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Partners' Educational Pairings and Fertility across Europe

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Abstract:
We provide new evidence on the education-fertility relationship by using EU-SILC panel data on 17 countries to investigate how couples' educational pairings predict their childbearing behaviour. We focus on differences in first, second and third birth rates between couples with varying combinations of partners' education. Our results show that there are indeed important differences in how education relates to fertility depending on the education of the partner. First, homogamous highly educated couples show a distinct childbearing behaviour, at least in some countries. They tend to postpone the first birth most and display the highest transition rates to second and third births subsequently. Second, contrary to what may be expected based on conventional economic models of the family, hypergamous couples with a highly educated man and a lower educated female partner display among the lowest second and third birth transition rates across the majority of countries. Our findings underscore the relevance of interacting both partners' education for a deeper understanding of the education-fertility relationship.

Keywords: fertility, education, couples, childbearing, socio-economic resources, family, parity progression, Europe

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1. Introduction

Educational expansion and changes in childbearing behavior have been among the most striking features of the changing demographic landscape of the last few decades (Schofer and Meyer 2005; Andersson et al. 2009). Women's participation in higher education has now surpassed that of men in most developed nations (Charles 2011), and this group of highly educated women in particular has increasingly postponed the transition to motherhood and experienced substantial increases in childlessness (Martin 2000; Gustafsson 2001; Shang and Weinberg 2013; Miettinen et al 2015). The relationship between educational and childbearing trajectories has been well studied, specifically with regards to the linkages between tertiary education and women's childbearing behaviour. It's been, for example, established that the transition to parenthood is being postponed particularly until educational enrolment has ended (Liefbroer and Corijn 1999; Ní Bhrolcháin and Beaujouan 2012), that highly educated women on average postpone the transition to motherhood but have faster transitions to second births (Kreyenfeld 2002; Gerster et al. 2007) and that childlessness tends to be highest among highly educated women (Nisen et al 2014; Wood and Neels 2014). Overall, it is well known that education plays a crucial role in structuring individuals' life courses, even though the directionality or existence of causal effects often still remains elusive (Brand and Davis 2011; Stange 2011; Nisen et al, 2013).

Less is known on how education relates to childbearing among men, but recent results suggest that education structures men's life courses somewhat differently than women's. Among men, childlessness appears to be highest among low educated men (Kravdal and Rindfuss 2008; Nisen et al. 2013), and specific fields of study as well as occupations have been shown to relate to men's fertility timing and quantum differently than to women's (Oppermann 2014; Stanfors 2014).

Not only has male fertility behaviour been under-studied, but also a significant research gap exists on the question of how her and his education interact with respect to childbearing behaviour. Children, however, are born within co-residential unions more often than not (Perelli-Harris et al. 2012; Lichter et al. 2014), and a growing literature shows that interactive processes among partners are relevant for couples' fertility behaviour (Corijn et al. 1996; Thomson 1997; Thomson and Hoem 1998; Torr and Short 2004; Rosina and Testa 2009; Bauer and Kneip 2013; Testa et al. 2014). Extending the existing knowledge on how the education-fertility relationship may systematically vary under consideration of the education of the partners is, however, important and relevant for the following reasons.

First, the group of women with tertiary education is ever increasing and also increasingly diverse (Snyder and Dillow 2013; Eurostat 2012). Yet, only few studies have to date investigated how the relationship between education and fertility varies among sub-groups of highly educated women. While it's been shown that there are differences in fertility behaviour among highly educated women by field of study or origin-family background (Van Bavel 2010; Oppermann 2014; Brand and Davis 2011), not much is known about partner effects on the education- fertility relationship. Since there is, however, evidence for gender differences in the linkages between fertility and education, it may be expected that those may not only come about through differences in union formation behaviour, but possibly also imply differences in childbearing behaviour between various educational pairings of partners in couples.

Second, the reversal of the gender gap in education implies that in many countries, for the first time in history, there are now more highly educated women than highly educated men reaching the age of partnering and parenthood. This is bound to have implications for family formation. Traditionally, women tended to marry men who were at least as highly educated as themselves - while men tended to marry women who were often less educated. This pattern is no longer compatible with the distribution by age, sex, and education on current marriage markets (Van Bavel 2012, De Hauw et al. 2014). Recent studies have shown that the reversal of gender inequality in education has indeed undermined the traditional pattern of educational hypergamy (women marrying up) and that hypogamy (women marrying down) has become more prevalent (Esteve et al. 2012; Grow and Van Bavel 2015). Changing patterns of educational assortative mating are expected to affect the timing and quantum of marriage, divorce, as well as fertility (Van Bavel 2012; Schwartz and Han 2014). A major reason for this is that a switch from hypergamy to hypogamy is likely to affect who the main breadwinner is: if the wife is higher educated than the husband, she may have a higher earning potential in the labour market. A recent study has shown that the switch to hypogamy is associated with a higher proportion of families where she is the main earner (Klesment and Van Bavel 2015). This, in turn, may affect the decision-making processes related to his and her labour market participation and to the timing and quantum of fertility.

Third, traditional hypergamous unions with a highly educated man and a lower educated female partner have long been predicted by the economic model of the family to be the ideal environment for the production of children, due to the partner's role specialization and lower childbearing related opportunity costs for her (Becker 1993). Oppenheimer (1988, 1994, 1998), on the other hand, recognizing the increasing importance of women's economic

contribution to family economics, suggested that pooling of resources by partners is a vital strategy for ensuring the family's economic well-being. This model of pooling of resources thus implies that highly educated homogamous couples would be expected to have higher fertility than couples with only one highly educated partner. Both approaches hence imply predictions of how partners' relative education may relate to their childbearing behaviour. No study, however, has yet empirically tested whether unions of varying partners' education pairings indeed display differences in fertility behaviours, particularly in current times of reversed gender ratios in higher education.

This study provides some first insights into how the educational attainment of both partners is related to couples' childbearing behaviours in several European countries. Using the couple as the unit of analysis, we investigate how educational pairings (i.e., the combination of his and her education) are associated with the transition to parenthood, with the transition to second births, and with the transition to third and higher order childbearing. To this end, we use data from the panel design of the European Union Statistics on Income and Living Conditions (EU-SILC), select married and cohabiting childless couples, couples with just one child, and couples with two children at time t1 and estimate how educational pairings are associated with first birth transitions and subsequent parity progressions after t1.

We focus on his and her relative education, rather than on his and her income or labour force participation for two reasons. First, relative income is a direct function of labour market participation, which is in turn very strongly endogenous with respect to fertility, particularly but not only for women. Second, we did not have access to a comparative data set which would provide us with longitudinal or panel data on fertility, labour force participation and income and which would allow us to account for endogeneity at the same time. Instead, we treat education as the dimension of human capital that implies differential income potential. Although education is to some extent also endogenous with respect to fertility, this is much less strongly the case than for the more volatile labour force participation behaviour and the income it generates. In addition, for people who completed their degree and are no longer enrolled in education, the level of educational attainment is much more stable over time than income gained through activity in the labour market. We limit the presentation of our findings to couples with partners who have achieved medium or high levels of education. That is because we are most interested in the ever growing group of highly educated women, and in understanding which factors, here partner's education, are associated with differentials in their fertility behaviour. Men and women with low levels of education may face different

challenges in raising families and managing their working lives and therefore merit a separate analysis.

This study is explorative in nature. It thus provides new empirical evidence on how partners' education interacts in specific ways in predicting couples' fertility behaviour. It does, however, not provide answers to the question of which mechanisms may underlie our findings, hence, does not test and confirm or refute any theoretical predictions. Nonetheless, we provide a theoretical framing and sketch out possible predictions based upon the discussed theoretical approaches, which is informative and meant to provide guidance with the interpretation of our results only. Neither does our study allow us to draw conclusions about the completed fertility of couples with certain educational pairings. We do demonstrate, however, that taking only her education into account is not sufficient for understanding childbearing behaviours, in particular in current times of the rapidly changing gender relations and increasing diversity of couples with respect to educational level of both partners. We thus extend the literature by showing that more information can be gained from looking at couples and their educational pairing than looking at her or his education alone.

2. Background

Theoretically speaking, several arguments for why a 'couple-focused' perspective is relevant for understanding childbearing behaviour have been made. First, the proponents of the 'economic theory of the family', i.e. Becker and others, have theorized that the joint utility function of the family, or the gains to marriage, is maximized when both partners specialize in varying gender roles. Accordingly, one (traditionally him) is assuming the breadwinner role in the labour market and the other one (traditionally her) is taking the primary responsibility for the household and caretaking of children (Becker 1993, p. 30ff.). Even though the couple is the theoretical unit of family production in this approach, interactive dynamics between the partners have not been discussed explicitly. Rather, the theory builds on the assumption that there is mutual agreement about gender roles and fertility desires among the partners. In addition, the theory is not gender neutral. It aligns with the unbalanced gender ratios from the mid to late 20th century in higher education when many more men obtained tertiary education than women, building on the idea of a hypergamous couple with him being more highly educated than her as the typical couple, and, in extension, assuming that women will be the ones to refrain from paid employment to accommodate childrearing as they typically have lower earnings power/human capital in this scenario. This approach thus implies that

hypergamous couples with a homemaker female partner and a gainfully employed highly educated male partner may display the highest fertility, both in terms of timing and quantum. It is less obvious though, whether similarly clearly differentiated family and earner roles among hypogamous couples would follow, implying gender reversed roles. This is, of course, particularly relevant for the current situation in the advanced world as the traditional gender gap in higher education has reversed. In the US, virtually all European and many other western and non-western countries, there are now more women than men enrolled in higher education, and they are also graduating more successfully (Schofer and Meyer 2005; Lutz et al. 2008; Vincent-Lancrin 2008).

Second, Oppenheimer's work (Oppenheimer 1988, Oppenheimer 1994, Oppenheimer 1997) has questioned the specialization and trading model and pointed out that a new analytical model of marriage is necessary. Adapted to greater economic independence of women in the 1980s and 1990s, she has argued that a new model of the family should rather focus on the roles of each individual spouse and the interactions within the marriage. This applies, in particular, to the economic production of the household and the spouses 'collaborative' roles in making contributions to the economic wealth of the marriage (Oppenheimer 1994, p. 333). Accordingly, she argues that 'extreme sex-role specialization' is inflexible, and that couples with two earners will more easily be able to adapt to challenges in the labour market by pooling their resources (Oppenheimer 1997:447f.). This, in turn, can be interpreted as predicting that couples with two highly educated spouses and thus greater resources and future economic stability may be more inclined and in a more suitable situation to have a(nother) baby, given equal fertility preferences as other educationally paired couples.

Third, a similar prediction arises when considering the role of gender values and ideology among partners for their childbearing behaviour. Education appears to be a marker for gender ideology of both men and women. High educational attainment has been associated with more egalitarian gender role attitudes (Kane 1995; Panayotova and Brayfield 1997). These systematic differences in gender ideology between individuals of different educational background may hence imply varying degrees of value consensus between partners, depending on their educational pairings, which then in turn may affect couples' childbearing decision-making. Highly educated men, for instance, may be on average more supportive of women who pursue a career and motherhood simultaneously compared to men with lower educational attainment. If all highly educated women have a similar preference for having both a career and children alike, then it is possible that unions between two highly educated partners may have higher fertility compared to hypogamous unions between a highly educated

woman and a lower educated men, given higher value consensus for a family life-style that combines two working partners with childrearing.

A fourth theoretical approach which may predict differential fertility for couples with differing educational pairings is the bargaining approach. Several recent studies emphasize that bargaining over fertility, for example on the basis of relative resources, may be a crucial element of the fertility decision making process (Brodmann et al. 2007; Bauer and Jacob 2010; Neyer et al. 2013; Bauer and Kneip 2013; Berninger 2013). For instance, despite rapidly changing gender roles in the public realm, the division of domestic works remains gendered in the realm of the family, with women, on average, taking up the majority of unpaid household tasks and care work (Treas and Lui 2013; Bianchi et al. 2000; Bianchi et al. 2012). This gendered division of domestic work has been shown to clearly become even more traditional among couples after they experience the transition to parenthood (Schober 2013; Dechant et al. 2014; Kühhirt 2012). Yet, research indicates that on average, eventually highly educated women desire a similar number of children than women with lower education, at least early in their life courses (Musick et al. 2009; Berrington and Pattaro 2014; Testa 2014). From a bargaining perspective, it can hence be argued that, given the similar fertility preferences of women across the educational levels, women who hold an equal or larger share of the resources in the partnership, be it income, or future earnings potential and career prospects based on higher educational attainment than their partner, may have more leverage in bargaining either for more domestic help by their (male) partner, or for market solutions like cleaners and nannies in case he is unable or unwilling to take up a larger share of the domestic tasks. Women with more resources than their partners would thus display higher birth rates than women in partnerships with men who have the same amount or more resources than them, given their equal average fertility preferences yet the larger amount of domestic help they, under this perspective, may be able to enlist via their bargaining power. This would specifically apply to highly educated women, who are, among all women, the most likely to pursue paid employment and a career (Thevenon 2013, Bls Report 2014). Indeed, a handful of studies indicate that second birth risk go up once the 'second shift' at home is divided more evenly between the partners in the US (Torr and Short 2004). Moreover, first birth risks are higher among couples in which she outearns him in Finland (Berninger 2013), and highly educated women are more likely to progress to a second birth with increasing child care provided by the partner for the first child in Germany and Denmark (Prince Cooke 2004; Brodmann et al. 2007). These results are only suggestive, though, as no study has yet modelled those mechanisms directly, in other words, modelled both relative

resources between the partners and the relationship between those relative resources and the division of domestic work or outsourcing of chores and care work as it affects couples' childbearing behaviour.

While an increasing number of empirical studies has been incorporating both partners into investigations of childbearing behaviour, only few studies have explicitly examined the interaction of both partners' educational attainment on the timing and quantum of fertility. No multi-country study exists yet on the relationship between partners' educational pairings and their birth transitions. Previous research examining the relationship between relative education and childbearing behaviour has used data on Germany, Sweden, the Netherlands and Flanders (Bauer and Jacob 2010; Wirth 2007; Dribe and Stanfors 2010; Corijn et al. 1996). The results of these studies have been mixed, suggesting that the relationship between couples 'educational pairings and their childbearing behaviour may be specific with respect to both parity, birth cohort, social context, and specific definition of the educational categories. Both studies on Germany investigate the relationship between partners' relative education and parenthood status, using data from the German Micro Census, but investigating different birth cohorts. Each paper found that parenthood status is primarily explained by her education, yet that there are some significant differences of partners' relative education on the probability of parenthood, but how so does differ between the studies. Bauer and Jacob (2010) find that hypergamous couples have a lower probability of parenthood, compared to homogamous couples. Yet, highly educated homogamous couples did display a lower probability of parenthood than homogamous couples with lower education. The couples they investigate are partly still in their 20s and 30s, though, so that timing effects may partly drive the findings. Wirth's (2007) results indicate that childlessness is somewhat more common among hypogamous couples as compared to homogamous couples with high education, while hypergamous couples had the lowest probability of childlessness. Corijn et al. (1996) also investigate the transition to first births in a comparison of Flanders and the Netherlands. While they do not find any significant effects of educational pairings in Flanders, in the Dutch sample, the time to first birth was significantly delayed if the couples were homogamously highly educated, as compared to both lower educated homogamous couples and couples with only one highly educated spouse. Using Swedish register data, highly educated homogamous couples have been linked to increased second and third birth hazard rate in Sweden, and also displayed lower union dissolution hazards (Dribe and Stanfors 2010). Overall, these results point to the possibility of distinct family formation behaviours of homogamously highly

educated couples versus couples with only one highly educated partner, which we can confirm with our results, at least with respect to some of the examined countries.

3. Data and Method

3.1 Data and Sample

The data for the analyses come from the EU-SILC (Community Statistics on Income and Living Conditions), which is the successor of the European Community Household Panel (ECHP) (European Commission)[1]. It is an ongoing household panel that has been launched in 2003, and by 2005 nearly all EU member states participated. It collects information on households and its members aged 15 or above and is a rotational panel by design. The latter means that it consists of four subsamples which are interviewed in parallel for four consecutive years (except for Norway and France where the observation period is 8 years), but each subsample enters the panel at another point in time (for details see European Commission 2010). We decided to use the EU-SILC for our study since it provides detailed information on economic conditions of the households and their members, covers a wide array of European countries, and is current and ongoing, hence depicts the current family situation in Europe. But the data has also its disadvantages which are the fairly short observation duration and the lack of retrospective information on fertility- and partnership histories as well as educational histories.

Using the EU-SILC data we constructed three analytic event history sub samples, namely for the transition to the first birth, for the transition to the second birth and for the transition to third or higher order births. Fertility histories were reconstructed from the information on household composition, relationship statuses within the households and birth years of their members. The EU-SILC does not provide information on non-resident children or dates of union formation and dissolutions. Therefore, we limited our analysis to cohabiting and married couples involving women aged 18-40 for the analyses of first births and aged 18-45 for second and higher order births, i.e. couples including women who were of childbearing age but still too young for their children to have left the household. Hence, we are aware that fertility history reconstruction based on the household roster may be biased. Couples who are

[1] Eurostat, European Commission and the national statistical offices collecting the data have no responsibility for the results and conclusions which were drawn in this paper on the basis of the EU-SILC data.

childless at the start of the panel are at risk of conceiving the first child. It is noteworthy that the women in this sub-sample of couples are quite heterogeneous in terms of age, i.e. with respect to the life course stages in which we define them as exposed to the risk of conception (union duration, time elapsed since graduation) - which is certainly leading to unobserved heterogeneity with regards to their ability or willingness to become mothers. Nonetheless, due to data limitations, we were unable to exclude couples from the sample who have had a long union duration or who include a woman that has been out of education since a long time, namely couples who may not be trying to conceive or may be sterile or infertile, or may have even had a child - who has meanwhile left the household - very early in the life course . The sample of couples exposed to the second / third or higher birth consists of women in unions who meet the age conditions listed above and who gave birth to their previous child during the panel (the minority) or were parents of at least one child not older than 5 at the time they entered the panel (the majority). The condition on the age of the child was introduced in order to exclude couples from the sample who were rather unlikely to give birth to another child either because of their preferences or health conditions or union quality, i.e. factors we were not able to control for. All these couples were observed until the event, union disruption or the date of the exit from the panel whichever came first. Both partners were allowed to re-enter the sample in case they formed another union during the panel.

The EU-SILC currently covers 32 European countries[2], 18 of which are included in our sample. In our analyses we attempted to examine single countries and cover as many countries as possible in order to gain a broad overview of how relative education relates to birth transitions and whether consistent patterns emerge across national contexts. However, sample sizes, launch dates, and data quality varied throughout the participation states. After thorough investigation we therefore settled on 18 countries, out of which few countries with small samples were grouped according to geographical proximity as well as similarities in social policies, cultural backgrounds, and similarity in results from single country models. The final set of countries consists of 1) Austria, 2) Belgium and Luxemburg, 3) Czech Republic and Slovakia, 4) Baltic countries (Estonia, Latvia and Lithuania), 5) Spain, 6) Denmark and Finland, 7) France, 8) Italy, 9) Norway, 10) The Netherlands, 11) Sweden, 12) Slovenia, and 13) United Kingdom. For these countries / country groups the sample size and the number of births during the observation window were considered to be sufficient for estimation of the model parameters (see Table 1). Some countries could not be included in the

[2] http://ec.europa.eu/eurostat/documents/203647/203704/SILC_IMPLEMENTATION_headezr.pdf/2356c6e1-60a8-4a94-84de-5300176607cc

analyses. Bulgaria, Cyprus, Greece, Hungary, Ireland and Portugal displayed low number of births and we did not find any country with which they could be matched according to social policy, in Malta and Romania the observed proportion of women who gave birth to a child during a panel was substantially below to what was observed in other countries whereas for Germany we had data for two waves only at our disposal. Poland was dropped from the analyses due to problems with missing data.

Table 1 about here

3.2 Models and Covariates

As our data are measured annually we estimated three discrete time event history models for the transitions to the first, second and third and higher order birth. Random effects were added to the models in order to account for the correlation between couple-years within each couple.

We are most interested in understanding whether fertility behaviours of women in one education group differ by educational attainment of her partner (or vice versa). We therefore constructed 'indicator variables' which measure the actual pairings of her and his education. In order to not end up with too many pairings, we measured his and her education in three main groups each - low, medium, and high/tertiary education. Low education corresponds to ISCED 0,1 and 2 (i.e. lower secondary or second stage of basic education at most), medium education to ISCED 3 and 4 (i.e. upper secondary and post-secondary non-tertiary) and high education to ISCED 5 and 6 (first and second stage of tertiary education). The three pairing-categories which are of main interest for our analyses are: both highly educated (bothh), she highly educated and his education lower than her (shhlower), he highly educated and her education lower than his (hhslower). The remaining categories are: both highly educated (bothm), she medium educated and he low educated (smhl) and she low educated and he medium (slhm). The distributions of educational pairings differ strongly across countries (Table 2). Nonetheless, it is obvious that the grouping with both partners having medium education is on average the most prevalent, which is why it serves as the reference category in all models. Other relatively frequent categories are those with both highly educated partners and her having a tertiary education and being better educated than him. The educational pairing variable is introduced in all our models. The models for first birth transitions additionally feature an interaction between the educational pairings and her age to account for the fact that highly educated women start their childbearing careers later due to longer

participation in education. AIC and BIC have indicated that such an interaction is not needed in the models for second births, here, we only estimate the educational pairings without adding education-age interaction effects into the models.

The relationship between educational pairing and first birth risks is estimated net of her and his enrolment in education, her age and age squared, the absolute difference between his and her age, marital status (married vs. cohabitation), and year dummies to control for period effects. In the models for second and higher parities, we additionally control for her age at first birth in order to account for time squeeze effects experienced by women who made the transition to the first child later, and the age of the youngest child. We omit, however, her age due to collinearity with her age at first birth and age of the first child. We also exclude his enrolment in education from the second and higher order birth models as fathers in our sample turned out to participate in education very rarely. Enrolment and education are lagged by one year since we are interested in the relative educational pairing at the time of the conception instead at the time of birth. All our explanatory and control variables are summarized in Table 2, which also provides basic statistical information about them in our three analytical samples. Due to space limitations we opted for providing the cross-country distributions of the variables only in the sample of women exposed to the risk of second birth, for the remaining two samples we report only statistics for all countries combined.

Table 2 about here

Finally, some limitations of our empirical approach should be mentioned. Most importantly, our data provide us only with a snapshot of couples' life courses and do not allow us to distinguish between timing and quantum effects. In other words, we are unable to verify whether couples of certain educational pairings have the highest transition rates due to high speed of the transition or whether they are indeed more likely to have a child of a given order in comparison to other couples. Second, we are unable to control for a selection of certain couples into stable unions or parenthood. No conclusions about realized fertility can thus be drawn on the basis of our findings. Third, with our data we could not provide a comprehensive picture of the relationship between birth transitions and all socio-economic resources of couples, such as partners' earnings or labour force participation. The two variables are variables are very strongly endogenous to fertility and the EU-SILC sampling design precludes estimation of panel models that would allow us to account for this problem.

Even though EU-SILC provides very good data on income and economic activity of respondents the number of waves a couple is followed over time is too low to investigate the effects of changes in income between waves on fertility and the number of births is too small for the fixed-effects models - which could partly account for endogeneity - to converge[3]. Finally, our data provide us with no information on fertility preferences or couple's division of household labour. To the best of our knowledge, there is no comparative and recent data for the EU which would cover as many countries as we were able to cover and which, at the same time, would not have the limitations listed above. Hence, our study is explorative and aims at a descriptive documentation of the relationship between couples' educational pairings and their first, second and higher parity birth transitions rather than informing about differences in realized fertility among couples with a certain educational pairing. Even though we provide possible explanations for our findings, we are not able to test them on the EU-SILC data. We expect that our study will rather stimulate future more in-depth research on the topic.

4. Results

Tables 3-5 present model coefficients. As couples with two medium educated spouses were used as the reference category in the models, coefficient significances presented in the tables indicate differences between homogamous medium educated couples and the other shown pairings. Nonetheless, odds ratios should not be interpreted as effects and should not be compared across groups (e.g. Mood 2010). Therefore, in order to interpret our findings, we predicted the probabilities of first, second and third or higher order birth occurring, conditional on the birth not having occurred in the time interval before. They are presented in Figures 1-3. The characteristics of the reference couple were set at average values of control covariates if they were continuous, and at the modal values if they were discrete. For instance, first birth probabilities were computed for the year 2008 for a couple with an average age difference of three years (him being older). Second birth probabilities were computed for the same year and age difference, and held constant at the mean female age at first birth, which was 29. The graphs with predicted values show 4 lines per country, which represent the educational pairings of our main interest, namely: both highly educated, she highly educated

[3] Indeed, we have attempted to estimate fixed-effects models which included relative income and relative labor force statuses of the partners and which account for time-constant unobserved characteristics of individuals which jointly affect fertility and labor market outcomes. These models can be estimated only for persons who experienced a birth during the panel (Chamberlain 1980). Since the proportion of individuals who experienced a birth amounted to around 3% of the sample these models failed to converge. We therefore refrained from the path of modeling all relative socio-economics resources and have hence decided to focus on exclusively relative education of the partners instead.

and he has lower education, he is highly educated and she has lower education, and both have medium education. First birth probabilities are predicted for each year of the woman's age, from ages 23 to 40[4], while second and third birth probabilities are predicted for each year that has passed since the previous birth (up to 5 years). We computed tests to evaluate whether the differences between the predictions are significant, separately for each year of age (first births) or for each year that has passed since the last birth (2^{nd} & 3^{rd} births). Since we are most interested in highly educated individuals, the group of couples with homogamously highly educated partners was used as the reference category in those tests. This category is indicated by the black solid line in the figures. We chose to represent significant differences with the other groups in black colored lines (or line portions if not all years are significantly different in the predictions) – when the lines for the other pairings are grey, it means the difference in the prediction to the group of couples with two highly educated partners is not significant. Finally, it should be stressed that we have estimated separate models for each country, thus effect sizes have not been tested across countries and cannot be compared across countries. Rather, the focus is on investigating whether the educational pairings are significantly different from each other in predicting birth transitions within countries, particularly with respect to varying levels of partner education within individual education categories (e.g. both highly educated versus she highly educated and he lower education). It is, however, of course possible to compare the significant patterns of differences between the educational pairings across countries.

Figure 1 about here

4.1. First Births

Figure 1 shows the predicted first birth transition rates for each year of the woman's age between 23 and 40, for each of the educational pairings. The lines cross, since her age is interacted with the educational pairings in the models in order to allow for a differential effect of educational pairing by her age. Figure 1 indicates that there are significant differences in the hazards of experiencing the transition to parenthood by educational pairing, hence within her education by his education, and vice versa. One pattern that emerges is that first birth hazards significantly differ for highly educated women, conditional on the education of her

[4] We chose at 23 instead of 18 or 20 due to our focus on highly educated partners. In most of the European countries, the average age at college graduation lies well above that age.

partner. Couples with two highly educated spouses have higher predicted hazards of becoming parents at later ages (30-40), while the hypergamous as well as hypogamous couples with only one highly educated partner display similar age patterns of transitioning to the first child as couples with both medium educated partners. In other words, they experience the first birth significantly more often during their mid- to late 20s in Belgium and Luxemburg, Denmark and Finland, France, the Netherlands and the UK. In Spain, highly educated homogamous couples have significantly higher predicted first birth transition rates during her mid to late thirties compared to the other pairings, while predicted values don't differ at earlier ages. The pattern in the Baltic countries is exceptional - hypogamous couples with a highly educated woman have higher first birth hazard rates throughout the ages compared to couples with two highly educated partners, and significantly so during her late 20s.

Figure 2 about here

4.2. Second Births

The most interesting findings emerge from the analyses of second and third birth transitions. Across most countries, homogamous highly educated couples have the highest transitions rates to second births. They have significantly higher transition rates than couples with two medium educated partners in all countries but France and Spain. Additionally, in Belgium & Luxembourg, the Baltic countries and the Netherlands, these couples also have significantly higher transition rates than hypogamous couples with a highly educated woman and a lower educated partner. Thus, there appears to be a clear differentiation in second birth rates for highly educated women conditional on the education of the partner in these countries. Moreover, highly educated homogamous couples also have higher second birth transition rates than hypergamous couples with a highly educated man and a lower educated female partner in all countries, and significantly so in Austria, Belgium & Luxemburg, the Baltic Countries, Spain, the Netherlands, Sweden, and Slovenia.

Figure 3 about here

4.3. Third and Higher Parity Births

Similar to the findings for second births, highly educated homogamous couples display also the highest third birth rates in many of the analysed countries. In France, Norway and the Netherlands highly educated homogamous couples show higher transition rates than hypogamous couples with a highly educated female partner. This, again, underscores our main findings, namely that there appear to be significant differences in childbearing behavior within the group of highly educated women, conditional on his education. In Austria, Belgium and Luxembourg and the Netherlands highly educated homogamous couples progress more quickly to the third or higher order child than the hypergamous couples with him being highly educated. As in the case of the transition to second births, we are not able to decide whether and to what extent our findings are driven by time squeeze effect or selection effects.

5. Summary and Discussion

In light of rapidly changing sex ratios in higher education and the relevance of the couple-context for childbearing-decision-making, we have argued that it is important to extend the literature on the fertility-education relationship by investigating whether there are significant differences in how educational attainment among couples relates to childbearing behavior conditional on the education of the partner. While a handful of single country studies have previously investigated this question (Corijn et al. 1996; Wirth 2007; Bauer and Jacobs 2010, Dribe and Stanfors 2010), mostly with respect to the transition to parenthood, no representative multi-country study exists that examines how partners' educational pairings relate to couples' first, second and higher parity birth transitions. Our study aims at contributing to closing this gap by using data from the EU-SILC, a recent and ongoing household panel study now covering 32 European countries[5], by estimating how partners' educational pairings predict transitions to first, second and third and higher parity births. While we have estimated transition rates for all combinations of couples with low, medium, and high education of each partner, we have chosen to present the results for couples that include partners with at least medium-level education. Hence we focus on homogamous highly educated couples, homogamous couples with medium education, hypogamous couples with a highly educated woman and a medium (or low) educated male partner, and hypergamous couples with a highly educated man and a medium (or low) educated female

[5] 18 of which are included in our analyses, please see the data section for more information.

partner. Differences in childbearing behaviour between these more highly educated couples have yielded the most interesting findings. Additionally, they are most relevant to our research question since we are particularly invested in understanding which factors may further structure childbearing trajectories of highly educated women in times of rapidly changing gender regimes in higher education and the labor market. From our discrete time random effects event history analyses, two major findings have come to the fore.

First, our results clearly indicate that there are significant differences in birth progressions within her education by his education, and vice versa. Previous research which looked at both partners' combined education has suggested that it is mainly her and not his education which predicts couples transitions to parenthood in Germany (Bauer and Jacob 2010; Wirth 2007). However, by creating variables for the actual educational pairings of both partners, we find that childbearing behaviour of highly educated women - with respect to all parity transitions - differs by whether he is also highly educated or has lower education than she has, at least in some of the examined countries. With respect to first births, our results show that homogamous highly educated couples appear to be significantly more likely to postpone the transition to parenthood than all other examined couples in general and hypogamous couples with a highly educated woman and a lower educated man in particular. This pattern holds in Belgium & Luxemburg, Denmark & Finland, France, the Netherlands and the UK. Even more interesting are the results for second and third and higher parity births. Homogamous highly educated couples have the highest transition rates compared to medium educated couples and hypergamous couples in many countries, and also significantly higher transition rates than hypogamous couples in Belgium & Luxemburg, the Baltic Countries and the Netherlands (2nd births) and in France, the Netherlands and Norway (3rd births). The first major finding, hence, is that homogamous highly educated couples show a distinct childbearing behavior at least in some countries. They postpone the first birth most and display the highest transition rates to second and third birth subsequently as compared to other educational pairings in general and hypogamous couples with a highly educated woman and a lower educated man in particular.

The second major finding pertains to differences between highly educated homogamous couples and hypergamous couples with a highly educated man and a lower educated woman, i.e. to differences in childbearing behaviour within the group of highly educated men. Our results clearly show that hypergamous couples are much more likely to have a first child earlier in the life course and higher among homogamous highly educated couples later in the life course. Furthermore, hypergamous couples with a highly educated

man and a lower educated female partner have significantly lower second and third birth transition rates than homogamous highly educated couples in many countries. There is no country in which this type of couple has higher second or third birth transitions rates than homogamous highly educated couples.

Our findings are, as mentioned, purely descriptive. We can say, however, that what we have found matches up fairly well with some of our theoretical expectations discussed above. Becker's economic model of the family would predict that hypergamous couples may both have clearly differentiated traditional gender roles and also display the highest birth transition rates. While these couples have higher first birth probabilities at earlier ages, we did not find any evidence for them having significantly higher first birth transition rates at all stages of the life course and higher second or third birth transitions rates than other educational pairings. Quite to the contrary, hypergamous couples display among the lowest transition rates to second and third births across countries, and significantly lower transition rates than homogamous highly educated couples. This, in a suggestive manner, provides some evidence against the notion that the economic model of the family is well suited to help understanding childbearing behavior across Europe in the early 21st century. Rather, Oppenheimer's hypothesis on a pooling effect of both partners to a collaborative partnership may be supported by our results, as homogamous highly educated couples have higher transition rates to 2nd and 3rd birth than other types of couples in most countries. Alternatively, these findings would also be in line with the idea that value consensus, which implies his support for her combining of career and childrearing, may be behind elevated second or third birth transition rates of these couples. The third mentioned theoretical concept i.e. the bargaining perspective is not supported by our findings, at least not in a straightforward way. It would imply that, given similar fertility preferences across the educational pairings in a world that is still dominated by a traditional approach to the division of domestic and care obligations, hypogamous couples with a highly educated woman may have higher birth transitions than homogamous highly educated couples, as she may be better able to negotiate for viable help with chores and childrearing in such a set-up. While we find that first birth transition rates are indeed higher across all ages among hypogamous couples as compared to homogamous highly educated couples in the Baltic countries and France, this pattern does not reappear in the 2nd and 3rd birth transitions. Second birth transitions in Sweden are the only exception, yet the difference between the two educational pairings is not significant.

Nonetheless, we have to underscore that our findings are purely descriptive. Even though they seem to be in line with Oppenheimer's hypothesis or the concept of value consensus and speak against Becker's economic model and the bargaining approach our resultsdo not offer any formal testing of these hypotheses. In our study we estimated transition rates and are therefore not able to say whether our descriptive results purely pertain to timing effects, or whether there may indeed be an effect on the quantum that couples of different educational pairings. Possible timing effects regarding first births may hinge upon a systematically differential timing of union formation across the educational pairings, as we are unable to control for relationship duration with the EU-SILC data. Possible timing effects of second and higher parity births may be based upon the effect of the differential first birth timing which then perhaps gets carried by specific educational pairings into those parity progressions. In other words, homogamous highly educated couples who postpone the first birth may eventually progress to second and/or third births faster, as they have fewer fertile years left to have additional children. This would, in turn, imply that the time squeeze effect occurs in a more differentiated way than previously known, at least in some contexts, as it may apply specifically to homogamous highly educated couples who appear to postpone the first birth more than other couples with only one highly educated partner. Furthermore, the high second or higher birth transitions among the homogamous highly educated couples might be a result of the selection of family-oriented highly educated partners into the group of parents or stable unions. Previous research has suggested that such a selection of family oriented women into parenthood indeed inflates second birth transition rates among highly educated women (Kravdal 2001; Kreyenfeld 2002; Gottard et al. 2015). Our findings suggest that such selection may take place not among all highly educated women but rather among specific types of couples involving highly educated women. Further research on this topic is thus needed. This research should employ more detailed data which provides more completed cohort fertility information, deeper measures on couple-dynamics, including partnership histories together with characteristics of previous partners and measurements on relationship conflict and satisfaction, as well as fertility preferences of both partners. Such data would allow us to verify whether our findings are based on timing, quantum, or selection effects, and what the mechanisms behind those patterns are. Unfortunately such data is currently, in a unified form, not available neither for the EU member states nor beyond, which hinders cross-country comparisons and thus precludes the understanding of how structural social context may affect the relationship between partners' socio-economic resources and childbearing. In sum, our paper extends the literature on the fertility-education relationship by showing that

taking partners' relative education into account adds to our understanding of how education and childbearing behaviour are interlinked, specifically with regards to highly educated women's and men's behaviour. This is, despite the descriptive nature of the findings, an important contribution to the literature because it opens up a new conceptual way of understanding the fertility-education relationship. Our first results on educational pairings and fertility open up new opportunities for research that can further our understanding of family formation processes. Among them are the questions of how the timing of union formation in the life course may be related and affect couples' eventual educational pairings, and how this in turn may structure their childbearing behaviour, as well as whether highly educated homogamous couples may differ from couples with just one highly educated spouse in terms of earnings potential, value consensus, perceived career stability, or union satisfaction and how these aspects may affect the couples' fertility decision-making.

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Tables and Graphs

Table 1: Sample description: number of couples exposed to the events and number of events

	1st birth		2nd birth		3rd birth or higher	
	couples	events	couples	events	couples	events
AT	627	88	547	119	989	67
BE&LU	1193	224	1096	292	1804	136
CZ&SK	826	129	1087	193	1768	47
EE&LT&LV	730	127	1186	128	1790	101
ES	1503	296	1633	271	2212	60
FI&DK	1830	238	1300	288	2635	160
FR	1294	332	1161	339	1863	191
IT	2092	518	2452	422	2881	110
NL	1173	234	1042	387	2080	157
NO	628	132	560	184	1144	111
SE	771	190	724	267	1155	81
SI	522	85	777	152	1403	58
UK	814	132	658	166	1052	73
Total	14003	2725	14223	3208	22776	1352

Table 2. Couples at the risk of the first and third or higher birth in total and couples at the risk of the second child by country group, sample description at the beginning of the observation

Country group	% enrolled	% both high	% both medium	% she high, he lower	% he high, she lower	% both low	% she medium, he low	% she low, he medium	% married	mean age	mean relative age	mean age at first birth	mean age of the first child
Total 1st birth	9.45	22.86	30.58	17.51	8.98	7.57	7.33	5.16	49.89	29.3	3.1	-	-
Total 2nd birth	2.67	21.9	29.42	17.83	8.09	9.24	8.2	5.33	71.15	30.8	3.0	29.0	2.4
AT	1.3	12.3	47.2	10.1	10.4	4.4	5.5	10.2	71.9	30.6	3.5	28.8	2.3
BE&LU	1.0	32.5	18.9	16.8	7.1	12.4	8.4	3.9	78.3	30.6	3.2	29.0	2.2
CZ&SK	1.2	13.7	59.4	14.0	7.9	0.6	1.8	2.6	83.6	29.2	3.0	27.4	2.5
EE&LT&LV	4.4	18.2	28.3	23.1	6.7	7.6	9.1	7.0	63.2	27.5	3.1	25.5	2.6
ES	0.2	26.2	10.4	19.8	9.4	18.7	10.4	5.3	88.1	32.5	2.5	30.6	2.6
FI&DK	8.6	29.5	26.5	25.2	8.6	1.8	5.1	3.5	53.9	30.8	2.4	29.4	2.2
FR	1.7	29.0	26.6	21.0	9.5	3.5	5.8	4.7	47.9	30.3	2.7	28.8	2.0
IT	0.7	8.7	30.3	11.7	6.2	18.1	16.1	9.0	85.8	32.9	3.3	30.7	2.4
NL	1.9	28.9	24.1	17.6	12.3	3.4	8.8	5.0	56.1	32.4	2.6	30.6	2.1
NO	8.0	31.1	27.5	21.6	9.5	2.7	3.2	4.5	45.0	29.8	2.8	28.7	1.9
SE	6.2	32.0	27.6	23.5	8.7	1.2	3.9	3.0	37.4	31.4	2.5	29.6	2.0
SI	3.0	19.2	38.6	22.0	6.3	2.7	8.0	3.2	57.4	30.1	3.0	28.4	2.4
UK	0.8	32.5	27.2	20.1	14.0	2.1	2.9	1.2	73.3	31.9	3.0	30.0	2.3
Total 3rd birth	1.3	20.36	28.91	14.84	8.93	12.21	7.83	6.91	81.29	34.1	2.9	26.3	2.6

Table 3. First birth transitions: Model Results by Country

Variables	AT	BE & LU	CZ & SK	EE&LV & LT	ES	DK&FI	FR	IT	NL	NO	SE	SI	UK
Her enrolment	-0.509	-1.458	-1.878	-0.754	-1.105	-0.905	-1.250	-0.543	-1.491	-0.531	-0.055	-1.199	
	(0.789)	(0.832)*	(1.215)	(0.599)	(1.043)	(0.358)**	(0.390)***	(0.410)	(0.616)**	(0.348)	(0.264)	(1.015)	NA
His enrolment	0.437	NA	-0.413	NA		-0.461	-0.525	-1.606	-1.444	-0.723	-0.858	-1.032	NA
	(0.885)		(1.635)			(0.424)	(0.513)	(1.193)	(0.744)*	(0.464)	(0.490)*	(1.458)	
Her age [a)]	-0.100	-0.238	-0.193	-0.128	-0.068	-0.300	-0.097	-0.065	-0.095	-0.114	-0.034	-0.223	-0.007
	(0.051)**	(0.082)***	(0.074)***	(0.071)*	(0.046)	(0.121)**	(0.044)**	(0.027)**	(0.042)**	(0.059)*	(0.047)	(0.103)**	(0.041)
Her age sq.	-0.002	-0.016	-0.026	-0.005	-0.010	-0.057	-0.009	-0.013	-0.037	0.003	-0.017	-0.026	-0.006
	(0.007)	(0.010)	(0.010)**	(0.011)	(0.008)	(0.016)***	(0.006)	(0.005)**	(0.010)***	(0.007)	(0.007)**	(0.014)*	(0.005)
Relative age	-0.010	-0.026	0.033	-0.040	-0.044	-0.043	-0.039	-0.042	-0.028	-0.050	-0.013	-0.024	-0.055
	(0.030)	(0.019)	(0.043)	(0.039)	(0.017)**	(0.031)	(0.016)**	(0.015)***	(0.021)	(0.028)*	(0.022)	(0.059)	(0.027)**
Cohabitation	-1.520	-0.956	-1.412	-1.440	-1.332	-1.006	-0.711	-1.070	-0.509	-0.566	-0.539	-1.339	-1.354
(ref = marriage)	(0.430)***	(0.224)***	(0.447)***	(0.400)***	(0.199)***	(0.263)***	(0.155)***	(0.195)***	(0.165)***	(0.208)***	(0.225)**	(0.577)**	(0.353)***
Educational pairing (ref = bothm)													
bothh	0.834	0.781	0.815	-0.028	-0.310	1.811	0.242	0.366	-0.325	1.235	0.319	1.753	-0.178
	(0.595)	(0.354)**	(0.517)	(0.734)	(0.288)	(0.496)***	(0.258)	(0.273)	(0.272)	(0.443)***	(0.317)	(0.758)**	(0.296)
shhlower	0.021	0.493	1.273	1.344	-0.042	0.554	0.414	-0.037	-0.533	1.280	0.457	0.801	0.144
	(0.571)	(0.404)	(0.618)**	(0.737)*	(0.298)	(0.478)	(0.287)	(0.254)	(0.305)*	(0.488)***	(0.343)	(0.625)	(0.312)
slowerhh	-0.073	1.059	-0.457	-0.204	-0.443	0.361	0.123	0.286	-0.267	1.660	0.873	1.923	-0.514
	(0.688)	(0.635)*	(0.779)	(1.229)	(0.392)	(0.603)	(0.423)	(0.351)	(0.324)	(0.578)***	(0.492)*	(0.869)**	(0.443)
bothl	NA	0.093	NA	0.224	-0.483	-22.924	0.268	-0.251	-0.130	NA	NA	1.280	NA
		(0.564)		(1.836)	(0.339)	(26.081)	(0.628)	(0.262)	(0.647)			(1.977)	
smhl	-2.443	1.222	-19.567	-8.760	-0.422	-0.334	-0.211	-0.148	-0.719	1.231	-0.940	-2.185	0.176
	(1.817)	(0.576)**	(9,166.081)	(6.792)	(0.384)	(0.862)	(0.672)	(0.253)	(0.454)	(0.860)	(0.757)	(2.609)	(0.761)
slhm	-0.861	-0.178	-1.034	0.754	-1.449	-1.108	-0.892	-0.346	-0.619	0.334	-0.456	1.424	-0.760
	(1.292)	(0.827)	(2.530)	(1.202)	(0.597)**	(1.360)	(0.631)	(0.334)	(0.621)	(0.716)	(0.887)	(1.229)	(1.322)
Educational pairing * her age													
bothh * her age	0.111	0.306	0.254	-0.108	0.152	0.367	0.133	0.040	0.269	0.084	0.099	-0.008	0.117
	(0.158)	(0.094)***	(0.143)*	(0.152)	(0.068)**	(0.143)**	(0.055)**	(0.085)	(0.070)***	(0.077)	(0.069)	(0.191)	(0.071)
shhlower * her age	0.214	0.124	0.128	-0.088	0.112	0.226	0.112	0.012	-0.008	0.040	0.039	0.167	-0.083
	(0.123)*	(0.097)	(0.146)	(0.099)	(0.066)*	(0.134)*	(0.055)**	(0.059)	(0.057)	(0.090)	(0.066)	(0.165)	(0.067)
slowerhh * her age	-0.053	0.243	-0.101	-0.428	0.084	0.146	-0.147	0.077	-0.024	0.065	0.194	0.207	-0.198
	(0.155)	(0.129)*	(0.160)	(0.372)	(0.084)	(0.145)	(0.124)	(0.088)	(0.081)	(0.094)	(0.136)	(0.183)	(0.093)**
bothl * her age	NA	0.090	NA	-0.535	-0.044	-7.153	-0.074	-0.033	-0.216	NA	NA	0.304	NA
		(0.109)		(0.559)	(0.063)	(7.237)	(0.122)	(0.043)	(0.145)			(0.465)	
smhl * her age	-0.179	0.235	0.094	-3.501	0.012	0.241	-0.233	-0.043	-0.149	-0.088	-0.036	-0.330	0.084
	(0.439)	(0.109)**	(1,365.373)	(2.216)	(0.074)	(0.197)	(0.192)	(0.048)	(0.110)	(0.214)	(0.173)	(0.481)	(0.144)
slhm * her age	-0.085	-0.004	-0.259	0.003	0.002	0.218	0.094	-0.038	0.011	0.297	-0.260	0.379	-0.156
	(0.158)	(0.164)	0.254	(0.145)	(0.077)	(0.386)	(0.083)	(0.055)	(0.099)	(0.138)**	(0.315)	(0.237)	(0.205)
Educational pairing * her age sq.													
bothh * her age sq.	-0.067	-0.019		-0.003	-0.004	-0.029	-0.010	-0.007	-0.009	-0.028	-0.003		
	(0.040)*	(0.014)		(0.026)	(0.012)	(0.025)	(0.009)	(0.015)	(0.016)	(0.014)**	(0.013)		
shhlower * her age sq.	0.006	-0.001		-0.011	-0.019	0.033	0.000	0.003	0.030	-0.031	0.004		

	(0.021)	(0.015)		(0.018)	(0.013)	(0.020)*	(0.009)	(0.011)	(0.013)**	(0.016)**	(0.012)		
slowerhh * her age sq.	-0.034	-0.027		-0.032	-0.011	0.035	-0.026	-0.008	0.006	-0.036	-0.058		
	(0.032)	(0.026)		(0.037)	(0.016)	(0.021)	(0.016)	(0.016)	(0.018)	(0.017)**	(0.032)*		
bothl * her age sq.	NA	0.008		-0.052	-0.004	-0.480	-0.012	0.008	0.011	NA	NA		
		(0.014)		(0.045)	(0.011)	(0.483)	(0.016)	(0.008)	(0.024)				
smhl * her age sq.	0.009	-0.006		-0.292	-0.003	0.030	-0.034	0.001	0.011	-0.042	0.009		
	(0.043)	(0.017)		(0.174)*	(0.013)	(0.028)	(0.023)	(0.009)	(0.019)	(0.033)	(0.021)		
slhm * her age sq.	0.007	0.007		0.005	0.032	-0.009	0.014	0.003	0.020	0.028	-0.027		
	(0.022)	(0.019)		(0.020)	(0.016)**	(0.074)	(0.012)	(0.010)	(0.021)	(0.017)*	(0.036)		
Constant	-1.738	-2.318	-3.274	-2.754	-1.182	-2.233	-1.357	-1.349	-1.006	-2.794	-1.127	-2.108	-1.496
	(0.566)***	(0.404)***	(0.565)***	(0.764)***	(0.304)***	(0.495)***	(0.278)***	(0.217)***	(0.305)***	(0.538)***	(0.339)***	(0.802)***	(0.428)***
Number of couple-years	1,040	2,128	1,497	1,178	2,539	3,104	2,727	3,425	1,960	1,271	1,246	774	1,326

Notes: The findings control for calendar year (dummies. NA means that the estimates are not shown due to low number of births to couples in a given cell.

[a)] Woman's age is centred at 30.

Table 4. Second birth transitions: Model Results by Country

Variables	AT	BE & LU	CZ & SK	EE&LV & LT	ES	DK&FI	FR	IT	NL	NO	SE	SI	UK
Her enrolment	NA	0.020	1.564	-0.044	NA	-0.926	-0.808	-0.058	-0.305	0.061	-0.686	-0.121	-0.876
		(0.697)	(1.087)	(0.789)		(0.511)*	(0.657)	(0.663)	(0.563)	(0.816)	(0.485)	(0.659)	(0.964)
Relative age	-0.020	-0.033	-0.000	0.022	-0.029	-0.054	-0.002	0.002	-0.031	0.037	-0.073	-0.009	-0.043
	(0.029)	(0.016)**	(0.028)	(0.035)	(0.022)	(0.035)	(0.015)	(0.014)	(0.019)	(0.037)	(0.031)**	(0.027)	(0.024)*
Age of the first child	2.437	2.452	2.665	2.069	2.379	3.185	2.617	1.861	3.568	2.335	4.137	1.856	3.169
	(0.620)***	(0.335)***	(0.542)***	(0.655)***	(0.414)***	(0.579)***	(0.334)***	(0.275)***	(0.390)***	(0.570)***	(0.723)***	(0.515)***	(0.717)***
Age of the first child sq.	-0.405	-0.379	-0.377	-0.273	-0.301	-0.481	-0.367	-0.257	-0.599	-0.263	-0.602	-0.249	-0.455
	(0.101)***	(0.053)***	(0.079)***	(0.095)***	(0.059)***	(0.090)***	(0.049)***	(0.041)***	(0.065)***	(0.082)***	(0.106)***	(0.076)***	(0.104)***
Age at first birth	-0.054	-0.060	-0.078	-0.040	-0.095	-0.185	-0.067	-0.075	-0.122	-0.078	-0.148	-0.086	-0.042
	(0.029)*	(0.019)***	(0.032)**	(0.038)	(0.024)***	(0.040)***	(0.017)***	(0.015)***	(0.021)***	(0.038)**	(0.036)***	(0.033)***	(0.022)*
Cohabitation (ref = marriage)	-0.472	-0.548	-1.119	-0.113	-0.025	-0.846	-0.197	-0.646	-0.104	-1.770	-0.435	-0.569	-0.784
	(0.295)	(0.198)***	(0.421)***	(0.328)	(0.265)	(0.283)***	(0.140)	(0.209)***	(0.135)	(0.865)**	(0.260)*	(0.257)**	(0.300)***
Educational pairing (ref = bothm)													
bothh	0.859	0.575	0.978	1.412	0.302	0.108	0.232	0.630	0.628	0.204	0.550	0.912	0.564
	(0.402)**	(0.226)**	(0.347)***	(0.516)***	(0.307)	(0.367)	(0.186)	(0.225)***	(0.192)***	(0.382)	(0.319)*	(0.341)***	(0.303)*
shhlower	0.953	-0.132	0.425	0.226	0.313	-0.073	-0.029	0.416	0.270	-0.267	0.745	0.605	0.164
	(0.436)**	(0.253)	(0.324)	(0.438)	(0.311)	(0.373)	(0.204)	(0.194)**	(0.205)	(0.414)	(0.345)**	(0.315)*	(0.328)
slowerhh	-0.145	0.027	0.361	-0.043	-0.365	-0.380	0.038	0.523	0.097	0.383	-0.221	-0.331	0.137
	(0.456)	(0.303)	(0.415)	(0.668)	(0.384)	(0.538)	(0.255)	(0.238)**	(0.233)	(0.631)	(0.454)	(0.552)	(0.369)
bothl	0.165	-0.116	-20.374	-0.600	-0.771	-2.077	-0.232	-0.271	-0.958	0.620	-0.339	0.420	0.455
	(0.580)	(0.262)	(14,134.650)	(0.749)	(0.355)**	(1.303)	(0.416)	(0.176)	(0.433)**	(1.189)	(1.185)	(0.651)	(0.811)
smhl	-2.172	-0.348	-0.481	0.237	-0.104	-0.506	-0.139	-0.164	-0.649	1.282	-0.462	-0.673	0.127
	(1.093)**	(0.302)	(0.957)	(0.553)	(0.364)	(0.631)	(0.338)	(0.180)	(0.279)**	(0.650)**	(0.652)	(0.511)	(0.646)
slhm	-0.031	-0.829	0.244	0.625	-1.079	-0.121	-0.261	-0.139	-0.415	-0.415	0.566	-0.462	0.430
	(0.428)	(0.439)*	(0.656)	(0.629)	(0.510)**	(0.690)	(0.377)	(0.230)	(0.362)	(0.929)	(0.724)	(0.750)	(1.257)
Constant	-3.818	-2.797	-4.644	-6.526	-3.849	-0.482	-3.469	-3.119	-1.710	-6.505	-2.734	-2.562	-4.989
	(1.225)***	(0.695)***	(1.245)***	(1.757)***	(0.992)***	(1.140)	(0.680)***	(0.634)***	(0.670)**	(1.437)***	(1.148)**	(1.203)**	(1.384)***
Number of couple-years	881	1,861	1,888	1,922	2,681	1,959	2,225	4,045	1,584	2,376	1,099	1,181	961

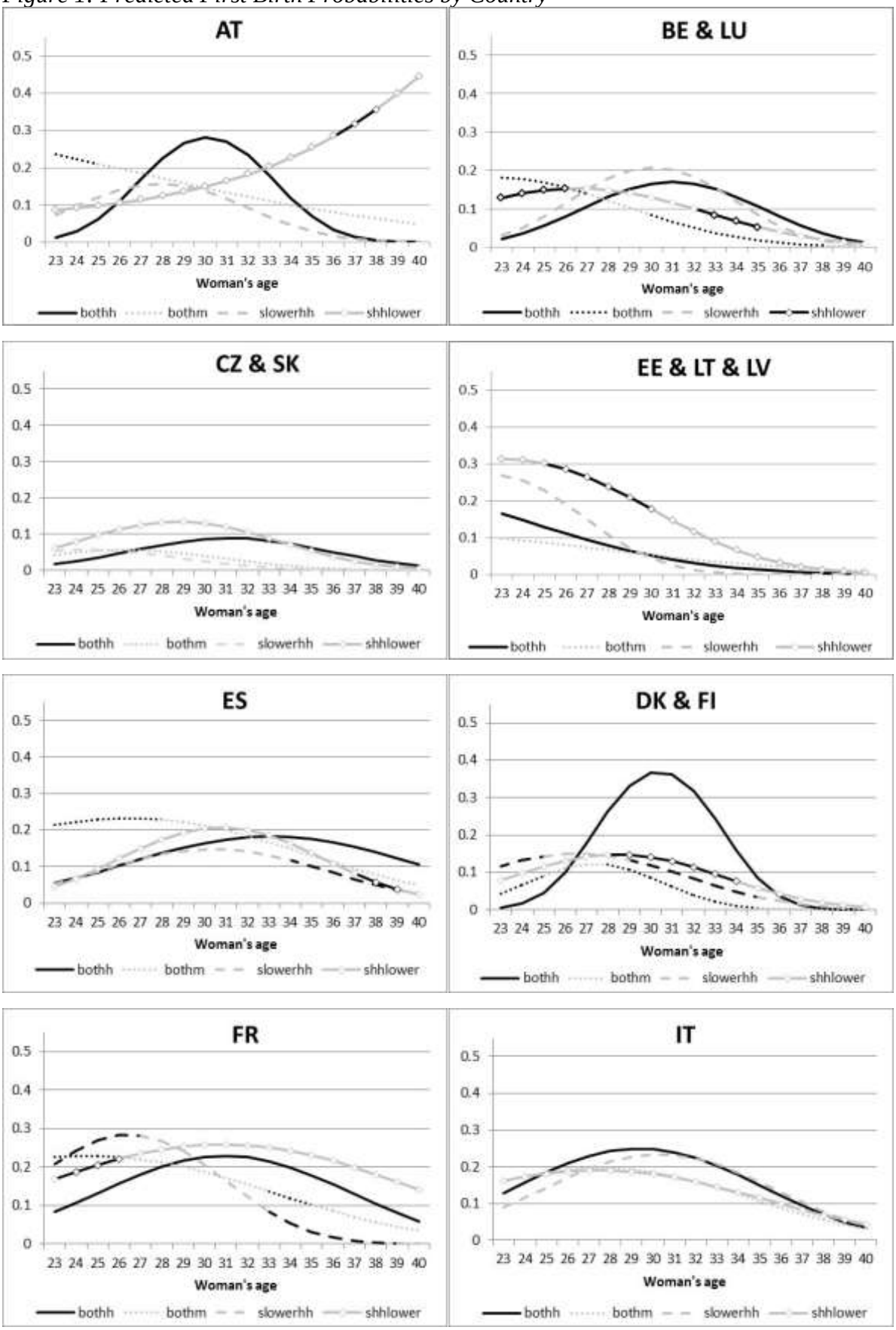
Notes: The findings control for calendar year (dummies. NA means that the estimates are not shown due to low number of births to couples in a given cell.

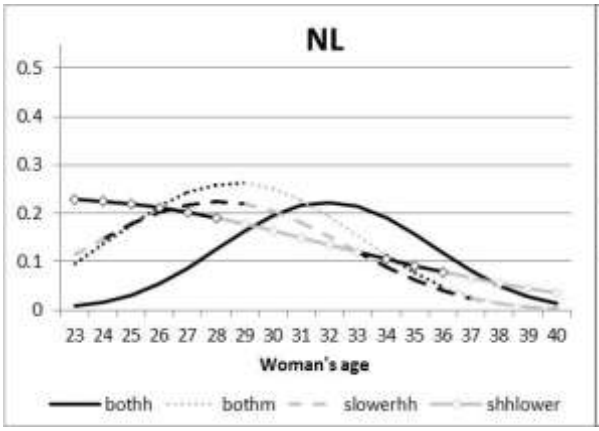
Table 5: Third birth transitions: Model Results by Country

Variables	AT	BE & LU	CZ & SK	EE&LV & LT	ES	DK&FI	FR	IT	NL	NO	SE	SI	UK
Her enrolment	NA	NA	3.969 (1.403)***	NA	NA	-0.724 (0.595)	0.097 (1.048)	2.239 (0.940)**	-0.002 (0.755)	-0.141 (0.608)	0.532 (0.375)	1.849 (0.812)**	-0.211 (1.115)
Relative age	0.026 (0.031)	-0.023 (0.021)	-0.005 (0.033)	0.015 (0.020)	0.075 (0.022)***	-0.015 (0.021)	-0.001 (0.017)	-0.004 (0.026)	-0.029 (0.024)	0.019 (0.024)	0.053 (0.025)**	0.019 (0.032)	-0.014 (0.025)
Age of the first child	2.659 (0.619)***	1.826 (0.374)***	1.183 (0.685)*	0.939 (0.407)**	0.520 (0.495)	1.795 (0.380)***	1.225 (0.311)***	2.185 (0.526)***	2.184 (0.371)***	0.828 (0.378)**	1.512 (0.517)***	1.842 (0.576)***	1.394 (0.485)***
Age of the first child sq.	-0.419 (0.098)***	-0.292 (0.062)***	-0.132 (0.102)	-0.132 (0.065)**	-0.080 (0.080)	-0.296 (0.061)***	-0.170 (0.049)***	-0.314 (0.078)***	-0.381 (0.063)***	-0.136 (0.062)**	-0.223 (0.081)***	-0.284 (0.093)***	-0.223 (0.080)***
Age at first birth	-0.053 (0.032)	-0.045 (0.024)*	-0.022 (0.040)	0.010 (0.028)	-0.046 (0.031)	-0.067 (0.022)***	-0.074 (0.021)***	-0.081 (0.027)***	-0.113 (0.023)***	-0.076 (0.026)***	-0.056 (0.030)*	-0.039 (0.041)	-0.107 (0.027)***
Cohabitation (ref = marriage)	0.623 (0.368)*	0.037 (0.270)	0.443 (0.438)	-0.004 (0.237)	0.712 (0.446)	-0.029 (0.199)	-0.504 (0.194)***	-1.033 (0.611)*	-0.259 (0.224)	-0.019 (0.218)	-0.272 (0.296)	-0.475 (0.361)	0.128 (0.292)
bothh	0.819 (0.392)**	0.307 (0.301)	0.878 (0.471)*	0.526 (0.320)	0.628 (0.570)	0.315 (0.233)	0.710 (0.229)***	0.145 (0.463)	0.440 (0.233)*	0.353 (0.277)	0.306 (0.332)	0.799 (0.422)*	0.583 (0.348)*
shhlower	0.450 (0.476)	0.079 (0.361)	0.623 (0.569)	0.022 (0.362)	-0.059 (0.635)	-0.018 (0.258)	0.144 (0.280)	-0.249 (0.481)	-0.299 (0.319)	-0.319 (0.326)	0.196 (0.327)	0.692 (0.402)*	-0.059 (0.423)
slowerhh	-0.252 (0.503)	-1.298 (0.751)*	0.745 (0.510)	0.008 (0.499)	0.055 (0.657)	0.156 (0.316)	0.631 (0.285)**	-0.168 (0.498)	-0.076 (0.280)	0.340 (0.324)	0.126 (0.410)	0.294 (0.580)	0.188 (0.425)
bothl	0.921 (0.438)**	0.255 (0.300)	0.689 (0.763)	0.583 (0.427)	-0.030 (0.572)	-1.206 (1.029)	0.452 (0.310)	0.186 (0.290)	-0.783 (0.615)	NA	NA	0.076 (1.051)	1.137 (0.450)**
smhl	1.423 (0.445)***	0.274 (0.393)	0.230 (1.043)	0.889 (0.367)**	-0.245 (0.715)	0.657 (0.298)**	0.476 (0.305)	0.003 (0.335)	-0.191 (0.356)	0.308 (0.438)	-1.064 (0.786)	0.592 (0.532)	-0.135 (0.634)
slhm	-0.688 (0.626)	0.136 (0.403)	1.613 (0.498)***	1.199 (0.323)***	-0.105 (0.723)	-0.054 (0.458)	0.498 (0.287)*	0.122 (0.376)	0.339 (0.343)	-0.289 (0.438)	0.087 (0.581)	1.298 (0.501)***	-0.123 (0.643)
Constant	-5.635 (1.291)***	-4.136 (0.864)***	-6.521 (1.500)***	-5.697 (0.935)***	-4.030 (1.249)***	-3.663 (0.868)***	-3.302 (0.748)***	-4.992 (1.253)***	-2.555 (0.845)***	-2.256 (0.885)**	-4.470 (1.207)***	-5.165 (1.365)***	-2.392 (1.015)**
Number of couple-years	1,809	3,608	3,365	3,301	3,879	4,723	4,488	5,135	3,797	2,761	2,036	2,461	1,661

Notes: The findings control for calendar year (dummies. NA means that the estimates are not shown due to low number of births to couples in a given cell.

Figure 1: Predicted First Birth Probabilities by Country

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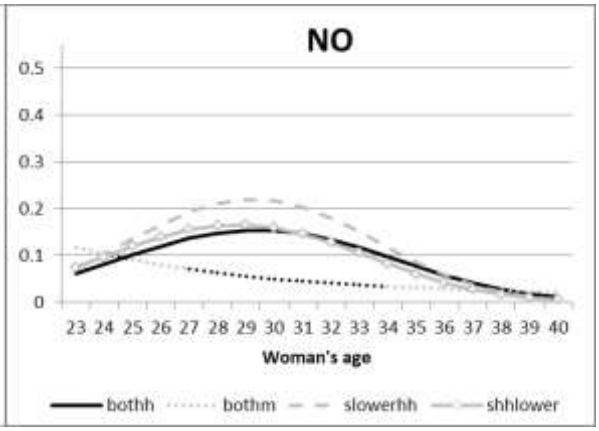
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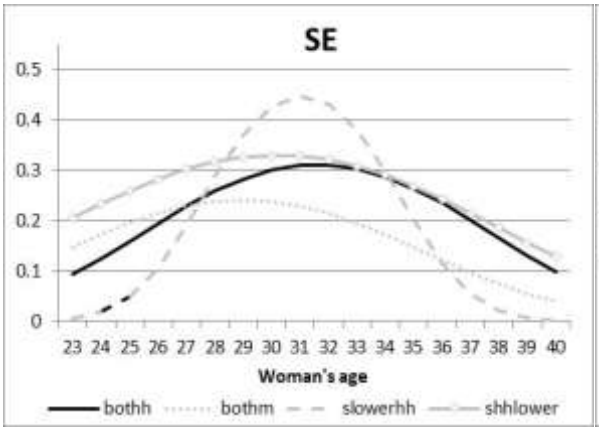
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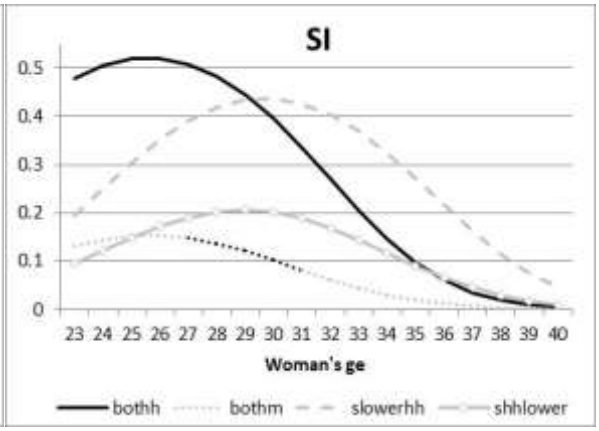
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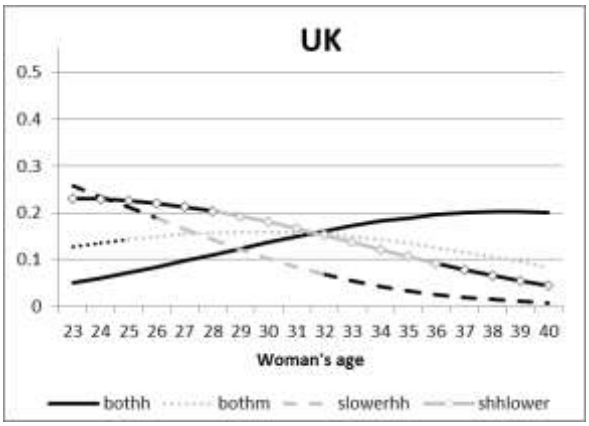
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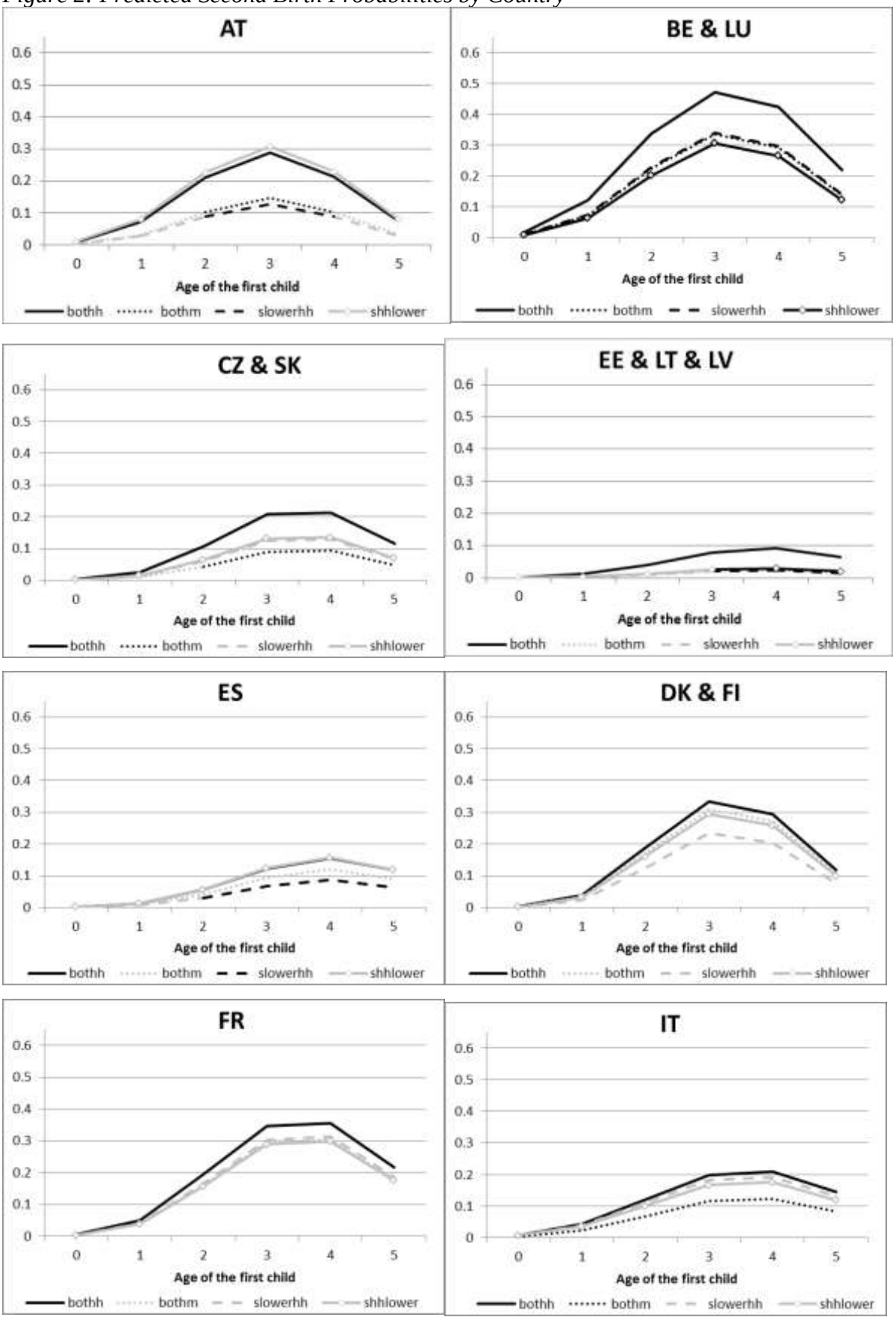
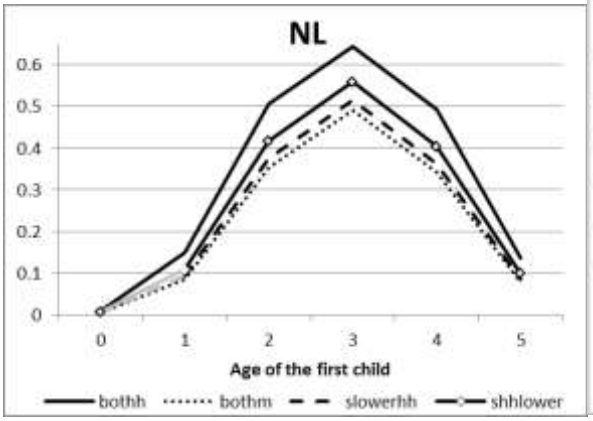
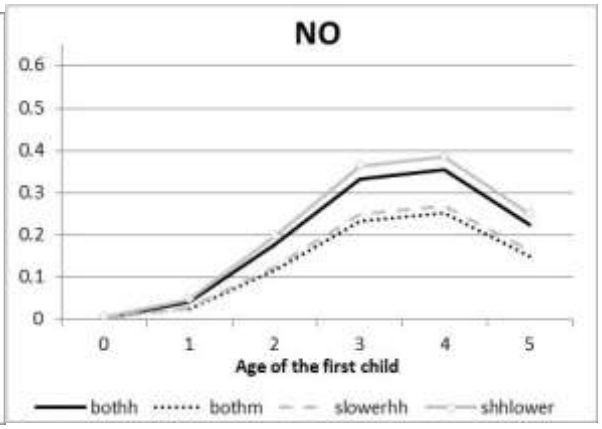
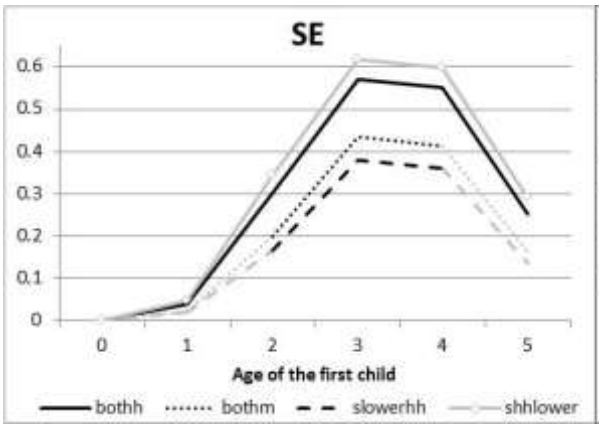
Woman's age
bothh
bothm
slowerhh
shhlower

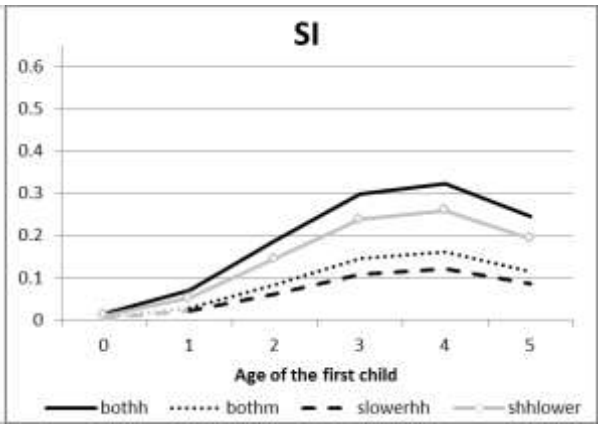
Figure 2: Predicted Second Birth Probabilities by Country




NL
0.6
0.5
0.4
0.3
0.2
0.1
0
0 1 2 3 4 5
Age of the first child
bothh bothm slowerhh shhlower


NO
0.6
0.5
0.4
0.3
0.2
0.1
0
0 1 2 3 4 5
Age of the first child
bothh bothm slowerhh shhlower


SE
0.6
0.5
0.4
0.3
0.2
0.1
0
0 1 2 3 4 5
Age of the first child
bothh bothm slowerhh shhlower


SI
0.6
0.5
0.4
0.3
0.2
0.1
0
0 1 2 3 4 5
Age of the first child
bothh bothm slowerhh shhlower

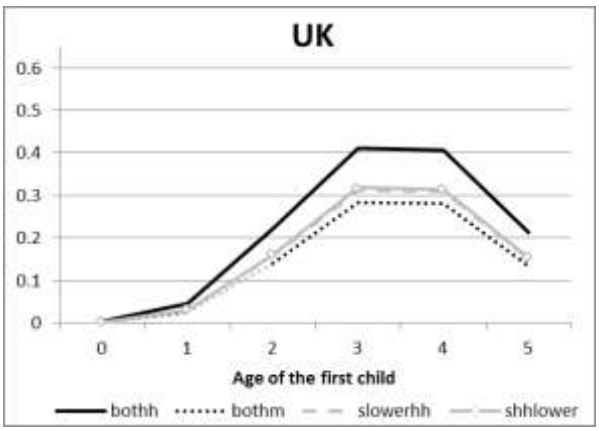
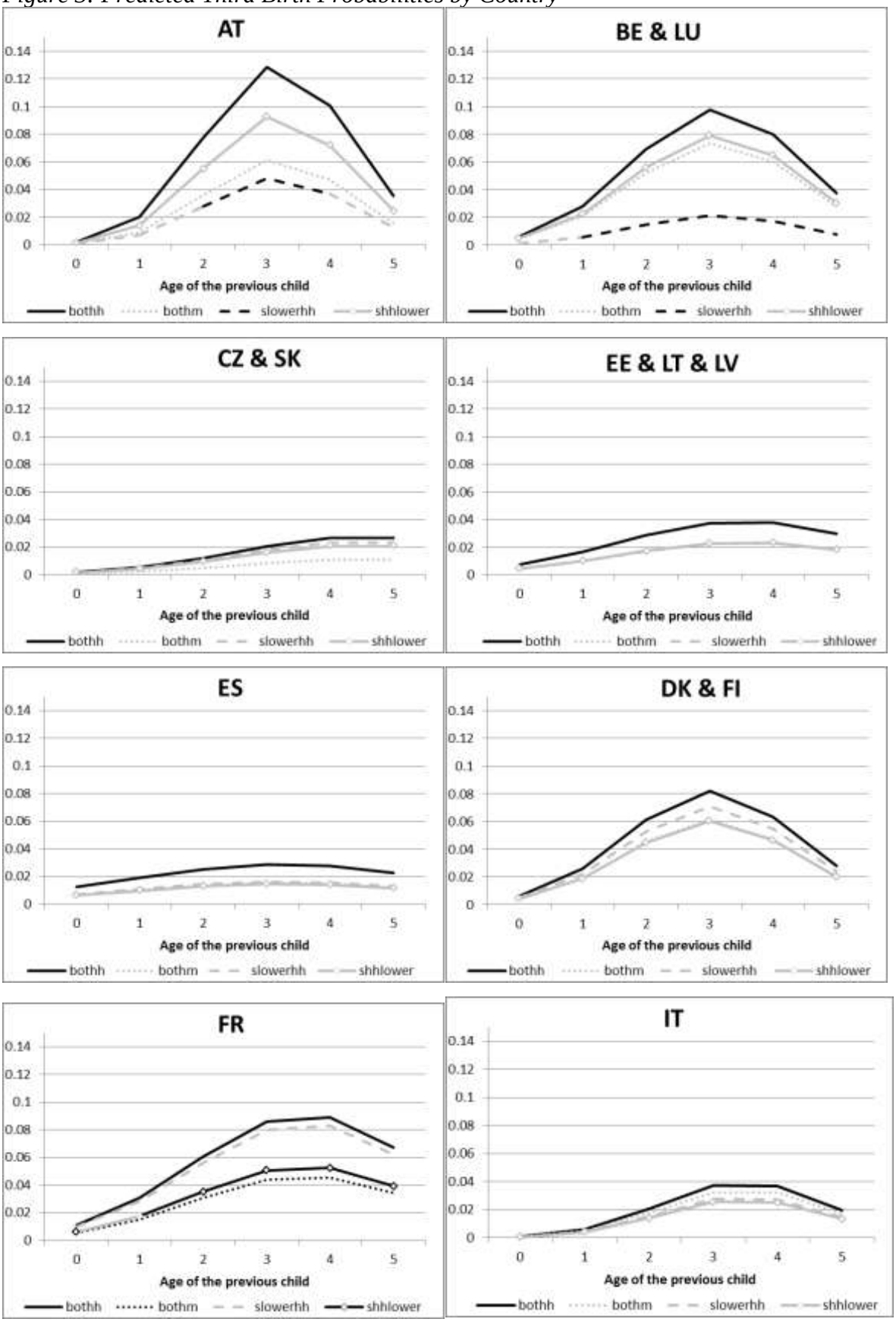
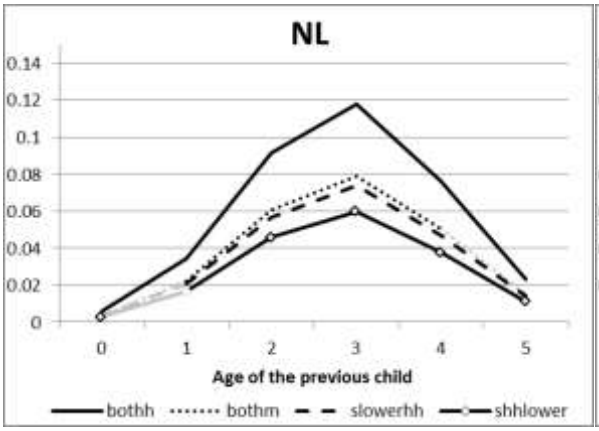
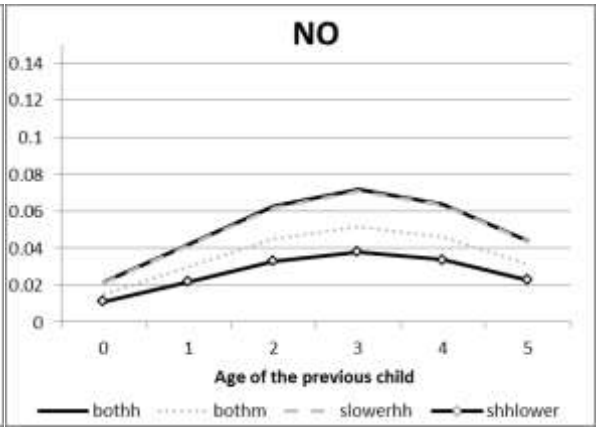
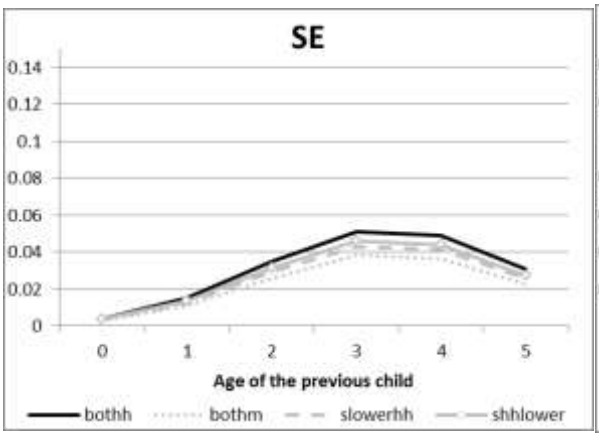

UK
0.6
0.5
0.4
0.3
0.2
0.1
0
0 1 2 3 4 5
Age of the first child
bothh bothm slowerhh shhlower

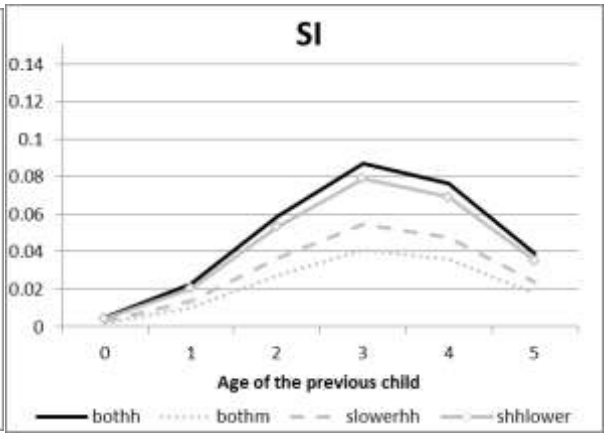
Figure 3: Predicted Third Birth Probabilities by Country

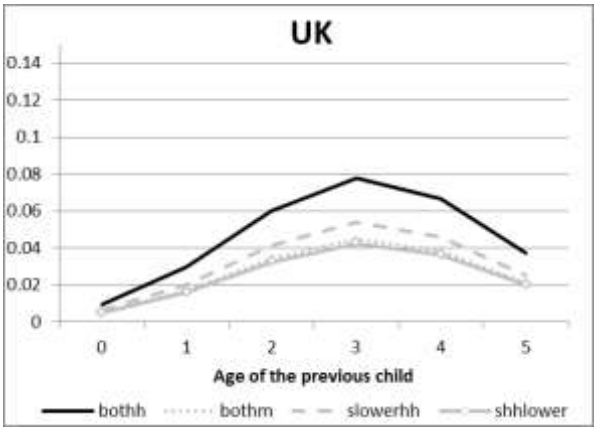



NL
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0 1 2 3 4 5
Age of the previous child
bothh bothm slowerhh shhlower


NO
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0 1 2 3 4 5
Age of the previous child
bothh bothm slowerhh shhlower


SE
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0 1 2 3 4 5
Age of the previous child
bothh bothm slowerhh shhlower


SI
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0 1 2 3 4 5
Age of the previous child
bothh bothm slowerhh shhlower


UK
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0 1 2 3 4 5
Age of the previous child
bothh bothm slowerhh shhlower