	0.017	-0.080	0.020	0.022	-0.121	0.005	-0.180^b	-0.064
	(0.023)	(0.070)	(0.203)	(0.128)	(0.042)	(0.134)	(0.032)	(0.063)	(0.161)	(0.055)	(0.108)	(0.038)	(0.075)	(0.120)
IV	-0.145^c	-0.048	-0.636	-0.088	-0.023	-0.478	0.041	-0.164^b	0.336	-0.029	-0.191	0.061	-0.353^c	-0.069
	(0.035)	(0.096)	(0.456)	(0.236)	(0.059)	(0.478)	(0.049)	(0.082)	(0.223)	(0.089)	(0.180)	(0.050)	(0.112)	(0.219)
Obs	7093	433	217	174	371	479	852	709	343	850	380	744	913	553
Part R^2	0.4407	0.5138	0.1929	0.2822	0.4895	0.0793	0.4122	0.5808	0.5161	0.3822	0.3543	0.5661	0.4523	0.2962
F-test IVs	120.37	111.48	12.25	8.93	49.04	5.71	97.96	137.38	49.98	129.59	28.61	135.87	105.95	32.34
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	641.57	3.03	4.14	5.87	1.36	15.78	7.70	26.19	5.06	0.51	5.26	6.98	11.85	4.30
	0.0000	0.3875	0.2471	0.4378	0.9682	0.0150	0.1736	0.0002	0.5365	0.9158	0.5112	0.3225	0.0654	0.6364
Specification (2): child's cohorts and cohorts*country interactions														
OLS	-0.043^b	-0.024	-0.328^a	-0.007	-0.018	0.001	0.016	-0.069	0.040	0.017	-0.108	0.003	-0.173^b	-0.093
	(0.021)	(0.064)	(0.196)	(0.131)	(0.042)	(0.134)	(0.031)	(0.060)	(0.159)	(0.055)	(0.104)	(0.038)	(0.074)	(0.120)
IV	-0.036	0.043	-0.740^a	-0.063	-0.007	-0.486	0.047	-0.132^a	0.370^a	-0.019	-0.105	0.070	-0.242^b	-0.054
	(0.031)	(0.088)	(0.437)	(0.222)	(0.059)	(0.470)	(0.048)	(0.078)	(0.219)	(0.088)	(0.166)	(0.050)	(0.108)	(0.217)
Obs	7093	433	217	174	371	479	852	709	343	850	380	744	913	553
Part R^2	0.4706	0.5163	0.1936		0.4929	0.0818	0.4153	0.5807	0.5156	0.3880		0.5689	0.4719	0.2990
F-test IVs	135.01	111.81	12.13		49.29	5.87	98.85	136.71	49.41	132.33		136.88	114.23	32.60
Prob > F	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000
Sargan	60.56	3.13	2.43		4.03	15.21	11.31	17.18	3.23	0.83		5.23	9.32	5.01
	0.0605	0.3722	0.4890		0.6731	0.0187	0.0456	0.0087	0.7795	0.8411		0.5148	0.1561	0.5423
Specification (3): adds to specif (2) two dummy variables for mother's highest education level reached														
OLS	-0.037^a	-0.025	-0.362^a	-0.018	-0.023	0.017	0.015	-0.062	0.047	0.016	-0.091	0.009	-0.160^b	-0.076
	(0.021)	(0.066)	(0.195)	(0.133)	(0.042)	(0.135)	(0.032)	(0.061)	(0.160)	(0.056)	(0.105)	(0.037)	(0.074)	(0.120)
IV	-0.026	0.041	-1.031^b	-0.118	-0.018	-0.366	0.045	-0.121	0.391^a	-0.028	-0.096	0.085^a	-0.219^b	-0.046
	(0.031)	(0.092)	(0.445)	(0.226)	(0.059)	(0.478)	(0.048)	(0.079)	(0.221)	(0.089)	(0.168)	(0.049)	(0.107)	(0.214)
Obs	7093	433	217	174	371	479	852	709	343	850	380	744	913	553
Part R^2	0.4682	0.4955	0.1909		0.4887	0.0782	0.4187	0.5764	0.5112	0.3853		0.5683	0.4703	0.3036
F-test IVs	133.69	102.40	11.80		48.20	5.56	99.99	133.94	48.26	130.56		136.17	113.26	33.20
Prob > F	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000
Sargan	61.12	3.05	2.35		3.44	15.62	11.43	17.36	3.14	0.95		5.30	9.20	6.04
	0.0549	0.3837	0.5028		0.7515	0.0160	0.0435	0.0080	0.7908	0.8122		0.5062	0.1625	0.4185
Specification (4): adds to specif (2) two dummy variables for mother's highest education level reached and mother's net monthly wage														
OLS	-0.036^a	-0.025	-0.360^a	-0.015	-0.023	0.019	0.014	-0.062	0.047	0.016	-0.091	0.009	-0.156^b	-0.061
	(0.021)	(0.066)	(0.196)	(0.133)	(0.042)	(0.135)	(0.032)	(0.061)	(0.159)	(0.056)	(0.105)	(0.037)	(0.074)	(0.119)
IV	-0.024	0.041	-1.033^b	-0.124	-0.018	-0.334	0.044	-0.121	0.384^a	-0.027	-0.098	0.085^a	-0.215^b	0.013
	(0.031)	(0.092)	(0.450)	(0.225)	(0.059)	(0.478)	(0.048)	(0.079)	(0.219)	(0.089)	(0.167)	(0.049)	(0.107)	(0.214)
Obs	7093	433	217	174	371	479	852	709	343	850	380	744	913	553
Part R^2	0.4681	0.4955	0.1877		0.4887	0.0781	0.4183	0.5767	0.5113	0.3853		0.5684	0.4700	0.3017
F-test IVs	133.62	102.16	11.50		48.06	5.54	99.72	133.88	48.12	130.38		136.00	113.02	32.84
Prob > F	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000
Sargan	59.50	3.05	2.39		3.48	15.29	11.43	17.36	2.89	0.90		5.12	9.25	5.44
	0.0724	0.3847	0.4957		0.7465	0.0181	0.0436	0.0081	0.8225	0.8247		0.5290	0.1600	0.4886

Note: a, b and c indicate statistical significance at the 10%, the 5 % and the 1% levels, respectively. Standard Errors in Parentheses. Country dummies are included in the equations for the pool estimation but not reported. Each cell represents a separate regression.

Table A.3: Effect of being born to a mother below 19 on adult children's education outcomes

TeenMum 18	POOL	AU	BE	DK	FI	FR	GER	GR	IRE	IT	NT	PO	SP	UK
Specification (1): no controls														
OLS	-0.041^{c}	0.016	-0.191	-0.034	-0.017	0.027	-0.005	-0.063	0.056	0.033	-0.021	-0.032	-0.107^{b}	-0.175^{b}
	(0.016)	(0.050)	(0.131)	(0.061)	(0.029)	(0.045)	(0.021)	(0.045)	(0.097)	(0.039)	(0.072)	(0.027)	(0.052)	(0.075)
IV	-0.106^{c}	-0.012	-0.398^{a}	-0.052	-0.017	-0.029	0.010	-0.145^{b}	0.249^{a}	-0.012	-0.096	0.004	-0.236^{c}	-0.181
	(0.022)	(0.067)	(0.238)	(0.095)	(0.041)	(0.072)	(0.031)	(0.056)	(0.132)	(0.058)	(0.105)	(0.035)	(0.070)	(0.113)
Obs	7380	452	221	181	379	495	883	755	354	879	388	786	952	577
Part R^2	0.4998	0.5339	0.2922	0.3887	0.5032	0.3856	0.4622	0.6295	0.5366	0.4410	0.4605	0.6002	0.5480	0.4304
F-test IVs	158.92	126.30	21.57	15.08	52.95	43.04	124.46	179.64	56.08	171.01	45.49	165.36	162.29	60.68
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	633.16	3.29	3.70	6.20	1.28	17.83	7.90	24.36	6.53	0.45	3.68	9.96	9.04	2.70
	0.0000	0.3494	0.2957	0.4017	0.9729	0.0067	0.1616	0.0004	0.3661	0.9287	0.7193	0.1264	0.1715	0.8454
Specification (2): child's cohorts and cohorts*country interactions														
OLS	-0.036^{b}	0.027	-0.193	-0.029	-0.015	0.024	-0.005	-0.045	0.066	0.031	-0.003	-0.031	-0.109^{b}	-0.195^{c}
	(0.015)	(0.046)	(0.126)	(0.061)	(0.029)	(0.045)	(0.021)	(0.043)	(0.096)	(0.039)	(0.069)	(0.027)	(0.051)	(0.075)
IV	-0.046^{b}	0.062	-0.381^{a}	-0.041	-0.002	-0.033	0.015	-0.113^{b}	0.270^{b}	-0.004	-0.048	0.013	-0.174^{c}	-0.173
	(0.020)	(0.062)	(0.227)	(0.091)	(0.040)	(0.071)	(0.031)	(0.054)	(0.130)	(0.058)	(0.097)	(0.034)	(0.067)	(0.112)
Obs	7380	452	221	181	379	495	883	755	354	879	388	786	952	577
Part R^2	0.5209	0.5381	0.2928		0.5096	0.3960	0.4638	0.6285	0.5373	0.4449		0.6031	0.5733	0.4375
F-test IVs	171.91	127.58	21.32		53.88	44.68	124.82	178.13	55.74	173.14		166.72	179.24	62.11
Prob > F	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000
Sargan	67.12	2.40	2.94		3.61	16.87	11.04	16.31	5.03	0.95		7.56	8.14	3.55
	0.0179	0.4934	0.4015		0.7291	0.0098	0.0506	0.0122	0.5399	0.8142		0.2720	0.2280	0.7373
Specification (3): adds to specif (2) two dummy variables for mother's highest education level reached														
OLS	-0.031^{b}	0.027	-0.215^{a}	-0.028	-0.020	0.030	-0.006	-0.038	0.067	0.030	0.007	-0.021	-0.100^{a}	-0.173^{b}
	(0.015)	(0.047)	(0.126)	(0.062)	(0.029)	(0.045)	(0.021)	(0.044)	(0.097)	(0.039)	(0.070)	(0.026)	(0.051)	(0.075)
IV	-0.038^{a}	0.061	-0.525^{b}	-0.049	-0.013	-0.012	0.014	-0.105^{a}	0.274^{b}	-0.012	-0.042	0.028	-0.160^{b}	-0.154
	(0.020)	(0.063)	(0.229)	(0.092)	(0.041)	(0.071)	(0.031)	(0.055)	(0.130)	(0.059)	(0.098)	(0.034)	(0.067)	(0.112)
Obs	7380	452	221	181	379	495	883	755	354	879	388	786	952	577
Part R^2	0.5169	0.5245	0.2908		0.5046	0.3938	0.4634	0.6199	0.5395	0.4393		0.6016	0.5713	0.4341
F-test IVs	169.12	120.23	20.91		52.53	44.08	124.37	171.26	55.91	168.82		165.23	177.46	61.03
Prob > F	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000
Sargan	68.24	2.29	3.07		3.10	16.81	11.15	16.49	5.20	1.01		7.77	8.01	4.66
	0.0143	0.5138	0.3815		0.7965	0.0100	0.0485	0.0114	0.5179	0.7979		0.2554	0.2375	0.5877
Specification (4): adds to specif (2) two dummy variables for mother's highest education level reached and mother's net monthly wage														
OLS	-0.029^{b}	0.027	-0.213^{a}	-0.020	-0.020	0.031	-0.006	-0.038	0.070	0.029	0.008	-0.022	-0.097^{a}	-0.154^{b}
	(0.015)	(0.047)	(0.127)	(0.063)	(0.029)	(0.045)	(0.021)	(0.044)	(0.096)	(0.039)	(0.070)	(0.026)	(0.051)	(0.075)
IV	-0.036^{a}	0.061	-0.529^{b}	-0.047	-0.013	-0.009	0.014	-0.103^{a}	0.277^{b}	-0.012	-0.041	0.028	-0.156^{b}	-0.113
	(0.020)	(0.063)	(0.233)	(0.092)	(0.041)	(0.071)	(0.031)	(0.055)	(0.129)	(0.059)	(0.098)	(0.034)	(0.067)	(0.113)
Obs	7380	452	221	181	379	495	883	755	354	879	388	786	952	577
Part R^2	0.5167	0.5247	0.2835		0.5043	0.3944	0.4633	0.6242	0.5395	0.4393		0.6016	0.5709	0.4283
F-test IVs	168.98	120.06	20.08		52.33	44.10	124.16	174.13	55.74	168.68		165.04	176.97	59.49
Prob > F	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000
Sargan	66.82	2.29	3.09		3.14	16.53	11.15	16.45	5.33	0.98		7.48	8.13	4.28
	0.0190	0.5145	0.3784		0.7911	0.0112	0.0484	0.0115	0.5026	0.8066		0.2790	0.2284	0.6386

Note: a, b and c indicate statistical significance at the 10%, the 5 % and the 1% levels, respectively. Standard Errors in Parentheses. Country dummies are included in the equations for the pool estimation but not reported. Each cell represents a separate regression.

Table A.4: Effect of being born to a mother below 20 on adult children's education outcomes

TeenMum 19	POOL	AU	BE	DK	FI	FR	GER	GR	IRE	IT	NT	PO	SP	UK
Specification (1): no controls														
OLS	-0.024^b	-0.023	-0.040	-0.027	-0.013	-0.007	0.015	-0.028	0.054	0.015	-0.022	-0.016	-0.081^b	-0.113^b
	(0.011)	(0.037)	(0.085)	(0.041)	(0.020)	(0.029)	(0.015)	(0.034)	(0.067)	(0.029)	(0.055)	(0.021)	(0.041)	(0.052)
IV	-0.069^c	-0.027	-0.141	-0.034	-0.012	-0.044	0.015	-0.109^b	0.178^b	-0.007	-0.100	-0.003	-0.183^c	-0.125^a
	(0.016)	(0.051)	(0.127)	(0.056)	(0.027)	(0.043)	(0.021)	(0.043)	(0.091)**	(0.041)	(0.076)	(0.027)	(0.053)	(0.072)
Obs	7891	482	231	192	399	522	963	836	376	924	399	859	1002	624
Part R^2	0.5362	0.5263	0.4372	0.5138	0.5180	0.4395	0.5169	0.6228	0.5369	0.5042	0.5119	0.6101	0.5777	0.5222
F-test IVs	196.66	130.82	42.53	26.72	59.25	56.80	169.26	193.68	59.79	231.86	57.53	188.68	192.87	95.07
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	641.91	4.36	4.60	6.80	1.07	16.25	7.86	21.37	9.56	0.71	3.07	7.77	8.63	4.72
	0.0000	0.2250	0.2035	0.3399	0.9827	0.0125	0.1642	0.0016	0.1442	0.8718	0.8004	0.2557	0.1954	0.5799
Specification (2): child's cohorts and cohorts*country interactions														
OLS	-0.019^a	-0.019	-0.053	-0.027	-0.012	-0.009	0.015	-0.025	0.057	0.014	0.004	-0.014	-0.077^a	-0.119^b
	(0.011)	(0.035)	(0.083)	(0.041)	(0.019)	(0.029)	(0.015)	(0.033)	(0.067)	(0.029)	(0.053)	(0.021)	(0.040)	(0.052)
IV	-0.031^b	0.035	-0.144	-0.032	0.000	-0.048	0.019	-0.083^b	0.187^b	-0.003	-0.039	0.005	-0.128^b	-0.115
	(0.014)	(0.047)	(0.122)	(0.054)	(0.026)	(0.043)	(0.021)	(0.042)	(0.090)	(0.041)	(0.070)	(0.026)	(0.051)	(0.071)
Obs	7891	482	231	192	399	522	963	836	376	924	399	859	1002	624
Part R^2	0.5497	0.5405	0.4395		0.5287	0.4456	0.5185	0.6260	0.5415	0.5072		0.6116	0.5980	0.5255
F-test IVs	206.55	137.60	42.34		61.38	57.88	169.80	195.60	60.39	233.91		189.15	209.12	95.88
Prob > F	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000
Sargan	69.66	0.35	4.23		2.96	15.32	10.73	14.00	8.67	1.06		5.92	7.53	6.08
	0.0106	0.9513	0.2375		0.8137	0.0179	0.0569	0.0297	0.1928	0.7860		0.4321	0.2749	0.4147
Specification (3): adds to specif (2) two dummy variables for mother's highest education level reached														
OLS	-0.016	-0.022	-0.079	-0.022	-0.014	-0.005	0.014	-0.019	0.058	0.014	0.008	-0.007	-0.070^a	-0.110^b
	(0.011)	(0.035)	(0.083)	(0.042)	(0.020)	(0.029)	(0.015)	(0.034)	(0.067)	(0.029)	(0.053)	(0.021)	(0.040)	(0.052)
IV	-0.026^a	0.030	-0.234^a	-0.035	-0.008	-0.035	0.017	-0.077^a	0.192^b	-0.006	-0.037	0.017	-0.117^b	-0.106
	(0.014)	(0.048)	(0.124)	(0.055)	(0.027)	(0.043)	(0.021)	(0.043)	(0.091)	(0.041)	(0.071)	(0.026)	(0.052)	(0.072)
Obs	7891	482	231	192	399	522	963	836	376	924	399	859	1002	624
Part R^2	0.5445	0.5331	0.4284		0.5293	0.4434	0.5124	0.6129	0.5338	0.5035		0.6100	0.5951	0.5204
F-test IVs	202.26	133.03	40.09		61.20	57.14	165.37	184.56	58.23	229.94		187.45	206.22	93.63
Prob > F	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000
Sargan	70.84	0.31	4.66		2.45	15.31	11.03	14.17	8.90	1.16		6.37	7.55	6.78
	0.0083	0.9579	0.1985		0.8735	0.0180	0.0508	0.0278	0.1795	0.7626		0.3827	0.2730	0.3421
Specification (4): adds to specif (2) two dummy variables for mother's highest education level reached and mother's net monthly wage														
OLS	-0.016	-0.022	-0.076	-0.018	-0.015	-0.004	0.014	-0.019	0.066	0.013	0.008	-0.006	-0.068^a	-0.101^a
	(0.011)	(0.035)	(0.083)	(0.043)	(0.020)	(0.029)	(0.015)	(0.034)	(0.067)	(0.029)	(0.053)	(0.020)	(0.040)	(0.052)
IV	-0.025^a	0.030	-0.230^a	-0.034	-0.008	-0.032	0.017	-0.075^a	0.198^b	-0.006	-0.037	0.018	-0.114^b	-0.083
	(0.014)	(0.048)	(0.125)	(0.055)	(0.027)	(0.043)	(0.021)	(0.043)	(0.091)	(0.041)	(0.071)	(0.026)	(0.051)	(0.071)
Obs	7891	482	231	192	399	522	963	836	376	924	399	859	1002	624
Part R^2	0.5446	0.5336	0.4253		0.5289	0.4425	0.5116	0.6160	0.5335	0.5035		0.6100	0.5950	0.5190
F-test IVs	202.26	133.00	39.40		60.94	56.80	164.62	186.77	58.00	229.71		187.23	205.85	92.96
Prob > F	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000
Sargan	69.42	0.32	4.60		2.47	15.11	11.03	14.10	8.89	1.15		6.17	7.53	6.16
	0.0112	0.9569	0.2033		0.8718	0.0194	0.0509	0.0286	0.1799	0.7659		0.4048	0.2745	0.4058

Note: a, b and c indicate statistical significance at the 10%, the 5 % and the 1% levels, respectively. Standard Errors in Parentheses. Country dummies are included in the equations for the pool estimation but not reported. Each cell represents a separate regression.

Table A.5: Effect of daughter's being born to a mother below 17 on their probability of teenage childbearing

TeenMum 16	POOL	AU	FI	FR	GER	GR	IRE	IT	PO	SP
Specification (1): no controls										
OLS	0.058^{c}	-0.023	-0.095	0.000	-0.008	0.000	-0.071	0.237^{c}	0.121^{b}	-0.004
	(0.019)	(0.063)	(0.194)	(0.066)	(0.050)	(0.000)	(0.162)	(0.049)	(0.049)	(0.035)
IV	0.070^{b}	-0.009	-0.085	0.016	-0.004	0.000	-0.075	0.170^{c}	0.126^{a}	-0.039
	(0.029)	(0.092)	(0.195)	(0.154)	(0.067)	(0.000)	(0.312)	(0.063)	(0.067)	(0.081)
Obs	3361	207	192	239	409	328	160	402	347	407
Part R^2	0.4154	0.4565	0.9529	0.1773	0.5555	0.5012	0.2548	0.5790	0.5310	0.1892
F-test IVs	50.92	41.16	516.83	6.90	82.28	44.93	7.08	134.10	53.70	13.07
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	65.56	5.89	8.08	4.48	5.08		9.12	3.62	12.28	8.47
	0.0243	0.1172	0.2325	0.6114	0.4064		0.1667	0.3050	0.0561	0.2058
Specification (2): child's cohorts and cohorts*country interactions										
OLS	0.057^{c}	-0.024	-0.095	-0.000	-0.008	0.000	-0.071	0.238^{c}	0.117^{b}	-0.003
	(0.019)	(0.064)	(0.195)	(0.066)	(0.050)	(0.000)	(0.154)	(0.049)	(0.049)	(0.036)
IV	0.057^{b}	-0.024	-0.083	0.012	-0.001	0.000	-0.081	0.171^{c}	0.126^{a}	-0.049
	(0.027)	(0.091)	(0.194)	(0.152)	(0.066)	(0.000)	(0.292)	(0.064)	(0.066)	(0.080)
Obs	3361	207	192	239	409	328	160	402	347	407
Part R^2	0.4709	0.4675	0.9533	0.1813	0.5568	0.5061	0.2577	0.5771	0.5343	0.1960
F-test IVs	62.97	42.36	513.16	6.99	82.07	45.37	7.04	132.01	53.92	13.55
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	58.68	7.11	7.74	4.42	5.04		13.49	3.70	10.98	7.66
	0.0828	0.0685	0.2576	0.6198	0.4106		0.0359	0.2962	0.0891	0.2644
Specification (3): adds two dummy variables for mother's highest education level reached										
OLS	0.058^{c}	-0.028	-0.079	-0.006	-0.009	0.000	-0.078	0.238^{c}	0.119^{b}	-0.004
	(0.019)	(0.066)	(0.196)	(0.067)	(0.051)	(0.000)	(0.155)	(0.049)	(0.049)	(0.036)
IV	0.059^{b}	-0.023	-0.065	-0.006	-0.006	0.000	-0.126	0.171^{c}	0.128^{a}	-0.053
	(0.027)	(0.093)	(0.195)	(0.153)	(0.067)	(0.000)	(0.291)	(0.064)	(0.066)	(0.080)
Obs	3361	207	192	239	409	328	160	402	347	407
Part R^2	0.4695	0.4614	0.9525	0.1789	0.5557	0.5050	0.2584	0.5771	0.5343	0.1952
F-test IVs	62.57	40.90	498.13	6.81	81.29	44.90	6.97	131.33	53.60	13.41
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	59.87	7.42	8.04	4.42	5.25		13.54	3.69	10.69	7.72
	0.0681	0.0598	0.2350	0.6194	0.3863		0.0353	0.2970	0.0985	0.2590
Specification (4): adds two dummy variables for mother's highest education level reached and mother's net monthly wage										
OLS	0.058^{c}	-0.026	-0.059	-0.006	-0.006	0.000	-0.080	0.238^{c}	0.118^{b}	-0.004
	(0.019)	(0.066)	(0.195)	(0.067)	(0.051)	(0.000)	(0.155)	(0.049)	(0.050)	(0.036)
IV	0.059^{b}	-0.022	-0.040	0.001	-0.005	0.000	-0.125	0.170^{c}	0.127^{a}	-0.055
	(0.027)	(0.093)	(0.193)	(0.153)	(0.067)	(0.000)	(0.291)	(0.064)	(0.066)	(0.080)
Obs	3361	207	192	239	409	328	160	402	347	407
Part R^2	0.4695	0.4615	0.9525	0.1792	0.5563	0.5043	0.2590	0.5770	0.5343	0.1948
F-test IVs	62.56	40.71	495.14	6.80	81.28	44.63	6.94	130.96	53.43	13.34
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	59.31	7.23	8.35	4.82	4.83		13.53	3.69	10.84	7.65
	0.0748	0.0648	0.2135	0.5669	0.4376		0.0354	0.2965	0.0935	0.2653

Note: a, b and c indicate statistical significance at the 10%, the 5 % and the 1% levels, respectively. Standard Errors in Parentheses. Country dummies are included in the equations for the pool estimation but not reported. Each cell represents a separate regression.

Table A.6: Effect of daughter's being born to a mother below 18 on their probability of teenage childbearing

TeenMum 17	POOL	AU	FI	FR	GER	GR	IRE	IT	NT	PO	SP	UK
Specification (1): no controls												
OLS	0.037^c	-0.021	-0.037	-0.011	-0.010	0.000	-0.024	0.080^c	0.000	0.050	0.110^c	0.162^a
	(0.012)	(0.045)	(0.072)	(0.047)	(0.025)	(0.000)	(0.093)	(0.030)	(0.000)	(0.036)	(0.024)	(0.091)
IV	0.046^c	-0.006	0.073	0.044	-0.026	0.000	-0.035	0.123^c	0.000	0.059	0.102^c	0.216
	(0.017)	(0.060)	(0.088)	(0.120)	(0.037)	(0.000)	(0.117)	(0.047)	(0.000)	(0.046)	(0.035)	(0.168)
Obs	3432	212	198	240	418	336	162	409	189	359	420	264
Part R^2	0.4579	0.5402	0.6522	0.1467	0.4575	0.5301	0.5929	0.4061	0.7576	0.6037	0.4571	0.2866
F-test IVs	61.82	59.03	49.56	5.53	56.79	51.73	30.59	67.86	77.71	74.85	48.71	14.29
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	62.53	5.76	3.38	4.19	4.71		7.24	2.43		12.45	3.12	8.53
	0.0428	0.1240	0.7594	0.6506	0.4523		0.2989	0.4877		0.0527	0.7939	0.2018
Specification (2): child's cohorts and cohorts*country interactions												
OLS	0.038^c	-0.021	-0.030	-0.012	-0.010	0.000	-0.024	0.081^c	0.000	0.048	0.110^c	0.157^a
	(0.012)	(0.046)	(0.074)	(0.047)	(0.025)	(0.000)	(0.088)	(0.030)	(0.000)	(0.036)	(0.024)	(0.094)
IV	0.047^c	-0.017	0.077	0.037	-0.026	0.000	-0.042	0.123^c	0.000	0.059	0.104^c	0.222
	(0.016)	(0.060)	(0.090)	(0.118)	(0.037)	(0.000)	(0.110)	(0.047)	(0.000)	(0.045)	(0.034)	(0.179)
Obs	3432	212	198	240	418	336	162	409	189	359	420	264
Part R^2	0.5059	0.5551	0.6490	0.1518	0.4598	0.5327	0.5945	0.4086	0.7646	0.6071	0.4723	0.2652
F-test IVs	74.02	61.76	48.08	5.68	56.89	51.79	30.16	68.06	79.35	75.26	51.41	12.68
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	51.41	7.01	3.33	4.16	4.69		10.00	2.46		11.25	3.40	9.04
	0.2372	0.0716	0.7667	0.6546	0.4550		0.1247	0.4835		0.0810	0.7568	0.1715
Specification (3): adds two dummy variables for mother's highest education level reached												
OLS	0.040^c	-0.025	-0.017	-0.019	-0.011	0.000	-0.032	0.081^c	0.000	0.049	0.109^c	0.157^a
	(0.012)	(0.048)	(0.075)	(0.047)	(0.026)	(0.000)	(0.089)	(0.030)	(0.000)	(0.036)	(0.024)	(0.094)
IV	0.049^c	-0.018	0.096	0.022	-0.030	0.000	-0.058	0.123^c	0.000	0.061	0.103^c	0.251
	(0.016)	(0.063)	(0.091)	(0.119)	(0.038)	(0.000)	(0.111)	(0.047)	(0.000)	(0.045)	(0.034)	(0.178)
Obs	3432	212	198	240	418	336	162	409	189	359	420	264
Part R^2	0.5032	0.5380	0.6438	0.1474	0.4549	0.5321	0.5926	0.4085	0.7651	0.6072	0.4713	0.2687
F-test IVs	73.16	57.05	46.47	5.43	55.49	51.34	29.51	67.68	78.63	74.85	50.93	12.81
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	52.26	7.29	3.42	4.22	4.77		9.65	2.46		10.95	3.10	8.12
	0.2127	0.0632	0.7547	0.6470	0.4449		0.1402	0.4821		0.0900	0.7966	0.2295
Specification (4): adds two dummy variables for mother's highest education level reached and mother's net monthly wage												
OLS	0.039^c	-0.025	-0.011	-0.018	-0.008	0.000	-0.032	0.081^c	0.000	0.049	0.109^c	0.157^a
	(0.012)	(0.048)	(0.074)	(0.047)	(0.026)	(0.000)	(0.089)	(0.030)	(0.000)	(0.036)	(0.024)	(0.094)
IV	0.049^c	-0.017	0.102	0.035	-0.027	0.000	-0.057	0.123^c	0.000	0.060	0.103^c	0.240
	(0.016)	(0.063)	(0.090)	(0.119)	(0.038)	(0.000)	(0.111)	(0.047)	(0.000)	(0.045)	(0.035)	(0.176)
Obs	3432	212	198	240	418	336	162	409	189	359	420	264
Part R^2	0.5031	0.5380	0.6435	0.1471	0.4533	0.5295	0.5928	0.4091	0.7643	0.6071	0.4705	0.2692
F-test IVs	73.13	56.76	46.15	5.40	55.00	50.64	29.32	67.68	77.84	74.60	50.64	12.79
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	51.46	7.09	3.98	4.52	4.42		9.60	2.46		11.06	3.10	7.44
	0.2358	0.0689	0.6793	0.6071	0.4901		0.1424	0.4824		0.0864	0.7967	0.2821

Note: a, b and c indicate statistical significance at the 10%, the 5 % and the 1% levels, respectively. Standard Errors in Parentheses. Country dummies are included in the equations for the pool estimation but not reported. Each cell represents a separate regression.

Table A.7: Effect of daughter's being born to a mother below 19 on their probability of teenage childbearing

TeenMum 18	POOL	AU	BE	DK	FI	FR	GER	GR	IRE	IT	NT	PO	SP	UK
Specification (1): no controls														
OLS	0.030^c	-0.022	0.500^c	0.000	0.045	-0.004	0.029	0.000	0.096	0.036^a	0.000	0.043	0.046^c	0.026
	(0.008)	(0.032)	(0.055)	(0.000)	(0.059)	(0.020)	(0.019)	(0.000)	(0.059)	(0.022)	(0.000)	(0.028)	(0.016)	(0.053)
IV	0.042^c	-0.007	0.500^c	0.000	0.073	0.011	0.003	0.000	0.120^a	0.067^b	0.000	0.051	0.048^b	0.070
	(0.011)	(0.041)	(0.132)	(0.000)	(0.073)	(0.029)	(0.028)	(0.000)	(0.071)	(0.033)	(0.000)	(0.035)	(0.021)	(0.079)
Obs	3565	222	103	95	203	249	433	356	168	419	189	378	442	274
Part R^2	0.5088	0.5694	0.1609	0.3349	0.6310	0.4469	0.4746	0.5985	0.6557	0.4329	0.7576	0.6306	0.5840	0.4334
F-test IVs	78.81	69.74	4.36	5.75	46.42	27.01	63.08	72.62	41.62	77.68	77.71	88.53	85.63	28.30
Prob > F	0.0000	0.0000	0.0028	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	60.16	5.83	0.00		5.46	3.83	3.60		6.70	4.48		11.75	3.46	8.13
	0.0648	0.1201	1.0000		0.4862	0.6995	0.6087		0.3497	0.2137		0.0678	0.7487	0.2289
Specification (2): child's cohorts and cohorts*country interactions														
OLS	0.031^c	-0.022	0.500^c	0.000	0.049	-0.005	0.028	0.000	0.098^a	0.037^a	0.000	0.044	0.047^c	0.023
	(0.008)	(0.032)	(0.056)	(0.000)	(0.059)	(0.020)	(0.019)	(0.000)	(0.057)	(0.022)	(0.000)	(0.028)	(0.016)	(0.054)
IV	0.040^c	-0.014	0.500^c	0.000	0.078	0.010	0.004	0.000	0.122^a	0.068^b	0.000	0.054	0.049^b	0.069
	(0.011)	(0.041)	(0.132)	(0.000)	(0.073)	(0.029)	(0.028)	(0.000)	(0.068)	(0.033)	(0.000)	(0.035)	(0.020)	(0.080)
Obs	3565	222	103	95	203	249	433	356	168	419	189	378	442	274
Part R^2	0.5434	0.5803	0.1618	0.3609	0.6345	0.4542	0.4765	0.6029	0.6584	0.4367	0.7646	0.6345	0.6050	0.4244
F-test IVs	89.48	71.89	4.25	6.21	46.37	27.46	63.10	73.31	41.30	78.30	79.35	89.27	92.78	26.97
Prob > F	0.0000	0.0000	0.0034	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	53.14	7.02	0.00		5.42	3.79	3.54		8.73	4.51		10.17	3.84	8.55
	0.1893	0.0714	1.0000		0.4913	0.7052	0.6173		0.1895	0.2110		0.1177	0.6978	0.2003
Specification (3): adds to specif (2) two dummy variables for mother's highest education level reached														
OLS	0.032^c	-0.024	0.500^c	0.000	0.058	-0.007	0.026	0.000	0.093	0.037^a	0.000	0.046	0.046^c	0.027
	(0.008)	(0.033)	(0.058)	(0.000)	(0.060)	(0.020)	(0.020)	(0.000)	(0.057)	(0.022)	(0.000)	(0.028)	(0.016)	(0.054)
IV	0.042^c	-0.015	0.500^c	0.000	0.091	0.005	-0.001	0.000	0.115^a	0.068^b	0.000	0.056	0.048^b	0.086
	(0.011)	(0.042)	(0.126)	(0.000)	(0.073)	(0.029)	(0.028)	(0.000)	(0.068)	(0.033)	(0.000)	(0.035)	(0.020)	(0.081)
Obs	3565	222	103	95	203	249	433	356	168	419	189	378	442	274
Part R^2	0.5399	0.5684	0.1857	0.3666	0.6300	0.4479	0.4713	0.5963	0.6557	0.4356	0.7651	0.6336	0.6039	0.4230
F-test IVs	88.15	67.82	4.90	6.20	44.99	26.54	61.50	70.90	40.26	77.56	78.63	88.43	91.92	26.60
Prob > F	0.0000	0.0000	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	53.98	7.30	0.00		5.41	3.92	3.61		8.24	4.52		10.05	3.55	7.64
	0.1688	0.0631	1.0000		0.4919	0.6870	0.6071		0.2208	0.2110		0.1224	0.7373	0.2655
Specification (4): adds to specif (2) two dummy variables for mother's highest education level reached and mother's net monthly wage														
OLS	0.031^c	-0.023	0.502^c	0.000	0.058	-0.005	0.027	0.000	0.090	0.037^a	0.000	0.046	0.046^c	0.021
	(0.008)	(0.033)	(0.059)	(0.000)	(0.059)	(0.020)	(0.020)	(0.000)	(0.058)	(0.022)	(0.000)	(0.029)	(0.016)	(0.054)
IV	0.041^c	-0.013	0.499^c	0.000	0.093	0.008	0.002	0.000	0.112	0.067^b	0.000	0.055	0.048^b	0.073
	(0.011)	(0.042)	(0.125)	(0.000)	(0.072)	(0.030)	(0.028)	(0.000)	(0.069)	(0.033)	(0.000)	(0.035)	(0.020)	(0.081)
Obs	3565	222	103	95	203	249	433	356	168	419	189	378	442	274
Part R^2	0.5397	0.5677	0.1868	0.3908	0.6301	0.4428	0.4699	0.5977	0.6547	0.4362	0.7643	0.6333	0.6034	0.4198
F-test IVs	88.07	67.31	4.88	6.78	44.78	25.89	61.02	71.10	39.82	77.56	77.84	88.09	91.50	26.15
Prob > F	0.0000	0.0000	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	53.28	7.13	0.03		6.45	4.36	3.44		8.17	4.50		10.16	3.54	7.13
	0.1857	0.0680	0.9987		0.3750	0.6283	0.6331		0.2259	0.2120		0.1181	0.7383	0.3092

Note: a, b and c indicate statistical significance at the 10%, the 5 % and the 1% levels, respectively. Standard Errors in Parentheses. Country dummies are included in the equations for the pool estimation but not reported. Each cell represents a separate regression.

Table A.8: Effect of daughter's being born to a mother below 20 on their probability of teenage childbearing

TeenMum 19	POOL	AU	BE	DK	FI	FR	GER	GR	IRE	IT	NT	PO	SP	UK
Specification (1): no controls														
OLS	0.040^c	0.011	0.258^c	0.000	0.010	-0.004	0.036^b	0.000	0.146^c	0.039^b	0.000	0.048^b	0.044^c	0.103^b
	(0.007)	(0.027)	(0.045)	(0.000)	(0.044)	(0.014)	(0.015)	(0.000)	(0.047)	(0.017)	(0.000)	(0.023)	(0.014)	(0.040)
IV	0.042^c	0.014	0.264^c	0.000	0.056	0.007	0.017	0.000	0.130^b	0.057^b	0.000	0.037	0.046^c	0.132^b
	(0.009)	(0.035)	(0.074)	(0.000)	(0.058)	(0.021)	(0.021)	(0.000)	(0.059)	(0.023)	(0.000)	(0.029)	(0.018)	(0.059)
Obs	3808	236	109	101	212	259	472	393	178	443	195	415	466	294
Part R^2	0.5314	0.5893	0.3339	0.4191	0.5772	0.4626	0.4948	0.6034	0.6004	0.5079	0.5404	0.6256	0.6120	0.4490
F-test IVs	92.29	80.72	12.16	8.86	38.81	30.00	74.75	82.14	34.98	111.21	30.23	95.49	101.60	32.48
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	61.65	7.25	3.20		4.67	3.61	1.80		7.84	1.95		8.72	3.03	12.24
	0.0500	0.0644	0.3615		0.5872	0.7299	0.8757		0.2498	0.5819		0.1900	0.8053	0.0569
Specification (2): child's cohorts and cohorts*country interactions														
OLS	0.040^c	0.011	0.242^c	0.000	0.011	-0.005	0.035^b	0.000	0.137^c	0.039^b	0.000	0.052^b	0.044^c	0.100^b
	(0.007)	(0.027)	(0.045)	(0.000)	(0.045)	(0.015)	(0.015)	(0.000)	(0.045)	(0.017)**	(0.000)	(0.023)	(0.014)	(0.040)
IV	0.042^c	0.008	0.252^c	0.000	0.056	0.007	0.018	0.000	0.133^b	0.056^b	0.000	0.044	0.047^c	0.127^b
	(0.009)	(0.035)	(0.073)	(0.000)	(0.057)	(0.021)	(0.021)	(0.000)	(0.056)	(0.023)**	(0.000)	(0.029)	(0.017)	(0.059)
Obs	3808	236	109	101	212	259	472	393	178	443	195	415	466	294
Part R^2	0.5493	0.5983	0.3346	0.4891	0.5887	0.4654	0.4970	0.6039	0.6026	0.5057	0.5577	0.6260	0.6277	0.4433
F-test IVs	98.08	82.66	11.82	11.35	40.07	29.97	74.93	81.66	34.66	109.48	31.88	94.95	107.91	31.39
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	63.19	8.42	3.46		4.80	3.56	1.82		9.79	2.09		7.16	3.28	12.31
	0.0380	0.0380	0.3258		0.5701	0.7364	0.8738		0.1338	0.5547		0.3059	0.7726	0.0555
Specification (3): adds to specif (2) two dummy variables for mother's highest education level reached														
OLS	0.041^c	0.011	0.248^c	0.000	0.018	-0.008	0.035^b	0.000	0.131^c	0.038^b	0.000	0.053^b	0.044^c	0.101^b
	(0.007)	(0.028)	(0.046)	(0.000)	(0.045)	(0.015)	(0.015)	(0.000)	(0.046)	(0.017)	(0.000)	(0.023)	(0.014)	(0.041)
IV	0.043^c	0.010	0.258^c	0.000	0.067	0.003	0.015	0.000	0.124^b	0.056^b	0.000	0.045	0.046^c	0.137^b
	(0.009)	(0.036)	(0.072)	(0.000)	(0.057)	(0.021)	(0.021)	(0.000)	(0.058)	(0.023)	(0.000)	(0.029)	(0.018)	(0.060)
Obs	3808	236	109	101	212	259	472	393	178	443	195	415	466	294
Part R^2	0.5448	0.5853	0.3486	0.4946	0.5912	0.4566	0.4904	0.5927	0.5902	0.5043	0.5571	0.6247	0.6259	0.4406
F-test IVs	96.25	77.64	12.31	11.32	40.08	28.69	72.65	77.53	32.51	108.34	31.45	93.94	106.61	30.83
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	63.85	8.37	3.19		4.82	3.70	1.88		9.37	2.11		7.08	3.02	10.79
	0.0336	0.0389	0.3638		0.5666	0.7178	0.8656		0.1537	0.5490		0.3136	0.8066	0.0950
Specification (4): adds to specif (2) two dummy variables for mother's highest education level reached and mother's net monthly wage														
OLS	0.040^c	0.011	0.251^c	0.000	0.011	-0.006	0.037^b	0.000	0.128^c	0.039^b	0.000	0.053^b	0.044^c	0.100^b
	(0.007)	(0.028)	(0.046)	(0.000)	(0.045)	(0.015)	(0.015)	(0.000)	(0.047)	(0.017)	(0.000)	(0.023)	(0.014)	(0.040)
IV	0.043^c	0.011	0.253^c	0.000	0.067	0.006	0.019	0.000	0.120^b	0.055^b	0.000	0.045	0.046^c	0.129^b
	(0.009)	(0.036)	(0.072)	(0.000)	(0.056)	(0.022)	(0.021)	(0.000)	(0.059)	(0.023)	(0.000)	(0.029)	(0.018)	(0.059)
Obs	3808	236	109	101	212	259	472	393	178	443	195	415	466	294
Part R^2	0.5447	0.5862	0.3547	0.4983	0.5936	0.4506	0.4888	0.5965	0.5868	0.5048	0.5593	0.6249	0.6256	0.4411
F-test IVs	96.17	77.57	12.51	11.35	40.28	27.89	72.03	78.56	31.85	108.30	31.54	93.76	106.22	30.78
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sargan	62.32	8.20	3.69		5.28	4.08	1.72		9.24	2.08		7.10	3.01	10.16
	0.0445	0.0421	0.2964		0.5079	0.6656	0.8870		0.1607	0.5569		0.3118	0.8072	0.1183

Note: a, b and c indicate statistical significance at the 10%, the 5 % and the 1% levels, respectively. Standard Errors in Parentheses. Country dummies are included in the equations for the pool estimation but not reported. Each cell represents a separate regression.