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Research Article

Educational pairings, partners' economic resources, and second births in Austria

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Contents

1	Introduction	848
2	Education and fertility: A couple perspective	850
2.1	Educational pairings, economic resources, and social norms	851
2.1.1	Becker vs. Oppenheimer: The role of economic resources	851
2.1.2	Beyond Becker and Oppenheimer	852
2.1.3	Educational pairings and fertility timing	853
2.2	Previous findings on educational pairings and the transition to second birth	854
2.3	Hypotheses	855
2.4	The Austrian context	856
3	Data and methods	858
3.1	Data description	858
3.2	Measures	859
3.3	Analytical strategy	862
4	Results	863
4.1	Second births among educationally homogamous couples	863
4.2	Second births among educationally heterogamous couples	866
4.3	Alternative model specifications	869
5	Discussion	870
6	Acknowledgments	874
	References	875
	Appendix	883

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Research Article

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Abstract

BACKGROUND
Fertility research has highlighted the importance of analyzing both partners' characteristics as determinants of fertility behavior, especially when examining the role of socioeconomic resources. However, due to a lack of adequate data, couple-level fertility research is relatively scarce.

OBJECTIVE
We examined the role of educational pairings in different-sex couples for the occurrence and timing of second births in Austria, with a focus on the role of partners' income.

METHODS
We used register data from the period 2000–2021, and we applied a cure model to differentiate between factors associated with the occurrence and timing of second births.

RESULTS
Homogamous couples with at least medium education are more likely to have a second child relative to their lower-educated counterparts. Medium-educated couples have longer birth intervals relative to both lower- and tertiary-educated couples. Results did not change when controlling for partners' joint income. When we controlled for relative income in the medium–tertiary combination, hypogamous (the woman more educated than the man) couples were more likely to have a second child than their hypergamous (the man more educated than the woman) counterparts.

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CONCLUSIONS
Findings highlight that the economic dimension of education, as captured by partners' joint and relative income, is not sufficient to explain differences between educational pairings in the occurrence and timing of second births in Austria.

CONTRIBUTION
We examined whether the association between couples' educational pairing and the occurrence and timing of second births is accounted for by partners' joint or relative income. Moreover, we used register data, allowing for precise measures of educational pairings and partners' earnings.

1. Introduction

Educational expansion, changing gender roles, and declining fertility levels have increased the need to thoroughly understand the complex relationship between education and childbearing. For research on education and fertility, it is particularly important to adopt a couple perspective (Corijn, Liefbroer, and de Jong Gierveld 1996; Gustafsson and Worku 2006), considering the impact of both partners' educational attainment (Kreyenfeld 2002). Given that the majority of births occur within unions, and in light of educational assortative mating, a focus on only one partner's education does not allow us to disentangle whether it is his or her education that matters or in fact the specific combination of education within the couple (Trimarchi and Van Bavel 2017).

In examining the association between education and fertility from a couple perspective, it is important to consider both partners' absolute and relative education. Education entails both cultural (e.g., attitudes, values, social skills) and economic aspects (Lappegård and Rønsen 2005; Trimarchi and Van Bavel 2020). The partners' combined *absolute* level of education may reflect the level of resources available to the family, while *relative* education can serve as an indicator of the woman's relative resources and bargaining power within the couple (Blood and Wolfe 1960). While a woman's relative economic standing within a couple can have important consequences for fertility decisions, few studies have directly addressed the role of economic resources as mediators in the association between educational pairings and continued childbearing (Trimarchi and Van Bavel 2020; Nitsche 2024), and cultural aspects remain largely understudied (Nitsche 2024).

Even though a couple perspective is clearly needed to understand associations between education and fertility, fertility studies using couple-level data are still relatively scarce due to a lack of adequate data. Analyses of couples are data-demanding, since information on both partners' characteristics is necessary and large sample sizes are

needed for different combinations of his and her characteristics to be well represented in the data – a situation practically asking for administrative register data.

In this study, we examine the association of educational pairings in different-sex couples with the risk of second births – their occurrence and timing – in Austria, with a focus on the role of partners' income. We examine second births because of their relevance for fertility levels, especially in contexts such as Austria, where family size ideals were falling below replacement level at the turn of the 21st century (Goldstein, Lutz, and Testa 2003) and the intended number of children was below two starting around 1990 (Buber-Ennser, Setz, and Riederer 2023). Prior research on the association between educational pairings and the transition to second births showed that in some European regions, couples in which both partners have high levels of education have the highest transition rates to second births (Dribe and Stanfors 2010; Nitsche et al. 2018; Trimarchi and Van Bavel 2020). This finding would support the so-called pooling of resources argument (Oppenheimer 1988, 1994), according to which a high household income and the financial security in dual-earner couples are conducive to fertility.

However, the central question about mechanisms that drive the positive association between partners' educational attainment and second birth rates is still open. Prior studies analyzing the association of educational pairings with the transition to second and higher-order births were mostly based on survey data with relatively small sample sizes (e.g., Nitsche et al. 2018; Trimarchi and Van Bavel 2020). In these studies, the measurement of educational pairings lacked accuracy since it was necessary to collapse groups across educational levels. Moreover, information on both partners' characteristics is often limited to their educational levels and does not extend to their economic resources. As a result, the mechanisms behind the positive association between couples' education and second birth rates are not well understood. Additionally, studies that have used rich register data are mostly confined to the Nordic countries (Dribe and Stanfors 2010; Nitsche, Trimarchi, and Jalovaara 2020), limiting our knowledge about how the effects of socioeconomic resources on fertility vary across contexts (Trimarchi and Van Bavel 2020). Educational and gender differences in work and family involvement are substantially different across contexts, increasing the demand for context-specific couple-level studies (Singley and Hynes 2005).

Another limitation of prior research pertains to the methodological focus on transition rates, which conflate the timing and quantum components of fertility (Bartus et al. 2013; Kreyenfeld et al. 2023). This approach makes it difficult to disentangle the effects of partners' combined education on the likelihood and timing of second births. Education and the associated social, cultural, and economic resources may affect differently the occurrence of a second birth and the spacing between births (Kreyenfeld et al. 2023).

In this study we make a threefold contribution to the literature on couples' socioeconomic resources and second birth transitions. First, to scrutinize one of the main mechanisms emphasized in the literature, we examine the role of partners' joint or relative income in the association of couples' educational pairing with second birth rates. Second, in this analysis we applied cure models to disentangle the role played by partners' resources on both the *occurrence* and the *timing* of second births. Third, we focus on Austria, which, unlike the Nordic countries, is characterized by a very high share of women working part-time and a stronger attachment to a traditional division of labor within households (Berghammer 2014). We used data from social security records and register data covering heterosexual couples who experienced the birth of their first child in the period 2000–2002.

2. Education and fertility: A couple perspective

Education is considered one of the most relevant indirect determinants of fertility (Bongaarts 1978), and because of its multidimensional nature it can affect fertility through several mechanisms linked to cultural, social, and economic aspects of education (Kravdal and Rindfuss 2008; Lappegård and Rønsen 2005). The association between education and fertility may vary depending on the unit of analysis – women, men, or couples (Nitsche et al. 2018; Trimarchi and Van Bavel 2017, 2018). In family demography, scholars have especially focused on the association between individuals' education and their fertility, whereas theoretical arguments on the association between educational pairings and fertility are less established and empirical research on this topic is still scarce. Here we present theoretical arguments that address the association between educational pairings and higher-order births, focusing on education as proxy for individuals' earning potential. Education is regarded as a human capital investment that, after a certain period of time, increases individuals' income (Becker 1964). Additionally, we present theoretical arguments that view a high level of education as a proxy for attitudes and behaviors related to changing societal norms in the division of household labor. Higher education among men and women is often associated with more egalitarian attitudes, but a similarly direct link is less evident for corresponding behaviors. Highly educated men do not automatically adopt egalitarian behaviors; rather, these behaviors are more likely to emerge when they are partnered with highly educated women (Goldscheider, Bernhardt, and Lappegård 2015; Martín-García and Solera 2023; Raz-Yurovich and Okun 2024). The empirical part of this study, then, focuses on testing mechanisms that are related to the economic aspect of educational pairings.

2.1 Educational pairings, economic resources, and social norms

2.1.1 Becker vs. Oppenheimer: The role of economic resources

In the past century, the leading theoretical framework used to theorize about the association between educational pairings and fertility was the New Home Economics in its conceptualization at the household level (Becker 1960, 1991). It assumes that family members are rational decision-makers aiming to maximize the total utility of the household by allocating resources – income and time – between household and labor market activities (Becker 1991). In the male breadwinner family model, women benefit from specializing in household activities and men from specializing in labor market activities. According to Becker (1991), the higher the level of education of the woman, the higher her economic independence within the couple will be. This in turn decreases the demand for children because of opportunity costs. The higher the income women have to renounce when deciding to enter motherhood or to have another child, the lower the demand for children (substitution effect). On the other hand, the higher the level of education of the man in the couple, and consequently the higher his income, the higher the demand for children, as couples with higher incomes will be able to afford the monetary costs of more children (income effect).

The strict male breadwinner couple, however, is no longer compatible with the increase in women's human capital accumulation and participation in the labor market in the 21st century (Van Bavel 2012). Furthermore, with increasing standards of living, Becker's specialization strategy has become inefficient (Oppenheimer 1994), and it is risky for women because it entails economic dependence and vulnerability, especially in times of crisis (Oppenheimer 1988, 1994). Oppenheimer's pooling of resources argument posits that individuals look for possibilities to increase their standard of living by partnering with someone better off than themselves (Oppenheimer 1988). In this framework, women's economic independence, which is also driven by women's level of education, is seen as necessary to cope with the challenges of a globalized world and to attain economic security (Oppenheimer 1994). As a result, the higher the (joint) earnings potential of partners, the easier it is for a couple to face the direct and indirect costs of children; hence the demand for children will be higher.

Becker's and Oppenheimer's arguments share some common ground. Firstly, the focus is on whether or not a couple with certain socioeconomic resources will eventually have a(nother) child rather than on the timing of births. Secondly, both theoretical frameworks emphasize the fact that the association between income and fertility is complicated by the quality–quantity trade-off (Becker 1960; Oppenheimer 1994). This implies that the costs of children are not fixed for every couple (Hobcraft and Kiernan 1995). For wealthier couples, the costs of children are typically assumed to be higher; hence their demand for children may not necessarily be greater.

2.1.2 Beyond Becker and Oppenheimer

In high-income countries, recent scholarly work has pointed out that the relationship between income and fertility and the relationship between women's education and fertility, which were historically negative, have been reversing or flattening in the 21st century (Doepke et al. 2023; Fort, Schneeweis, and Winter-Ebmer 2016). The idea that highly educated women face higher opportunity costs of childbearing because of the higher level of forgone income and disruption of career prospects is challenged by the increasing marketization of child care and household chores (Hazan, Weiss, and Zoabi 2023; Hazan and Zoabi 2015). The provision of public child care and functioning markets that allow outsourcing part of care work and housework have given women, especially the more educated, the ability to reduce the tension between family chores and their careers (Bar et al. 2018; Kearney and Levine 2025). Gender, however, is an important factor in the decision to outsource child care tasks and various household chores (Raz-Yurovich 2014). A recent finding showed that the presence of a tertiary-educated woman in a couple increases the likelihood of a more gender-equal division of labor within the household (Raz-Yurovich and Okun 2024). Generally, women's stronger position within the couple in terms of education and earnings increases women's likelihood to take decisions within the household (Klesment and Van Bavel 2022).

The quality–quantity trade-off idea has also been deemed outdated in light of the provision of public education (Doepke et al. 2023). It has been replaced by the more culturally oriented concept of intensive parenting (Doepke, Sorrenti, and Zilibotti 2019). Changing social norms toward a model of parenting that is increasingly demanding in terms of both time and resources may lead couples to opt for having fewer children (Kearney, Levine, and Pardue 2022). In particular, although *basic* child care can be outsourced, parents, especially those with higher education, may believe it is important to personally oversee their children's emotional, social, and educational development (Guryan, Hurst, and Kearney 2008). This perspective is consistent with the documented increase over the last two decades in the time that highly educated parents devote to child care across several contexts (Dotti Sani and Treas 2016).

Related to changing social norms around parenting, changing expectations regarding gender roles within households are highly relevant (Kearney and Levine 2025). Briselli and González (2025) show that men's reluctance to share household chores equally with their partners can hold back women's careers and depress fertility. In more gender-equal societies, fertility decisions are increasingly taken by the couple, with partners bargaining over the preferred allocation of child care. Disagreement over having an additional child is often linked to perceptions of an unfair division of the child care burden between the mother and father (Doepke and Kindermann 2019). In such contexts, both men and women become more sensitive to the opportunity costs of childbearing (Huinink and Kohli 2014; Trimarchi and Van Bavel 2018).

Raz-Yurovich and Okun (2024) showed that higher education among men is not, on its own, associated with gender-egalitarian behaviors within couples. Rather, the woman's tertiary education has a key influence on a more equal division of housework. Hence highly educated homogamous couples may be more likely than their lower-educated counterparts to establish family–work arrangements that they perceive as fair and that can support continued childbearing. Importantly, "fair" does not necessarily mean that both partners spend equal hours in paid or unpaid work but rather that neither partner *perceives* the arrangement as disproportionately burdensome. Regarding heterogamous couples, a study on assortative mating showed that men holding egalitarian attitudes are more likely to form hypogamous couples (where the woman is older or more educated than the man) than to remain single (Trimarchi 2022). Contrary to expectations of a gender-traditional specialization model, if these attitudes within hypogamous couples translate into family–work arrangements that both partners regard as fair, such dynamics may foster continued childbearing. Thus, following the transition to a first birth, hypogamous (the woman is more educated than the man) couples may progress to additional births at rates comparable to their hypergamous (the man is more educated than the woman) counterparts.

2.1.3 Educational pairings and fertility timing

Arguments of the New Home Economics have also been helpful in theorizing about fertility timing and spacing (Cigno and Ermisch 1989; Gustafsson 2001; Heckman and Walker 1990). According to Cigno and Ermisch's (1989) model, women's higher human capital may lead to shorter birth intervals. They argue that this may be an indirect effect of partners' positive assortative mating – that is, the man and woman in the couple have the same level of education. Scholarly work on this issue focused on both partners' earning potential and found that higher male incomes reduce the time to conception and increase the number of conceptions, whereas women's higher earnings have opposite effects, especially on the timing of first births but not particularly on the interval between births (Heckman and Walker 1990; Cigno and Ermisch 1989). Bartus et al. (2013) argued that it is a rational decision for highly educated women to space births close together to reduce the costs of raising children and the costs of career interruptions. In line with this, Del Bono, Weber, and Winter-Ebmer (2012) found that more career-oriented women are concerned about long interruptions, especially when they start new jobs in new firms. It would also be the case that women with strong fertility preferences may self-select into jobs that have flatter career trajectories to be better able to realize their family plans and reduce the risk of infecundity (Adda, Dustmann, and Stevens 2017). The timing of when a woman becomes a mother for the first time is strictly related to the level of education:

Highly educated women postpone the transition to motherhood longer than their lower-educated counterparts. However, postponing first birth increases the risk of secondary infecundity, defined as the inability to conceive another child after a previous birth (Noack 1996), which increases with age. As a result, the more educated who wish to have two children may find it optimal to squeeze births closer together to avoid both long career interruptions and the risk of secondary infecundity.

2.2 Previous findings on educational pairings and the transition to second birth

Empirical work on the association between education and the transition to second birth has focused mainly on women, occasionally controlling for partners' characteristics (Bartus et al. 2013; Gerster et al. 2007; Klesment et al. 2014; Köppen 2006; Kreyenfeld 2002; Oláh 2003; Wood, Neels, and Kil 2014). Fewer studies have focused on the association between educational pairings and second births. The latter have found that in Western European and Nordic countries, couples where both partners are tertiary educated more often have a second child than do lower-educated couples (Dribe and Stanfors 2010; Nitsche et al. 2018; Nitsche, Trimarchi, and Jalovaara 2020; Trimarchi and Van Bavel 2020). In Spain and France, homogamous tertiary-educated couples have generally higher fertility than medium-educated couples, even if they postpone the birth of their first child (Bueno and García-Román 2021; Osiewalska 2017). In Central and Eastern Europe, however, tertiary-educated couples, and more generally couples where the woman is tertiary educated, have lower second-birth transition rates than homogamous medium-educated couples, in line with the specialization argument of the New Home Economics (Trimarchi and Van Bavel 2020).

The finding that couples where both partners are tertiary educated have the highest transition rate to a second birth supports the pooling of resources argument. However, data limitations in previous studies impede an understanding of the extent to which the pooling of resources can explain the higher second-birth rates among tertiary-educated couples. Most existing studies were bound to use education as a proxy for income, with only one exception: Using data from Sweden on both partners' income, Dribe and Stanfors (2010) found that tertiary-educated couples have higher transition rates to second and higher-order births, also after controlling for household income and the woman's share of household income. A similar finding has been suggested by Nitsche (2024), who focused on a very select sample of white married women in the United States, hence underestimating the fertility of lower-educated couples, who are less likely to marry (Cherlin 2016). Moreover, due to data limitations in terms of sample sizes in family surveys, most studies were restricted to using crude measures of educational pairings – that is, combining several levels of education into one. Only a few studies

using data from the Nordic countries (Dribe and Stanfors 2010; Nitsche, Trimarchi, and Jalovaara 2020) were able to account for detailed measurements of educational pairings. Due to sample size issues, studies using survey data were not able to disentangle the differences in second birth rates across detailed educational pairings (Nitsche et al. 2018; Trimarchi and Van Bavel 2020). Additionally, information about partners' income is not possible to include in fertility analysis when using cross-sectional household surveys because of endogeneity issues: Information is measured at one point in time, when birth transitions have already occurred. Finally, while both the pooling of resources and the specialization arguments are more adequate to explain fertility quantum (in this case, whether a second birth occurs or not), all previous studies focused on second birth *rates*, which mingle timing and quantum effects of the covariates of interest (Kreyenfeld et al. 2023).

2.3 Hypotheses

In this study, we contribute to previous literature on the association between educational pairings and second-birth-transition testing mechanisms related to the pooling of resources and economic arguments in the Austrian context. More specifically, we address to what extent these theoretical arguments predict the quantum and the timing of second births distinctively. Regarding the probability of progressing to the second child, we formulate hypotheses tackling the role of absolute and relative (between partners) levels of education. In the former case, the test of hypotheses focuses on educationally homogamous couples, in the latter case on educationally heterogamous ones.

In line with previous findings and the pooling of resources argument, the higher the level of education within the couple, the higher the likelihood the couple has a second child (H1a). If this is (partly) driven by economic resources, we expect that once we account for partners' joint income, educational gradients become smaller or disappear (H1b).

The second hypothesis is based on the traditional gender specialization argument and concerns the relative level of education between partners. According to this argument (H2a), hypergamous couples (where the man has more education than the woman), due to women's lower opportunity costs, have a higher likelihood of a second birth than hypogamous couples (where the woman has more education than the man). If this is driven by the woman's relative income compared to the man, we expect that educational differentials across hypergamous and hypogamous couples disappear or flatten once we account for relative income (H2b).

This expectation, though, could also be in line with the pooling of resources argument: Due to the persistent gender segregation on the labor market, the earnings

potential of a man is typically higher than that of a woman at equal levels of education (Blau and Kahn 2017). Given the same level of joint education, hypergamous couples would dispose of more resources than hypogamous ones, and in line with the pooling of resources argument, we would expect hypergamous couples to have a higher probability of a second birth than hypogamous couples. So if the difference between hyper- and hypogamous couples is driven by *levels* of couples' joint economic resources rather than *relative* incomes, we would expect no major difference in the second birth probability between educationally hypergamous and hypogamous couples once controlling for partners' level of joint income.

Regarding the timing of a second birth, as argued by Bartus et al. (2013), tertiary-educated women, due to their higher earnings, prefer to lower the costs of childrearing by reducing career interruptions and spacing births closer together. Hence couples with a tertiary-educated woman might be more prone to shorter birth intervals relative to other pairings (H3a). If this mechanism based on women's earnings holds, once controlling for partners' income, we would observe a convergence in the timing of second births across educational pairings (H3b).

2.4 The Austrian context

Austria features a relatively low fertility level since the mid-1980s, alongside a gradual postponement of childbearing – especially among highly educated women (Prskawetz et al. 2008) – and a high level of childlessness within this group (Beaujouan, Brzozowska, and Zeman 2016). Female employment rates are generally high; however, mothers tend to take extended parental leaves, to reenter the labor market on a part-time basis, and to remain in part-time work for many years. This sustains a strong prevalence of male breadwinner arrangements even when children are older and even among more highly educated couples (Steiber, Berghammer, and Haas 2016). These patterns are shaped by Austria's family policy framework in combination with a large and persistent gender pay gap (Redmond and Mcguinness 2019).

For births in the early 2000s – the focus of this study – parents were entitled to extended, job-protected parental leave, but benefits during this period were paid at a flat rate rather than being income-related. Given men's higher average wages, this arrangement discouraged fathers from taking leave, while the limited availability of public child care for children under age 3 reinforced the tendency for mothers to take prolonged career breaks. Child allowances and other family benefits partly offset income losses during these periods of reduced economic activity. Public spending on cash benefits in Austria was among the highest (in percent of GDP) among OECD countries during the early 2000s (OECD Family Database 2025). However, despite these supports,

the overall economic costs of raising children in Austria remained comparatively high in the early 2000s, both in terms of direct child care costs – which amounted at the time to around 20% of family net income for two children aged 2 and 3 (Immervoll and Barber 2005)[2] – and the indirect costs that accrue as forgone earnings when mothers take extended leaves and then transition to long-term part-time employment (Siegert 2025). Empirical research shows that Austrian mothers incur one of Europe's largest child penalties in earnings, with long-run earnings losses exceeding 50% relative to men (Kleven et al. 2019).

Austria's education system is characterized by a strong emphasis on vocational education and training (VET) and an early tracking of students into either primarily vocational (lower-track) or primarily academic (higher-track) education. After completing compulsory schooling at age 15, students can choose the academic track or pursue VET – the latter either in full-time school-based programs or in the dual system, which combines company-based apprenticeship training with part-time vocational schooling. VET programs at the upper secondary level typically last two to four years and lead to qualifications classified at ISCED level 3. The academic track is offered by Allgemeinbildende Höhere Schulen (AHS Oberstufe), which are purely academic, as well as by Berufsbildende Höhere Schulen (BHS), higher-level vocational colleges that integrate advanced general education with vocational training. Both AHS and BHS culminate in the Matura examination, Austria's secondary school leaving certificate, which provides access to tertiary education. Possession of the Matura indicates completion of an academically more demanding curriculum than standard VET without Matura and serves as the primary gateway to universities and universities of applied sciences. Therefore the academic track is considered higher than the primarily VET track in the Austrian educational classification system. For this reason, and due to low numbers of individuals with only compulsory education in Austria, in this study we differentiate between tertiary (university degree), medium (Matura from AHS or BHS), and lower educational attainment (general or vocational education without Matura).

However, it is important to note that in Austria's skill formation system, completion of the VET track often grants good labor market opportunities and access to collectively agreed-upon wages that – especially in male-dominated occupations – can be sufficient to support a family in the absence of a second full-time earner. In combination with Austria's relatively large gender pay gap, this implies that men with non-academic VET frequently earn more than women with an AHS Matura. The likelihood that educational hypogamy translates into income hypogamy (the woman earning more than her partner)

[2] This is based on net child care costs (out of pocket after all child care benefits and tax reliefs) for two children, aged 2 and 3, in full-time center-based care and on two-earner couples where one partner earns an average wage and one partner earns 67% of an average wage. The amount is reduced to 18% for couples where both earn average wages, and it increases to 22% for couples where both earn below-average wages (67% of an average wage). In the same period, these costs were around 6%–10% in the Nordic countries.

is thus greater for tertiary-educated women than for women with a Matura. For this reason, it is important in the Austrian context to distinguish between hypogamous couples at different educational levels.

Given the comparatively high earnings of vocationally trained workers in Austria, the pooling of resources argument may be more relevant for differentiating between medium- and tertiary-educated couples, where we observe substantial earnings differences, than for differentiating between lower- and medium-educated couples. Finally, Austria can be considered a laggard in the reversal of the gender gap in education and the rise of educational hypogamy (Erát 2021; Van Bavel 2012), implying that hypogamous couples potentially remain a selective group.

3. Data and methods

3.1 Data description

We used a dataset that combines information from various administrative registers and social security records in Austria (Austrian Social Security Database [ASSD], Zweimüller et al. 2009). The data include all first births that occurred in Austria in the period 1990–2007 from the Austrian birth register. The analytical sample comprises all couples who experienced their first birth in 2000–2002. Restricting the analysis to a relatively short period is advantageous for two main reasons. First, fertility behavior is shaped by cohort, age, and period effects, which cannot be disentangled. By focusing on a three-year period, we can assume that period effects are small. Second, we aim to study a recent period while still being able to draw on divorce data from the Austrian divorce register, which is available only until 2007. Divorce records are very useful for identifying couples who separate. Choosing a different three-year period would not have left enough time to observe divorce events over a sufficient follow-up window.

The longitudinal data on parental earnings trajectories from social security records, as well as on mothers' childbearing history, are recorded up to the end of the year 2021. Our outcome measure is the time until second birth, if it occurs. We followed couples for 15 years, and if no transition to second birth was observed earlier, couples were censored (1) in case of divorce; (2) if one of the partners started receiving a single-parent benefit, implying that the couple had separated or one partner had died; or (3) if the female partner turned 50, whichever came first. Information on the date of births is exact (day/month/year), while on earnings we have annual information. The income variable we used referred to gross labor earnings before taxes and contributions and did not include unemployment benefits. This dataset has the advantage of including all births in this period; thus it allowed us to differentiate in detail between different educational

pairings. Moreover, it allowed a long observation period – 15 years – such that the probability of a second birth occurring after this period is very low.

We focused on first births that involved mothers aged 18–45 and fathers aged 18 or older. Given that the level of education is recorded at the birth of the first child, we dropped couples if one of the partners reported having a tertiary degree and having a first child when he or she was younger than 21 (n = 544). Also, we deleted couples if information about partners' educational level was missing (n = 1,948), if one of the partners was self-employed (n = 8,647; income information missing), if information about income was missing for other reasons (n = 4,649), if the first birth occurred after the couple divorced (n = 27), or if the duration time from first birth was negative (n = 265). Overall, our sample totaled 76,683 couples at risk of a second birth.

3.2 Measures

The dependent variable consists of two components: (1) the probability of remaining without a second child (whether the second birth occurred) and (2) the timing (when the second birth occurred). The date of the transition to second birth has been backdated by eight months to measure the event around the conception time (Baizán, Aassve, and Billari 2003). About 33% of couples did not experience a second birth during the follow-up period.

The main independent variable is the educational pairing of the couple, a compounded measure with nine categories. The educational attainment of the parents is recorded in three levels: completion of tertiary education (tertiary); Matura, the secondary school leaving certificate, which provides access to tertiary education in Austria (medium), and general or vocational education without Matura (lower). Homogamous couples – that is, partners with the same educational level – represent almost 60% of the sample, hypogamous couples about 22%, and hypergamous couples 18% (see Table 1).

We measured couples' joint resources as the sum of both partners' incomes two years before first birth. We grouped this measure into quartiles and included it in the models as a categorical variable. Measuring income before the first birth ensures that it is not endogenously affected by the transition to parenthood itself – such as by reductions in labor market participation due to child care, parental leave, or part-time work, which are common in Austria. This allows us to examine how preexisting economic differences between partners – rather than the consequences of those decisions – relate to fertility decisions. The use of post-parenthood earnings would reflect low working hours of mothers in Austria and be a biased measure of income potential. This applies in particular to the immediate years after the birth of a child (see Figures A-1 through A-4 in the appendix). We also used a relative measure of income, obtained by dividing the woman's

annual wage income over the sum of both partners' annual wage incomes. This relative measure of income is operationalized in three categories: She earns less than 40% of the joint income (hypergamy); she earns between 40% and 60% of the joint income (homogamy); and she earns more than 60% of the joint income (hypogamy).

We also included several control variables: mother's birth cohort, the age difference between partners operationalized in three categories (homogamy – maximum two years difference; hypergamy – man older than the woman; hypogamy – woman older than the man), partners' citizenship, marital status at the time of first birth, and region of residence of the mother at the time of first birth. Couples with foreign-born mothers (16.5% of the sample) display a somewhat more disadvantaged educational composition: They are more frequently represented in pairings involving lower levels of education and less frequently in homogamous pairings at medium or tertiary levels of education (see Table A-3). Despite this, second-birth behavior remains broadly similar between couples with Austrian and foreign mothers (see Tables B-1a and B-1b). Then, following Hoem, Prskawetz, and Neyer (2001), to account for potential artifact effects derived from the fact that there are almost no tertiary-educated mothers who had their first child at a young age, we controlled for the age of the mother at first birth relative to her educational pairing – that is, the age of the mother minus the average age at first birth of her educational peer group. This implies that we control for whether the woman's age at first birth is higher or lower than the average age at first birth for that specific educational pairing. According to Kravdal (2007), this approach is an alternative to joint modeling to account for possible selection into higher parities of the better educated. In our case, due to data limitations (we can observe couples only once a child arrives), it is not possible to model selection into first birth jointly with the transition to second birth. Table 1 shows a summary and description of the variables considered. Note that our independent variables are not time-varying.

Table 1: Sample descriptive statistics

	N	%
Educational pairing (nine types)		
Homogamous		
low–low	31,081	40.5
medium–medium	7,263	9.5
tertiary–tertiary	7,574	9.9
Hypergamous		
woman low–man medium	8,526	11.1
woman low–man tertiary	2,282	3.0
woman medium–man tertiary	2,823	3.7
Hypogamous		
woman medium–man low	11,454	14.9
woman tertiary–man low	3,106	4.0
woman tertiary–man medium	2,574	3.4
Age difference between partners		
Hypergamy (male older)	43,064	56.2
Homogamy (similar age)	27,075	35.3
Hypogamy (female older)	6,544	8.5
Mother's citizenship		
Austrian mother	63,942	83.4
Foreign mother	12,671	16.5
Missing	70	0.1
Father's citizenship		
Austrian father	34,461	45.0
Foreign father	9,224	12.0
Missing	32,998	43.0
Partners' joint income (quartiles)	19,171 in each quartile	25.0
Relative income (woman's share)		
Hypergamy (he earns more)	31,108	40.6
Homogamy (similar earnings)	30,445	39.7
Hypogamy (she earns more)	15,130	19.7
Mother's region of residence at first birth		
Vienna	12,692	16.6
Lower Austria	13,806	18.0
Burgenland	1,849	2.4
Upper Austria	13,516	17.6
Styria	10,316	13.5
Carinthia	4,740	6.2
Salzburg	5,960	7.8
Tirol	6,688	8.7
Vorarlberg	3,727	4.9
Missing	3,389	4.4
Married at first birth		
Married	34,684	45.2
Unmarried	41,999	54.8
Median woman's birth cohort	1974	/
Woman's mean age at first birth	26.4	/
Woman's mean age at second birth	29.2	/
Average time to second birth conception (in months)	34	/
N total	76,683	100%

3.3 Analytical strategy

We analyzed the duration until the second birth using a parametric mixture cure model or split population model (Schmidt and Witte 1989; Sposto 2002; Yamaguchi and Ferguson 1995), which allows us to estimate the effects of independent variables separately for the probability and the timing of an event. (For a review on cure models, see Peng and Yu [2021].) We implemented it using the Stata command *CUREREGR* developed by Buxton (2013). Let *S(t)* be the probability of not having a second child before *t* (the survival function). The cure model distinguishes the *incidence* part (the probability of being in the so-called cured fraction – that is, the group of couples who are *not* experiencing the second birth) and the *latency* part, describing the survival time of those couples who made the transition to the second birth. Formally, we would write:

$$S(t) = (1 - \pi) * S_u(t) + \pi,$$

where π is the probability of remaining without a second child and $S_u(t)$ corresponds to the survival function of couples making the transition to the second child.

In the incidence part of the model, to link covariates to the fraction not experiencing a second birth, we opted for a linear function. The conclusions, however, are identical to those reported here if a logistic link function is used (see section C in the appendix). We preferred the linear function to avoid issues related to rescaling (Karlson, Holm, and Breen 2012). This could especially be an issue in our case, since we estimated models stepwise, including one variable at a time, and observing changes in the coefficients of the main independent variable. Also note that the model estimates the effect of covariates on the probability of remaining without a second child; a negative coefficient implies a lower probability of being in the cured fraction, hence a higher likelihood to progress to the second child. Since the negative formulation could be somewhat counterintuitive, to display the results graphically, we took the additive inverse coefficients, so that the interpretation could be done in a more straightforward way. That is, a positive coefficient implies a higher likelihood of a second child.

The latency (or timing) part of the model is parametrized by a lognormal distribution for the function of the at-risk population in an accelerated failure time (AFT) setting, such as in Gray et al. (2010). This implies that the natural logarithm of time follows a normal distribution, which in survival analyses is implemented only in the AFT form. Consequently, unlike the traditional proportional hazard models, coefficients in the AFT models should be interpreted as referring to the survival time, in our case as a spacing coefficient (Redivo, Dribe, and Scalone 2024). A negative coefficient implies a negative effect on spacing, hence shorter birth intervals. A positive one implies longer birth intervals. The lognormal distribution is defined by two parameters: the scale (mean of the log duration time), which in our specification varies based on the values of the predictor

variables; and the shape (standard deviation of the log survival times), which does not vary with the covariate profile.

4. Results

We fitted three cure models. In the first model (M1), we estimated the role of the educational pairing on the occurrence and timing of a second birth, including only control variables (mother's cohort, age difference between partners, mother's and father's citizenship, residence of mother at first birth, relative age at first birth by educational pairing, marital status at first birth). In the second model (M2), we added partners' joint income and examined changes in the estimates of educational pairing. The third model (M3) included the relative measure of partners' income. In all models, couples where both partners are lower educated are the reference category. This model type covers about 40% of the sample. We discuss the results first for educationally homogamous couples and then focus on heterogamous couples. However, all estimates are derived from the same models, as the analyses are not stratified by homogamy or heterogamy. In both cases, we discuss how results vary when we include the different measures of income. Note that we display estimates' confidence intervals even though we use population registry data, because for several reasons we dropped some couples from the whole population (see the data description section). Full model results are displayed in section B in the appendix.

As robustness checks, we used different model specifications. For instance, we restricted the sample by selecting only couples where both partners had been in the labor market for at least five years preceding the first birth (see section D in the appendix). Moreover, we ran stratified models by mother's age at first birth (see section E in the appendix), and we included a control variable that indicates whether the father took parental leave within the first two years after the birth of the first child (see section F in the appendix). After all, while coefficients and significance levels varied across specifications to some extent, the main conclusions remained the same.

4.1 Second births among educationally homogamous couples

At first we focus on homogamous couples to test the pooling of resources argument (H1a), which posits that the probability of having a second child increases with the level of education within the couple. As showed on the left side of Figure 1, couples where both partners have at least a medium level of education (Matura) are more likely to have a second child relative to the lower educated, a finding in line with H1a. The likelihood

of a second birth is higher at higher levels of education, but there was not a big difference between couples in which both partners have medium or tertiary degrees.

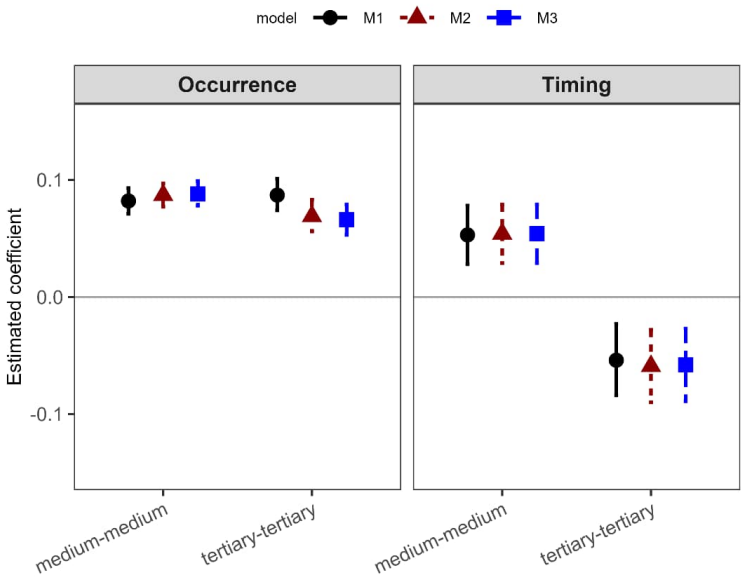
To what extent does the pooling of *educational* resources reflect the pooling of *economic* resources? In H1b, we hypothesized that once we controlled for partners' joint economic resources, the educational gradient in the likelihood of a second birth would disappear or flatten. To test the mechanism behind the pooling of resources argument, in M2 we added partners' joint income, measuring the pooled economic resources of the couple observed before parenthood. Against our expectation, education estimates were hardly affected by this control. We observed that the difference between tertiary- and lower-educated couples became smaller, in line with H1b, but adding joint economic resources to the model did not flatten the gradient overall (M2 in Figure 1).

Regarding timing, we found that medium-educated couples have longer birth intervals relative to the lower educated, while tertiary-educated couples have shorter birth intervals relative to the lower educated. One plausible explanation for the patterns observed relates to the Austrian educational context. The majority of individuals who obtain a high school diploma (Matura) proceed to higher education, with around 80%–85% enrolling in tertiary education within a few years after graduation (Statistik Austria 2025). As a result, medium-educated couples may constitute a heterogeneous group, potentially including parents planning to upgrade their educational level. Such educational trajectories could contribute to a postponement of a second child relative to both lower- and the tertiary-educated couples, since combining university studies with employment may be difficult to reconcile with childbearing plans (Spéder and Bartus 2017). However, this interpretation remains speculative, as the available data do not allow us to directly observe educational trajectories after first birth. Overall, findings related to timing seem to be in line with H3a, according to which couples with tertiary-educated women are faster in the transition to the second birth than are couples with lower-educated women – to reduce the costs of childbearing and to avoid infecundity. Furthermore, we expected the mechanism related to shorter birth intervals for couples where the woman is tertiary educated to be related to the earnings of the woman (H3b). Against H3b, once we controlled for partners' joint (and relative) income, results did not change, meaning that women's earnings cannot explain the educational gradient we found for the timing of a second birth. Overall, we concluded that the inclusion of income – whether in absolute or relative form – did not change the association between educational pairings and second birth timing.

Figure 2 shows the estimates of the income variables for the occurrence and timing of a second child for M2 and M3. Focusing on the estimates of joint income, we found that richer couples were more likely to have a second child compared to their less affluent counterparts, but this did not explain the educational gradient we found in M1. Moreover, while we found a positive association with the likelihood of having a child, joint income

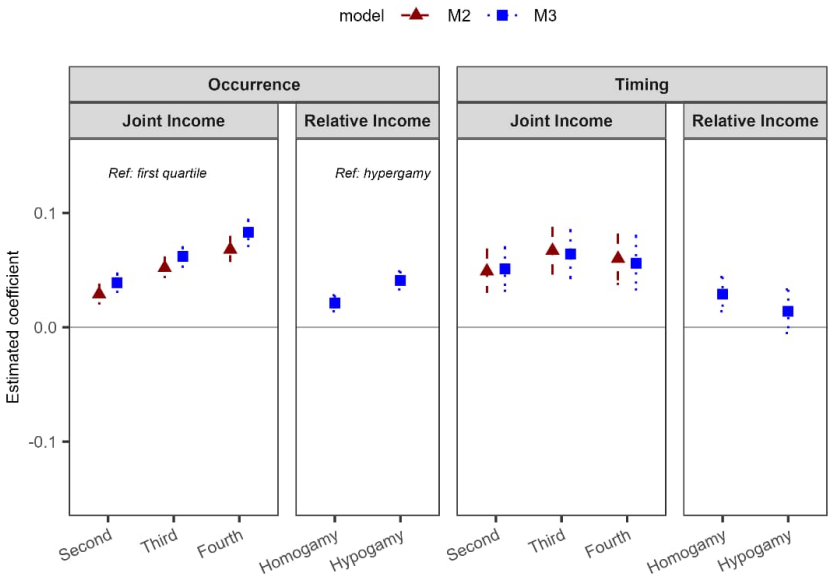
is negatively related to the timing of a second birth. Hence richer couples showed longer birth intervals compared to poorer ones. This is a relevant finding highlighting the importance of applying a cure model, which distinguishes the role of each covariate for the occurrence and timing of the event.

Figure 1: Estimated coefficients and 95% confidence intervals for the association between educational pairing and occurrence (left side, positive coefficients = higher likelihood) and timing (right side, positive coefficients = longer birth interval) of a second child, focusing on homogamous couples (lower educated represent the 0–reference line). M1 (basic controls + educational pairing); M2 (M1+ joint income), M3 (M2 + relative income)



Notes: In this Figure we omit the results for heterogamous couples, which are available in Tables B-1.a and B-1.b of the Appendix, section B.

Figure 2: Estimated coefficients and 95% confidence intervals of joint and relative income for the occurrence (left side, positive coefficients = higher likelihood) and timing (right side, positive coefficients = longer birth interval) of a second child. M2 (M1 + joint income); M3 (M2 + relative income)



4.2 Second births among educationally heterogamous couples

Moving on to heterogamous couples, we aimed at examining the role of partners' relative education. Based on the traditional gender specialization argument, hypergamous couples have a higher likelihood of having a second child than do hypogamous couples due to lower opportunity costs (H2a). Our results did not support this hypothesis.

Figure 3 groups couples into three constellations of educational heterogamy, and for each of the constellations (one partner low–one partner medium, one partner low–one partner tertiary, and one partner medium–one partner tertiary), we show differentials between hypergamous and hypogamous couples, using hypogamous couples where the woman is medium educated and the man is lower educated as the reference category. In M1 and M2, the difference between hyper- and hypogamous couples is not statistically significant at any level of education. Moreover, we found that hypogamous couples in

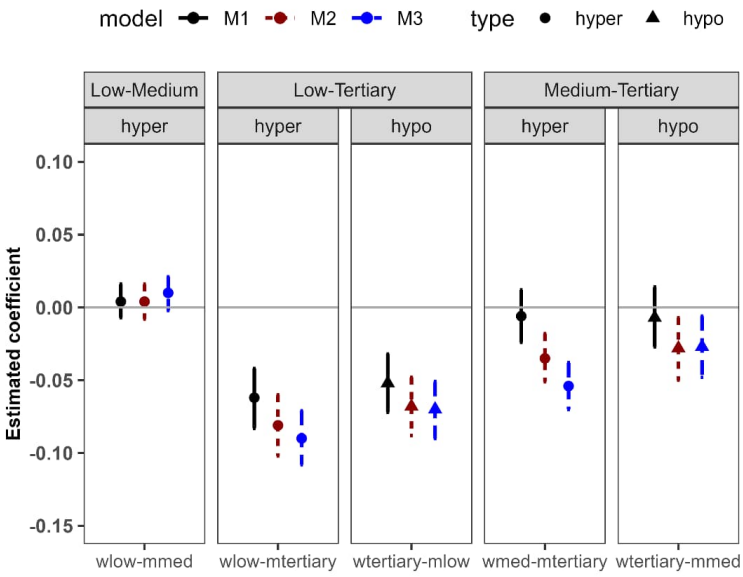
the low–medium constellation were more likely to have a second child relative to hypogamous couples in constellations with higher educational levels, a finding that is against the pooling of resources argument applied to the heterogamous couples.

What is the role of partners' relative income? M3 shows that couples where the woman earns more than her partner were more likely to have a second child than income-based hypergamous couples (the reference category; see Figure 2). In hypothesis H2b, we expected that controlling for the relative income measure would explain away differences between educationally hypo- and hypergamous couples. However, we did not find support for this argument. Once we controlled for relative income in M3, we observed only one small variation; the rest remained substantially the same across all models. In the medium–tertiary combination, hypogamous couples turned out to be more likely to have a second child than their hypergamous counterparts, a finding in contrast with H2b. Further inspections of the data showed that most couples who are educationally hypogamous within the medium–tertiary pairing are in fact either hypergamous or homogamous with respect to income (see Table A-1). This indicates that the female partner's educational advantage in this hypogamous group often coincides with earnings equal to or higher than those of the male partner. Once this compositional pattern is taken into account, there emerges a clearer distinction between educationally hypogamous and hypergamous couples in the medium–tertiary combination. In other words, the initially masked differences between these groups are partly driven by the fact that many hypogamous couples are not economically different than their hypergamous counterparts.

Regarding the timing of a second birth (see Figure 3), we found that in the low–tertiary combination, hypogamous couples have longer birth intervals between the first and the second child compared to hypergamous couples. Additionally, we did not find support for H3a and consequently found no support for H3b either, since hypogamous couples with a tertiary-educated woman did not show a faster timing than other educational pairings. Overall, our findings highlight the importance of using a cure model given that estimates of educational pairing and differences between hyper- and hypogamous couples vary depending on whether we look at the occurrence or timing of a second birth.

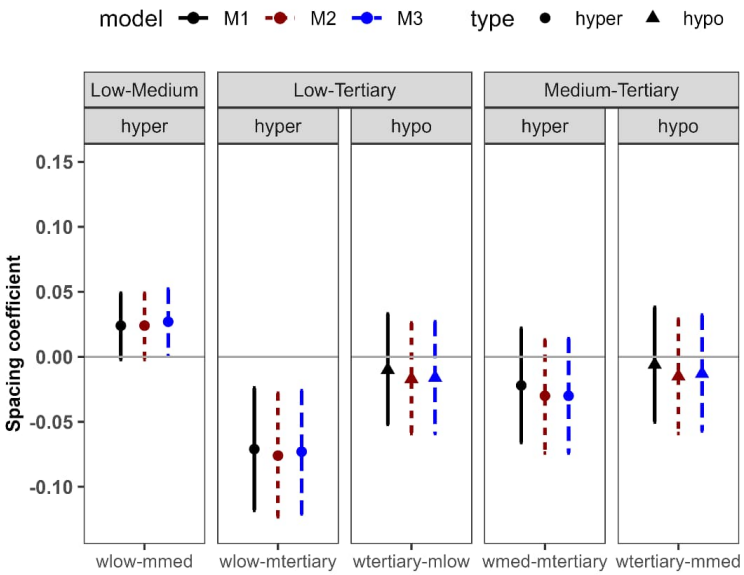
The differences between occurrence and timing also hold for the role of relative income. We found that hypogamous couples are more likely to have a second child than are hypergamous couples. Concerning timing, we did not find differences between couples where she earns more or he earns more. We found that homogamous couples – partners having similar earnings – are slower in the transition to a second child than are hypergamous couples.

Figure 3: Estimated coefficients and 95% confidence intervals of educational pairing for the occurrence of a second child, focusing on heterogamous couples (couples where she has medium education and he has low education represent the 0 reference line). M1 (basic controls + educational pairing), M2 (M1 + joint income), M3 (M2 + relative income)



Note: In this figure we omit the results for homogamous couples, which are available in Table B-2a.

Figure 4: Estimated coefficients and 95% confidence intervals of educational pairing for the timing of a second child, focusing on heterogamous couples. (Couples where she has medium education and he has low education represent the 0 reference line.) M1 (basic controls + educational pairing), M2 (M1 + joint income), M3 (M2 + relative income)



Note: In this figure we omit the results for homogamous couples, which are available in Table B-2b.

4.3 Alternative model specifications

To test the stability of our findings, we ran three types of robustness checks. First we were concerned about our measure of income, which may not grasp partners' earnings potential properly if one of them is unemployed two years before first birth. Hence we restricted our analyses to a sample of couples where partners had been in the labor force for at least five consecutive years before a first birth. The results of these analyses are showed in section D of the appendix.

We found that our main results regarding the role of educational pairing and joint income remain substantially invariant. But the role of relative income changes. There is no difference across categories of partners' relative income in the likelihood of having a

second child. This is because couples where she earns more than he does in the larger sample (without restrictions to being in the labor force) are most likely characterized by women partnered with unemployed men or men who were still students two years before the first birth.

Next, as a way to account for absolute differences in the woman's age at first birth (Gerster and Keiding 2008), we ran stratified analyses by age at first birth. Results are shown in section E of the appendix. This approach is preferred to simply controlling for a woman's absolute age at first birth to avoid artifact effects related to the fact that at very young ages we cannot observe tertiary-educated women (Hoem 1995; Hoem, Prskawetz, and Neyer 2001). Generally, the main conclusions of the study did not differ using this model specification. As expected, the positive educational gradient in the likelihood of a second birth becomes stronger when women are older at first birth. Still, income does not explain much of this gradient and the differences across educational pairings. Timing effects also remain mostly in line with what we observed in the main model. The youngest age category (age at first birth ≤ 22 years) displays results that are less in line with what we observed for the whole sample. For instance, we observed that couples where both partners are tertiary educated were slower in their transition to second birth compared to the lower educated – a plausible finding given that having the first child at such a young age is rather unlikely for tertiary-educated persons, who might be still finishing higher-level studies (such as master's degrees and PhDs).

Finally, as a robustness check, we included in the full model a variable indicating whether the father took parental leave within two years of the birth of the first child (see section F in the appendix). Results show that couples where the father took parental leave have a lower probability of having a second child relative to couples where the father did not take the leave. If the transition occurred, couples where fathers took parental leave had longer birth intervals relative to couples where fathers did not take the leave. These results show, to some extent, that both mothers' and fathers' perceived burden of child care may somewhat hinder or delay continued childbearing. However, conclusions related to the estimates of educational pairings and income do not change when we include this variable in the model.

5. Discussion

Fertility research over the last decades has increasingly highlighted the importance of analyzing both partners' characteristics as determinants of fertility behavior (Corijn, Liefbroer, and de Jong Gierveld 1996; Nitsche et al. 2018; Trimarchi and Van Bavel 2017). However, studies accounting for both partners' characteristics are still limited in number and often confined to the Nordic countries (Nitsche, Trimarchi, and Jalovaara

2020). In this study, we examined the association between educational pairings and second births in Austria, focusing on the full sample of first births born to couples between 2000 and 2002. With this work we contributed to previous research in several ways. First, we tested whether the association between educational pairings and fertility can be explained by the two most diffused theoretical arguments – pooling of resources and gender specialization – by focusing on the role of partners' earning potential. Second, we focused on Austria, a context that, unlike Nordic countries, is characterized by comparatively more traditional gender norms. Third, by applying cure models, we analyzed the role of educational pairings and earning potential in the transition to second birth, differentiating quantum from timing effects.

In line with the pooling of resources argument (H1a), we found that – among educationally homogamous couples – a higher level of education correlated with a higher likelihood of having a second birth. Contrary to our expectations, however, this pattern appears to be only weakly accounted for by the couple's combined economic resources. Once we controlled for partners' joint income, the educational gradient in the likelihood of a second birth remained substantially unchanged. The reason for this may be linked to several factors. First is our limited ability to control for partners' economic resources beyond employment incomes, which could include wealth-related information (housing assets, family inheritance, etc.). Additionally, given that income is measured prior to entry into parenthood, especially when parenthood occurs at young ages, our measure may not be an ideal proxy for income potential. To some degree, this worry could be remedied by robustness analysis on a sample of parents having their first child at more advanced ages and on a sample of partners who were well established on the labor market before parenthood. In both cases, results are consistent with our main analysis. Second, given the generous welfare state, most couples who wish to meet the two-child norm (Sobotka and Beaujouan 2014) can afford to have a second child even if they are not well-off. Finally, an alternative explanation relates to the role of gender-egalitarian attitudes and behaviors, as well as norms and preferences around childbearing, which we could not account for. An alternative mechanism that may account for the positive educational gradient among homogamous couples concerns how family–work arrangements are negotiated. Among such couples, the presence of a tertiary-educated woman may facilitate divisions of paid and unpaid work that fit both partners' preferences, thereby reducing perceptions of a disproportionate child care burden and, indirectly, supporting progression to a second birth. Future studies would need to find new ways to examine the role of gender norms and the cultural resources of education. This implies looking at peer effects, which may affect social norms around childbearing and parenting, and egalitarian attitudes and behaviors within couples before and after birth. The combination of social, economic, and cultural aspects of educational pairings

could eventually help in understanding the educational pairing gradient in the likelihood of a second birth.

We also did not find empirical support for the gender specialization argument (H2a); our results show that educationally hypergamous and hypogamous couples behave alike for most educational constellations. Partners' relative income did not explain this result either, in contrast to our hypothesis H2b. We found that couples where she earns more than he does are more likely to have a second child than couples where he earns more than she does. This is linked to the fact that income-based hypogamous couples include those where the man is unemployed (at least when income was measured – two years before the birth of the first child). Moreover, we found that hypogamous couples at lower levels of education have a higher probability of having a second child relative to hypogamous couples at higher levels of education, a finding that could be driven by a higher earning potential in male-dominated occupations requiring vocational qualifications relative to those requiring academic tracks. Furthermore, once we accounted for relative income – recognizing that many educationally hypogamous unions are in fact hypergamous or homogamous with respect to earnings – we found that hypogamous couples in which the woman is tertiary educated and the man is medium educated exhibited a higher likelihood of second birth than their hypergamous counterparts. Overall, these findings seem to indicate that a gendered specialization is not necessarily more conducive to childbearing but that norms around childbearing and preferences within couples matter. Individuals selecting into hypogamous unions may be more inclined to adopt work–family arrangements that both partners regard as acceptable, thereby limiting perceived child care burdens. Such arrangements may account for the limited differences in the probability of a second birth between hypogamous and hypergamous couples. Further research on couple formation processes may clarify the mechanisms that make certain types of couples more conducive to continued childbearing than other types.

Our expectations regarding timing were only partly corroborated. According to H3a, we expected couples with tertiary-educated women to have shorter birth intervals than pairings with lower-educated women. Indeed, we found that couples where both partners are tertiary educated have shorter birth intervals than the lower educated. However, not all the combinations with tertiary-educated women present faster timing, a finding that is not explained by partners' relative resources either. It seems more plausible that tertiary-educated homogamous couples have shorter birth intervals relative to the lower educated to decrease the risk of (secondary) infecundity rather than to minimize the risk of career disruption. We found that for pairings where the woman had the first birth at age 30 or older, there is no difference in the timing of a second child between tertiary- and lower-educated homogamous couples (see Table E-1b).

Overall, we found that the role of educational pairing and income appears to differ depending on the specific outcome considered. We found that (some combinations of) hypogamous couples are more likely to have a second child but have longer birth intervals than their hypergamous counterparts. Regarding the role of income, we found that richer couples are more likely to have a second child but have a slower tempo than poorer couples. Given these differentials, which normally would remain masked in traditional event history analyses, cure models represent a valuable methodological tool for analyzing the association between partners' socioeconomic resources and fertility outcomes.

This paper also presents some caveats. First, due to data limitations, we do not observe the transition to first birth; our results may therefore partly reflect selection into parenthood. However, previous research on Austria using survey data and models that account for selection into parenthood reports similar patterns (Trimarchi and Van Bavel 2020), suggesting that this limitation is unlikely to affect our main conclusions. Moreover, controlling for the woman's relative age at first birth within couple educational pairings can help minimize selection issues (see, Kravdal 2007).

Related to the previous point, prior evidence for Austria shows higher divorce risks among less educated and hypogamous couples (Frimmel, Halla, and Winter-Ebmer 2013). However, the study also finds that changes in educational assortative mating – that is, the increase in hypogamous relative to hypergamous couples – do not explain the overall increase in divorce rates over time (Frimmel, Halla, and Winter-Ebmer 2013). This suggests that while our results may partly reflect selection into more stable couples – particularly in the case of homogamous pairings – the bias may be less relevant for hypogamous and hypergamous couples. Nonetheless, future research should extend this analysis by accounting for the dissolution of both marital and cohabiting unions to better assess potential selection effects in fertility analysis related to separation risks.

Moreover, although administrative data allow us to distinguish between fine-grained socioeconomic groups, they do not provide complete partnership histories, limiting our ability to account for selection into specific types of unions. This remains one of the main challenges for the future of fertility research focusing on couples instead of individuals (Trimarchi and Van Bavel 2017). To eventually understand mechanisms behind the effect of educational pairings on fertility, it is critical to address how selection into unions operates for both men and women. Preferences for certain types of partners on the mating markets, intertwined with constraints in finding a suitable partner, play a key role in shaping the pool of (potential) parents.

While our study focuses on couples who had their first birth between 2000 and 2002, following them for 15 years, the findings relate to a broader pattern of second-birth behavior in low-fertility contexts. Previous couple-level studies in Austria (for other periods) and in Nordic countries have found similar patterns, highlighting the relative

advantage of homogamous tertiary-educated couples in the transition to second birth (Trimarchi and Van Bavel 2020; Nitsche, Trimarchi, and Jalovaara 2020; Dribe and Standford 2010). Still, the finding that partners' joint and relative income only weakly explain differences across educational pairings in second-birth behavior raises questions about the extent to which this pattern generalizes beyond the Austrian context. The role of other factors, such as preferences and values, which strongly vary with the institutional and cultural setting, needs to be investigated further.

From a policy perspective, our findings suggest that educational differences in second-birth behavior are not primarily driven by income differences between couples. While financial resources remain important for meeting the direct and indirect costs of children, partners' joint and relative income explain only a limited part of the variation in second births across educational pairings. Policies aimed at reducing educational inequalities in continued childbearing should therefore go beyond financial incentives and address broader constraints linked to different levels of education, such as the promotion of employment stability and work–family reconciliation. Such policies may be particularly relevant for lower-educated individuals, who may face greater structural barriers to realizing their fertility preferences.

Overall, this study contributes to previous literature on the association between partners' socioeconomic resources and couples' fertility by paving the way to new methodological challenges and theoretical arguments. Despite the limitations, this is the first study on couples' fertility that applies cure models, disentangling probability and timing effects of partners' socioeconomic characteristics. This study is also the first to empirically test mechanisms linked to the most diffused theoretical arguments in the framework of couples' fertility analysis. It clearly highlights the limitations of both the pooling of resources and the gender specialization arguments, which can only partly explain differentials across educational pairings in the occurrence and timing of second births. It is necessary for future studies, hopefully based on richer data, to corroborate these findings and shed light on the methodological and theoretical questions that remain open.

6. Acknowledgments

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References

Adda, J., Dustmann, C., and Stevens, K. (2017). The career costs of children. *Journal of Political Economy* 125(2): 293–337. doi:10.1086/690952.

Baizán, P., Aassve, A., and Billari, F. (2003). Cohabitation, marriage, and first birth: The interrelationship of family formation events in Spain. *European Journal of Population* 19(2): 147–169. doi:10.1023/A:1023343001627.

Bar, M., Hazan, M., Leukhina, O., Weiss, D., and Zoabi, H. (2018). Why did rich families increase their fertility? Inequality and marketization of child care. *Journal of Economic Growth* 23(4): 427–463. doi:10.1007/s10887-018-9160-8.

Bartus, T., Murinkó, L., Szalma, I., and Szél, B. (2013). The effect of education on second births in Hungary. *Demographic Research* 28(1): 1–32. doi:10.4054/DemRes.2013.28.1.

Berghammer, C. (2014). The return of the male breadwinner model? Educational effects on parents' work arrangements in Austria, 1980–2009. *Work, Employment and Society* 28(4): 611–632. doi:10.1177/0950017013500115.

Beaujouan, E., Brzozowska, Z., and Zeman, K. (2016). The limited effect of increasing educational attainment on childlessness trends in twentieth-century Europe, women born 1916–65. *Population Studies* 4728(3): 275–291. doi:10.1080/00324728.2016.1206210.

Becker, G.S. (1960). An economic analysis of fertility. *De Economist* 135: 94–111. doi:10.1007/BF01856705.

Becker, G.S. (1964). *Human capital: A theoretical and empirical analysis, with special reference to education.* Chicago: University of Chicago Press.

Becker, G.S. (1991). *A treatise on the family*. Cambridge, MA: Harvard University Press. doi:10.4159/9780674020665.

Blau, F.D. and Kahn, L.M. (2017). The gender wage gap: Extent, trends, and explanations. *Journal of Economic Literature* 55(3): 789–865. doi:10.1257/jel.20160995.

Blood Jr., R.O. and Wolfe, D.M. (1960). *Husbands and wives: The dynamics of family living*. Oxford: Free Press Glencoe.

Bongaarts, J. (1978). A framework for analyzing the proximate determinants of fertility. *Population and Development Review* 4(1): 105–132. doi:10.2307/1972149.

Briselli, G. and Gonzalez, L. (2025). Are men's attitudes holding back fertility and women's careers? Evidence from Europe [unpublished manuscript]. https://libertadgonzalez.com/wp-content/uploads/2025/08/Draft_250818.pdf.

Buber-Ennser, I., Setz, I., and Riederer, B. (2023). Not even a pandemic makes them change their family plans: The impact of COVID-19 on fertility intentions in Austria. *Population and Development Review* 50(S1): 277–302. doi:10.1111/padr.12555.

Bueno, X. and García-Román, J. (2021). Rethinking couples' fertility in Spain: Do partners' relative education, employment, and job stability matter? *European Sociological Review* 37(4): 571–587. doi:10.1093/esr/jcaa070.

Buxton, A. (2013). CUREREGR: Stata module to estimate parametric cure regression. https://econpapers.repec.org/software/bocbocode/s446901.htm.

Cherlin, A.J. (2016). A happy ending to a half-century of family change? *Population and Development Review* 42(1): 121–129. doi:10.1111/j.1728-4457.2016.00111.x.

Cigno, A. and Ermisch, J. (1989). A microeconomic analysis of the timing of births. *European Economic Review* 33: 737–760. doi:10.1016/0014-2921(89)90023-8.

Corijn, M., Liefbroer, A., and de Jong Gierveld, J. (1996). It takes two to tango, doesn't it? The influence of couple characteristics on the timing of the birth of the first child. *Journal of Marriage and the Family* 58(1): 117–126. doi:10.2307/353381.

Del Bono, E., Weber, A., and Winter-Ebmer, R. (2012). Clash of career and family: Fertility decisions after job displacement. *Journal of the European Economic Association* 10(4): 659–683. doi:10.1111/j.1542-4774.2012.01074.x.

Doepke, M., Hannusch, A., Kindermann, F., and Tertilt, M. (2023). The economics of fertility: A new era. In: *Handbook of the economics of the family*. Elsevier: 151–254. doi:10.1016/bs.hefam.2023.01.003.

Doepke, M. and Kindermann, F. (2019). Bargaining over babies: Theory, evidence, and policy implications. *American Economic Review* 109(9): 3264–3306. doi:10.1257/aer.20160328.

Doepke, M., Sorrenti, G., and Zilibotti, F. (2019). The economics of parenting. *Annual Review of Economics* 11: 55–84. doi:10.1146/annurev-economics-080218-030156.

Dotti Sani, G.M. and Treas, J. (2016). Educational gradients in parents' child-care time across countries, 1965–2012. *Journal of Marriage and Family* 78(4): 1083–1096. doi:10.1111/jomf.12305.

Dribe, M. and Stanfors, M. (2010). Family life in power couples: Continued childbearing and union stability among the educational elite in Sweden, 1991–2005. *Demographic Research* 23(30): 847–878. doi:10.4054/DemRes.2010.23.30.

Erát, D. (2021). Educational assortative mating and the decline of hypergamy in 27 European countries: An examination of trends through cohorts. *Demographic Research* 44(7): 157–188. doi:10.4054/DemRes.2021.44.7.

Fort, M., Schneeweis, N., and Winter-Ebmer, R. (2016). Is education always reducing fertility? Evidence from compulsory schooling reforms. *The Economic Journal* 126(595): 1823–1855. doi:10.1111/ecoj.12394.

Frimmel, W., Halla, M., and Winter-Ebmer, R. (2013). Assortative mating and divorce: Evidence from austrian register data. *Journal of the Royal Statistical Society Series A: Statistics in Society* 176(4): 907–929. doi:10.1111/j.1467-985X.2012.01070.x.

Gerster, M. and Keiding, N. (2008). Biological and sociological interpretations of age-adjustment in studies of higher order birth rates. *Demographic Research* 19(31): 1205–1216. doi:10.4054/DemRes.2008.19.31.

Gerster, M., Keiding, N., Knudsen, L.B., and Strandberg-Larsen, K. (2007). Education and second birth rates in Denmark 1981–1994. *Demographic Research* 17(8): 181–210. d doi:10.4054/DemRes.2007.17.8.

Goldscheider, F., Bernhardt, E., and Lappegård, T. (2015). The gender revolution: A framework for understanding changing family and demographic behavior. *Population and Development Review* 41(2): 207–239. doi:10.1111/j.1728-4457.2015.00045.x.

Goldstein, J., Lutz, W., and Rita, M. (2003). The emergence of sub-replacement family size ideals in Europe. *Population Research and Policy Review* 22: 479–496. doi:10.1023/B:POPU.0000020962.80895.4a.

Gray, E., Evans, A., Anderson, J., and Kippen, R. (2010). Using Split-population models to examine predictors of the probability and timing of parity progression: L'utilisation des modèles de population stratifiée pour examiner la probabilité d'agrandissement des familles et son calendrier. *European Journal of Population / Revue européenne de Démographie* 26(3): 275–295. doi:10.1007/s10680-009-9201-2.

Guryan, J., Hurst, E., and Kearney, M. (2008). Parental education and parental time with children. *Journal of Economic Perspectives* 22(3): 23–46. doi:10.1257/jep.22.3.23.

Gustafsson, S. (2001). Optimal age at motherhood: Theoretical and empirical. *Journal of Population Economics* 14(2): 225–247. doi:10.1007/s001480000051.

Hazan, M., Weiss, D., and Zoabi, H. (2023). Highly educated women are no longer childless: The role of marketization. *Economics Letters* 230: 111226. doi:10.1016/j.econlet.2023.111226.

Hazan, M. and Zoabi, H. (2015). Do highly educated women choose smaller families? *The Economic Journal* 125(587): 1191–1226. doi:10.1111/ecoj.12148.

Heckman, J.J. and Walker, J.R. (1990). The relationship between wages and income and the timing and spacing of births: Evidence from Swedish longitudinal data. *Econometrica* 58(6): 1411–1441. doi:10.2307/2938322.

Hobcraft, J. and Kiernan, K. (1995). Becoming a parent in Europe [unpublished manuscript]. London: Centre for Analysis of Social Exclusion.

Hoem, B. (1995). The social meaning of the age at second birth for third-birth fertility: A methodological note on the need to sometimes respecify an intermediate variable. *Yearbook of Population Research in Finland* 33: 333–339. doi:10.23979/fypr.44916.

Hoem, J.M., Prskawetz, A., and Neyer, G. (2001). Autonomy or conservative adjustment? The effect of public policies and educational attainment on third births in Austria, 1975–96. *Population Studies* 55(3): 249–261. doi:10.1080/00324720127700.

Huinink, J. and Kohli, M. (2014). A life-course approach to fertility. *Demographic Research* 30(45): 1293–1326. doi:10.4054/DemRes.2014.30.45.

Immervoll, H. and Barber, D. (2005). Can parents afford to work? Childcare costs, tax-benefit policies and work incentives. (OECD Social, Employment and Migration Working Papers 10). Paris: OECD Publishing. doi:10.1787/312744260654.

Karlson, K.B., Holm, A., and Breen, R. (2012). Comparing regression coefficients between same-sample nested models using logit and probit: A new method. *Sociological Methodology* 42(1): 286–313. doi:10.1177/0081175012444861.

Kearney, M.S. and Levine, P.B. (2025). Why is fertility so low in high income countries? (NBER Working Paper Series 33989). Cambridge, MA: National Bureau of Economic Research. doi:10.3386/w33989.

Kearney, M.S., Levine, P.B., and Pardue, L. (2022). The puzzle of falling US birth rates since the Great Recession. *Journal of Economic Perspectives* 36(1): 151–176. doi:10.1257/jep.36.1.151.

Klesment, M., Puur, A., Rahnu, L., and Sakkeus, L. (2014). Varying association between education and second births in Europe: Comparative analysis based on the EU-SILC data. *Demographic Research* 31(27): 813–860. doi:10.4054/DemRes.2014.31.27.

Klesment, M. and Van Bavel, J. (2022). Women's relative resources and couples' gender balance in financial decision-making. *European Sociological Review* 38(5): 739–753. doi:10.1093/esr/jcac019.

Kleven, H., Landais, C., Posch, J., Steinhauer, A., and Zweimüller, J. (2019). Child penalties across countries: Evidence and explanations. *AEA Papers and Proceedings* 109: 122–126. doi:10.1257/pandp.20191078.

Köppen, K. (2006). Second births in western Germany and France. *Demographic Research* 14(14): 295–330. doi:10.4054/DemRes.2006.14.14.

Kravdal, Ø. (2007). Effects of current education on second- and third-birth rates among Norwegian women and men born in 1964: Substantive interpretations and methodological issues. *Demographic Research* 17(9): 211–246. doi:10.4054/DemRes.2007.17.9.

Kravdal, Ø. and Rindfuss, R. (2008). Changing relationships between education and fertility: A study of women and men born 1940 to 1964. *American Sociological Review* 73(5): 854–873. doi:10.1177/000312240807300508.

Kreyenfeld, M. (2002). Time squeeze, partner effect or self-selection? *Demographic Research* 7(2): 15–48. doi:10.4054/DemRes.2002.7.2.

Kreyenfeld, M., Konietzka, D., Lambert, P., and Ramos, V.J. (2023). Second birth fertility in Germany: Social class, gender, and the role of economic uncertainty. *European Journal of Population* 39(1): 5. doi:10.1007/s10680-023-09656-5.

Lappegård, T. and Rønsen, M. (2005). The multifaceted impact of education on entry into motherhood. *European Journal of Population* 21(1): 31–49. doi:10.1007/s10680-004-6756-9.

Martín-García, T. and Solera, C. (2023). Does what the man studies affect what he does at home? Field of education and gender division of housework and childcare in Norway, Austria and Poland. *Journal of Family Studies* 29(4): 1465–1492. doi:10.1080/13229400.2022.2051726.

Nitsche, N. (2024). Relative resources in couples and their childbearing behavior in the United States. *Comparative Population Studies* 49. doi:10.12765/CPoS-2024-16.

Nitsche, N., Matysiak, A., Bavel, J.V., and Vignoli, D. (2018). Partners' educational pairings and fertility across Europe. *Demography* 55(4): 1195–1232. doi:10.1007/s13524-018-0681-8.

Nitsche, N., Trimarchi, A., and Jalovaara, M. (2020). The power of two: Second birth rate differences between couples with homogamous and heterogamous educational pairings. (MPIDR Working Paper WP-2020-029). Rostock: Max Planck Institute for Demographic Research. doi:10.4054/MPIDR-WP-2020-029.

Noack, T. (1996). How many people are involuntarily childless? *Nordic Yearbook of Population Research* 33:60–72. doi:10.23979/fypr.44894.

OECD Family Database (2025). *OECD*. https://www.oecd.org/en/data/datasets/oecd-family-database.html. Accessed 7 December 2025.

Oláh, L.S. (2003). Gendering fertility: Second births in Sweden and Hungary. *Population Research and Policy Review* 22(2): 171–200. doi:10.1023/A:1025089031871.

Oppenheimer, V. (1988). A theory of marriage timing. *American Journal of Sociology* 94(3): 563–591. doi:10.1086/229030.

Oppenheimer, V. (1994). Women's rising employment and the future of the family in industrial societies. *Population and Development Review* 20(2): 293–342. doi:10.2307/2137521.

Osiewalska, B. (2017). Childlessness and fertility by couples' educational gender (in)equality in Austria, Bulgaria, and France. *Demographic Research* 37(12): 325–362. doi:10.4054/DemRes.2017.37.12.

Peng, Y. and Yu, B. (2021). *Cure models: Methods, applications, and implementation*. 1st edn. Boca Raton: CRC Press. Chapman and Hall/CRC Biostatistics Series. doi:10.1201/9780429032301.

Prskawetz, A., Sobotka, T., Buber, I., Engelhardt, H., and Gisser, R. (2008). Austria: Persistent low fertility since the mid-1980s. *Demographic Research* 19(12): 293–360. doi:10.4054/DemRes.2008.19.12.

Raz-Yurovich, L. (2014). A transaction cost approach to outsourcing by households. *Population and Development Review* 40(2): 293–309. doi:10.1111/j.1728-4457.2014.00674.x.

Raz-Yurovich, L. and Okun, B.S. (2024). Are highly educated partners really more gender egalitarian? A couple-level analysis of social class differentials in attitudes and behaviors. *Demographic Research* 50(34): 1005–1038. doi:10.4054/DemRes.2024.50.34.

Redivo, E., Dribe, M., and Scalone, F. (2024). Social-class differences in spacing and stopping during the historical fertility transition: Insights from cure models. *Demographic Research* 51(40): 1257–1298. doi:10.4054/DemRes.2024.51.40.

Redmond, P. and Mcguinness, S. (2019). The gender wage gap in Europe: Job preferences, gender convergence and distributional effects. *Oxford Bulletin of Economics and Statistics* 81(3): 564–587. doi:10.1111/obes.12282.

Schmidt, P. and Witte, A.D. (1989). Predicting criminal recidivism using 'split population' survival time models. *Journal of Econometrics* 40(1):141–159. doi:10.1016/0304-4076(89)90034-1.

Siegert, C. (2025). Parenthood and poverty risk within couples: Individual and household poverty risks by gender and education in four European countries. *European Sociological Review* 41(2): 265–277. doi:10.1093/esr/jcae040.

Singley, S.G. and Hynes, K. (2005). Transitions to parenthood: Work-family policies, gender, and the couple context. *Gender and Society* 19(3): 376–397. doi:10.1177/0891243204271515.

Sobotka, T. and Beaujouan, E. (2014). Two is best? The persistence of a two-child family ideal in Europe. *Population and Development Review* 40(3): 391–419. doi:10.1111/j.1728-4457.2014.00691.x.

Spéder, Z. and Bartus, T. (2017). Educational enrolment, double-status positions and the transition to motherhood in Hungary. *European Journal of Population* 33(1): 55–85. doi:10.1007/s10680-016-9394-0.

Sposto, R. (2002). Cure model analysis in cancer: An application to data from the Children's Cancer Group. *Statistics in Medicine* 21(2): 293–312. doi:10.1002/sim.987.

Statistik Austria (2025). *Bildung in Zahlen 2023/2024*. Vienna: Statistik Austria.

Steiber, N., Berghammer, C., and Haas, B. (2016). Contextualizing the education effect on women's employment: A cross-national comparative analysis. *Journal of Marriage and Family* 78(1): 246–261. doi:10.1111/jomf.12256.

Trimarchi, A. (2022). Gender-egalitarian attitudes and assortative mating by age and education. *European Journal of Population* 38: 429–456. doi:10.1007/s10680-022-09607-6.

Trimarchi, A. and Van Bavel, J. (2017). Education and the transition to fatherhood: The role of selection into union. *Demography* 54(1): 119–144. doi:10.1007/s13524-016-0533-3.

Trimarchi, A. and Van Bavel, J. (2018). Gender differences and similarities in the educational gradient in fertility: The role of earnings potential and gender composition in study disciplines. *Demographic Research* 39(13): 381–414. doi:10.4054/DemRes.2018.39.13.

Trimarchi, A. and Van Bavel, J. (2020). Partners' educational characteristics and fertility: Disentangling the effects of earning potential and unemployment risk on second births. *European Journal of Population* 36: 439–464. doi:10.1007/s10680-019-09537-w.

Van Bavel, J. (2012). The reversal of gender inequality in education, union formation and fertility in Europe. *Vienna Yearbook of Population Research* 10(1): 127–154. doi:10.1553/populationyearbook2012s127.

Wood, J., Neels, K., and Kil, T. (2014). The educational gradient of childlessness and cohort parity progression in 14 low fertility countries. *Demographic Research* 31(46): 1365–1416. doi:10.4054/DemRes.2014.31.46.

Yamaguchi, K. and Ferguson, L.R. (1995). The Stopping and spacing of childbirths and their birth-history predictors: Rational-choice theory and event-history analysis. *American Sociological Review* 60(2): 272–298. doi:10.2307/2096387.

Zweimüller, J., Winter-Ebmer, R., Lalive, R., Kuhn, A., Wuellrich, J., Ruf, O., and Büchi, S. (2009). The Austrian Social Security Database (ASSD). (SSRN Working Paper 0901). Linz: The Austrian Center for Labor Economics and the Analysis of the Welfare State. doi:10.2139/ssrn.1399350.

Appendix

A: Further descriptives

Table A-1: Partners' relative income type by educational pairings (absolute and percentage)

Relative income	*low–low*	woman low–man medium	woman low–man tertiary	woman medium–man low	*medium–medium*	woman medium–man tertiary	woman tertiary–man low	woman tertiary–man medium	*tertiary–tertiary*	Total
Hypergamy	12725	4091	881	4202	3011	1050	1155	1132	2861	31108
%	40.9	48.0	38.6	36.7	41.5	37.2	37.2	43.9	37.8	40.6
Homogamy	12674	3102	738	4876	3057	976	1229	1013	2780	30445
%	40.8	36.4	32.3	42.6	42.1	34.6	39.6	39.4	36.7	39.7
Hypogamy	5682	1333	663	2376	1195	797	722	429	1933	15130
%	18.3	15.6	29.1	20.7	16.4	28.2	23.2	16.7	25.5	19.7
Total	31081	8526	2282	11454	7263	2823	3106	2574	7574	76683
	100	100	100	100	100	100	100	100	100	100

Table A-2: Partners' joint income (quartiles) by educational pairings

Joint income	*low–low*	woman low–man medium	woman low–man tertiary	woman medium–man low	*medium–medium*	woman medium–man tertiary	woman tertiary–man low	woman tertiary–man medium	*tertiary–tertiary*	Total
First	8185	2440	599	2851	1798	546	674	432	1646	19171
%	26.3	28.6	26.3	24.9	24.8	19.3	21.7	16.8	21.7	25.0
Second	8566	2355	453	3137	1701	529	747	459	1224	19171
%	27.6	27.6	19.9	27.4	23.4	18.7	24.1	17.8	16.2	25.0
Third	9251	1994	422	3058	1492	459	732	539	1222	19169
%	29.8	23.4	18.5	26.7	20.5	16.3	23.6	20.9	16.1	25.0
Fourth	5079	1737	808	2408	2272	1289	953	1144	3482	19172
%	16.3	20.4	35.4	21.0	31.3	45.7	30.7	44.4	46.0	25.0
Total	31081	8526	2282	11454	7263	2823	3106	2574	7574	76683
	100	100	100	100	100	100	100	100	100	100

Table A-3: Educational distributions of couples with a foreign mother

Educational pairing	Austrian mother	Foreign mother	Missing	Total
low–low	38.5	50.9	57.1	40.5
wlow–mmed	10.7	13.3	5.7	11.1
wlow–mtertiary	2.9	3.2	7.1	3.0
wmed–mlow	15.9	10.2	8.6	14.9
med–med	10.1	6.6	2.9	9.5
wmed–mtertiary	3.8	2.9	5.7	3.7
wtertiary–mlow	4.2	3.5	7.1	4.1
wtertiary–mmed	3.6	2.3	1.4	3.4
tertiary–tertiary	10.4	7.1	4.3	9.9
Total (%)	100.0	100.0	100.0	100.0
N	63,942	12,671	70	76,683

Figure A-1: Mothers' income trajectories over time by level of education at first birth

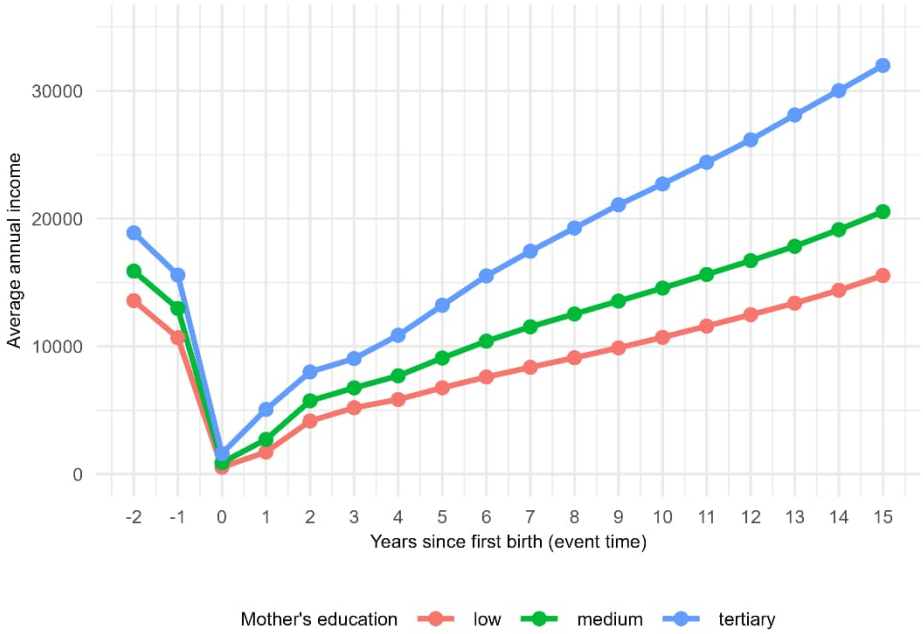


Figure A-2: Fathers' income trajectories over time by level of education at first birth

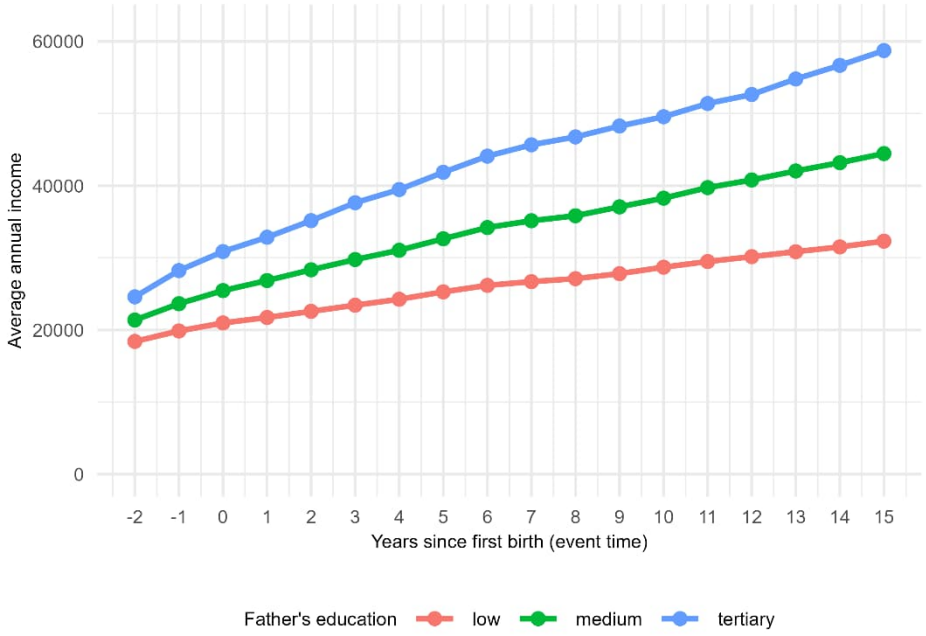
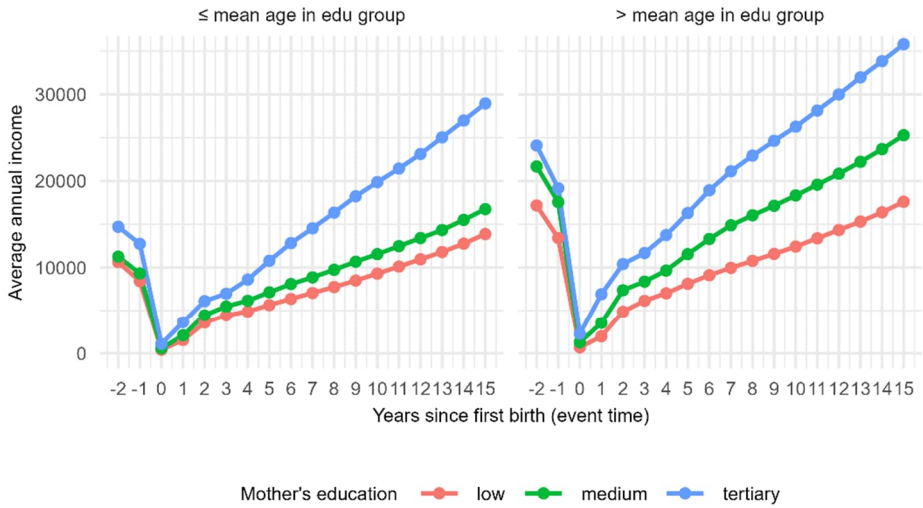
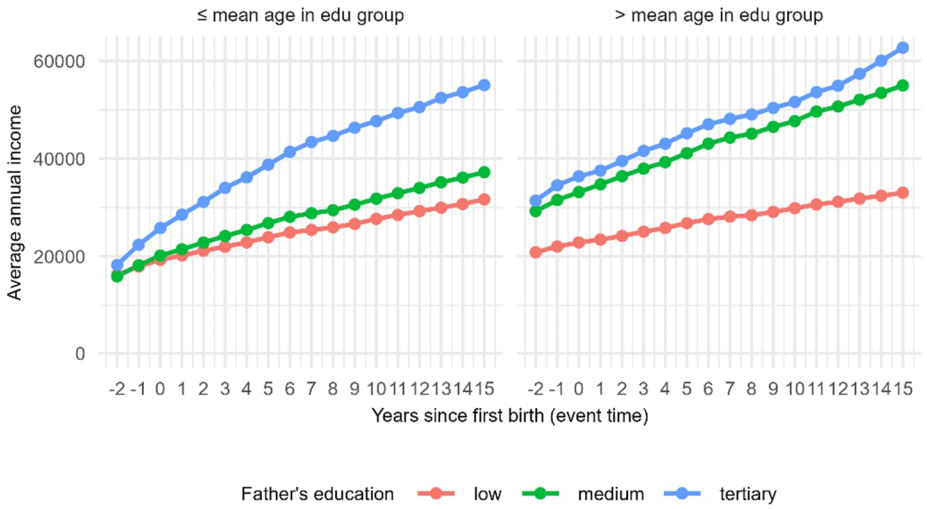


Figure A-3: Mothers' income trajectories over time by level of education at first birth; below or at mean age at first birth for their educational level (left-hand side) and above mean age at first birth for their educational level (right-hand side)



Education level	Mean age at 1st birth	Sample size
low	26.09	41889
medium	25.42	21540
tertiary	29.08	13254

Figure A-4: Fathers' income trajectories over time by level of education at first birth; below or at mean age at first birth for their educational level (left-hand side) and above mean age at first birth for their educational level (right-hand side)



Education level	Mean age at 1st birth	Sample size
low	29.69	45641
medium	27.28	18363
tertiary	31.86	12679

B: Full main models

Table B-1a: Full model results for the occurrence of a second birth (M1: controls + educational pairing, M2: M1 + joint income, M3: M2 + relative income)

Occurrence	M1	M2	M3
Educational pairing (ref. low–low)			
wlow–mmed	–0.072	–0.079	–0.084
	[–0.084 –0.060]	[–0.091 –0.068]	[–0.095 –0.072]
wlow–mtertiary	–0.005	0.006	0.015
	[–0.024 0.013]	[–0.013 0.025]	[–0.001 0.032]
wmed–mlow	–0.068	–0.075	–0.074
	[–0.077 –0.058]	[–0.085 –0.065]	[–0.084 –0.064]
med–med	–0.082	–0.087	–0.089
	[–0.093 –0.071]	[–0.097 –0.077]	[–0.099 –0.079]
wmed–mtertiary	–0.061	–0.04	–0.02
	[–0.077 –0.046]	[–0.054 –0.027]	[–0.034 –0.007]
wtertiary–mlow	–0.016	–0.007	–0.004
	[–0.033 0.002]	[–0.024 0.011]	[–0.021 0.014]
wtertiary–mmed	–0.061	–0.047	–0.047
	[–0.079 –0.042]	[–0.065 –0.028]	[–0.066 –0.028]
tertiary–tertiary	–0.087	–0.069	–0.066
	[–0.100 –0.073]	[–0.082 –0.056]	[–0.079 –0.053]
Mother's cohort	–0.001	0.003	0.003
	[–0.003 0.002]	[–0.000 0.005]	[0.000 0.006]
Age difference between partners (ref. man older)			
Age homogamy	–0.021	–0.028	–0.02
	[–0.026 –0.015]	[–0.034 –0.022]	[–0.026 –0.013]
Female two or more years older	–0.021	–0.034	–0.028
	[–0.034 –0.008]	[–0.048 –0.021]	[–0.042 –0.014]
Mother's citizenship (ref. Austrian)			
Foreign	0.011	–0.003	–0.009
	[0.003 0.019]	[–0.011 0.005]	[–0.017 –0.000]
Missing	–0.158	–0.174	–0.171
	[–0.236 –0.081]	[–0.249 –0.099]	[–0.243 –0.099]

Table B-1a: (Continued)

Occurrence	M1	M2	M3
Father's citizenship (ref. Austrian)			
Foreign	–0.036	–0.045	–0.046
	[–0.045 –0.027]	[–0.053 –0.036]	[–0.055 –0.037]
Missing	0.111	0.1	0.101
	[0.101 0.122]	[0.090 0.110]	[0.091 0.110]
Married at first birth (ref. unmarried)			
Married	0.031	0.025	0.028
	[0.023 0.039]	[0.017 0.033]	[0.020 0.036]
Mother's region of residence at first birth (ref. Vienna)			
Missing	0.002	–0.01	–0.018
	[–0.015 0.020]	[–0.027 0.008]	[–0.035 –0.001]
Lower Austria	–0.064	–0.054	–0.054
	[–0.075 –0.052]	[–0.065 –0.043]	[–0.066 –0.043]
Burgenland	–0.009	–0.007	–0.009
	[–0.033 0.015]	[–0.030 0.017]	[–0.033 0.015]
Upper Austria	–0.078	–0.08	–0.084
	[–0.089 –0.068]	[–0.090 –0.069]	[–0.095 –0.074]
Styria	–0.031	–0.029	–0.032
	[–0.043 –0.018]	[–0.042 –0.017]	[–0.045 –0.019]
Carinthia	–0.052	–0.051	–0.054
	[–0.067 –0.036]	[–0.066 –0.035]	[–0.069 –0.038]
Salzburg	–0.086	–0.09	–0.088
	[–0.099 –0.074]	[–0.102 –0.077]	[–0.101 –0.076]
Tirol	–0.094	–0.094	–0.096
	[–0.107 –0.081]	[–0.107 –0.081]	[–0.109 –0.083]
Vorarlberg	–0.097	–0.087	–0.081
	[–0.111 –0.084]	[–0.100 –0.073]	[–0.095 –0.068]
Relative age at first birth by educational pairing	0.024	0.029	0.03
	[0.021 0.026]	[0.027 0.032]	[0.028 0.033]
Joint income (ref. first quartile)			
Second		–0.029	–0.039
		[–0.037 –0.021]	[–0.047 –0.031]
Third		–0.052	–0.062
		[–0.061 –0.044]	[–0.070 –0.053]
Fourth		–0.068	–0.083
		[–0.079 –0.058]	[–0.094 –0.071]
Relative income (ref. hypergamy)			
Homogamy			–0.021
			[–0.028 –0.014]
Hypogamy			–0.041
			[–0.049 –0.033]
Intercept	0.337	0.386	0.408
	[0.324 0.351]	[0.372 0.401]	[0.393 0.423]

Notes: Estimated coefficients and 95% confidence intervals in brackets. A negative coefficient implies a lower likelihood to remain without a second child; hence a higher likelihood to progress to the second child.

Table B-1b: Full model results for the timing of a second birth (M1: controls + educational pairing, M2: M1 + joint income, M3: M2 + relative income)

Timing	M1	M2	M3
Educational pairing (ref. low–low)			
wlow–mmed	0.039	0.042	0.044
	[0.014 0.065]	[0.016 0.067]	[0.019 0.070]
wlow–mtertiary	–0.055	–0.057	–0.056
	[–0.097 –0.014]	[–0.099 –0.016]	[–0.097 –0.015]
wmed–mlow	0.016	0.018	0.017
	[–0.007 0.038]	[–0.004 0.040]	[–0.005 0.039]
med–med	0.052	0.053	0.053
	[0.027 0.077]	[0.028 0.078]	[0.028 0.078]
wmed–mtertiary	–0.007	–0.012	–0.013
	[–0.044 0.030]	[–0.050 0.025]	[–0.050 0.025]
wtertiary–mlow	0.006	0.002	0.001
	[–0.030 0.042]	[–0.035 0.038]	[–0.035 0.037]
wtertiary–mmed	0.01	0.003	0.005
	[–0.028 0.048]	[–0.035 0.041]	[–0.034 0.043]
tertiary–tertiary	–0.057	–0.062	–0.06
	[–0.088 –0.027]	[–0.093 –0.031]	[–0.092 –0.029]
Mother's cohort	0.01	0.01	0.01
	[0.004 0.017]	[0.003 0.016]	[0.003 0.016]
Age difference between partners (ref. man older)			
Age homogamy	0.058	0.062	0.058
	[0.045 0.072]	[0.048 0.075]	[0.044 0.072]
Female 2 or more years older	0.054	0.062	0.059
	[0.027 0.080]	[0.036 0.089]	[0.032 0.086]
Mother's citizenship (ref. Austrian)			
Foreign	–0.017	–0.005	–0.001
	[–0.038 0.003]	[–0.026 0.016]	[–0.022 0.021]
Missing	–0.038	–0.015	–0.016
	[–0.237 0.160]	[–0.213 0.184]	[–0.215 0.183]
Father's citizenship (ref. Austrian)			
Foreign	0.073	0.08	0.08
	[0.049 0.096]	[0.056 0.104]	[0.055 0.104]
Missing	0.224	0.22	0.219
	[0.198 0.250]	[0.194 0.246]	[0.193 0.245]
Married at first birth (ref. unmarried)			
Married	0.017	0.008	0.005
	[–0.007 0.041]	[–0.016 0.032]	[–0.019 0.029]

Table B-1b: (Continued)

Timing	M1	M2	M3
Mother's region of residence at first birth (ref. Vienna)			
Missing	–0.09	–0.081	–0.077
	[–0.125 –0.055]	[–0.116 –0.045]	[–0.113 –0.041]
Lower Austria	–0.078	–0.082	–0.082
	[–0.100 –0.055]	[–0.105 –0.059]	[–0.105 –0.060]
Burgenland	0.076	0.071	0.071
	[0.030 0.122]	[0.025 0.117]	[0.025 0.117]
Upper Austria	–0.079	–0.084	–0.084
	[–0.102 –0.056]	[–0.107 –0.061]	[–0.107 –0.061]
Styria	–0.059	–0.062	–0.062
	[–0.084 –0.034]	[–0.087 –0.037]	[–0.087 –0.037]
Carinthia	0	–0.003	–0.002
	[–0.031 0.032]	[–0.034 0.029]	[–0.034 0.029]
Salzburg	–0.034	–0.039	–0.04
	[–0.062 –0.006]	[–0.067 –0.011]	[–0.068 –0.012]
Tirol	–0.019	–0.022	–0.023
	[–0.046 0.009]	[–0.049 0.005]	[–0.050 0.005]
Vorarlberg	–0.099	–0.105	–0.105
	[–0.131 –0.067]	[–0.137 –0.073]	[–0.138 –0.073]
Relative age at first birth by educational pairing	–0.005	–0.008	–0.008
	[–0.012 0.002]	[–0.014 –0.001]	[–0.014 –0.001]
Joint income (ref. first quartile)			
Second		0.049	0.051
		[0.031 0.068]	[0.032 0.070]
Third		0.067	0.064
		[0.047 0.087]	[0.043 0.085]
Fourth		0.06	0.056
		[0.038 0.081]	[0.033 0.080]
Relative income (ref. hypergamy)			
Homogamy			0.029
			[0.014 0.044]
Hypogamy			0.014
			[–0.005 0.033]
Intercept	3.212	3.172	3.161
	[3.182 3.243]	[3.139 3.204]	[3.126 3.195]
Shape			
Intercept	–0.33	–0.33	–0.331
	[–0.336 –0.323]	[–0.337 –0.324]	[–0.337 –0.324]
N	76683	76683	76683

Notes: Estimated coefficients and 95% confidence intervals in brackets. A negative coefficient implies shorter birth intervals; hence a faster tempo.

Table B-2a: Estimated coefficients and 95% confidence intervals of the educational pairing variable (reference category: woman medium educated and man lower educated) for the occurrence of a second birth (M1: controls + educational pairing, M2: M1 + joint income, M3: M2 + relative income)

Occurrence	M1	M2	M3
Educational pairing (ref. wmed–mlow)			
low–low	0.068	0.075	0.074
	[0.058 0.077]	[0.065 0.085]	[0.064 0.084]
wlow–mmed	–0.004	–0.004	–0.010
	[–0.016 0.007]	[–0.016 0.008]	[–0.021 0.002]
wlow–mtertiary	0.062	0.081	0.090
	[0.042 0.083]	[0.060 0.102]	[0.071 0.108]
med–med	–0.014	–0.012	–0.015
	[–0.025 –0.003]	[–0.024 –0.001]	[–0.026 –0.004]
wmed–mtertiary	0.006	0.035	0.054
	[–0.012 0.024]	[0.018 0.051]	[0.038 0.070]
wtertiary–mlow	0.052	0.068	0.070
	[0.032 0.072]	[0.048 0.088]	[0.051 0.090]
wtertiary–mmed	0.007	0.028	0.027
	[–0.014 0.027]	[0.007 0.050]	[0.006 0.048]
tertiary–tertiary	–0.019	0.006	0.008
	[–0.037 –0.002]	[–0.011 0.023]	[–0.009 0.025]

Notes: A negative coefficient implies a lower likelihood to remain without the second child; hence a higher likelihood to progress to the second child.

Table B-2b: Estimated coefficients and 95% confidence intervals of the educational pairing variable (reference category: woman medium educated and man lower educated) for the timing of a second birth (M1: controls + educational pairing, M2: M1 + joint income, M3: M2 + relative income)

Timing	M1	M2	M3
Educational pairing (ref. wmed–mlow)			
low–low	–0.016	–0.018	–0.017
	[–0.038 0.007]	[–0.040 0.004]	[–0.039 0.005]
wlow–mmed	0.024	0.024	0.027
	[–0.002 0.049]	[–0.002 0.049]	[0.001 0.052]
wlow–mtertiary	–0.071	–0.076	–0.073
	[–0.118 –0.024]	[–0.123 –0.028]	[–0.121 –0.026]
med–med	0.036	0.035	0.036
	[0.010 0.062]	[0.009 0.061]	[0.010 0.062]
wmed–mtertiary	–0.022	–0.030	–0.030
	[–0.066 0.022]	[–0.074 0.013]	[–0.074 0.014]
wtertiary–mlow	–0.010	–0.017	–0.016
	[–0.052 0.033]	[–0.059 0.026]	[–0.059 0.027]
wtertiary–mmed	–0.006	–0.015	–0.013
	[–0.050 0.038]	[–0.059 0.029]	[–0.057 0.032]
tertiary–tertiary	–0.073	–0.080	–0.078
	[–0.113 –0.032]	[–0.121 –0.039]	[–0.119 –0.037]

Notes: A negative coefficient implies shorter birth intervals; hence faster tempo.

C: Models results using logistic link function for the occurrence of a second birth

Table C-1a: Full model results of the occurrence of a second birth (M1: controls + educational pairing, M2: M1 + joint income, M3: M2 + relative income)

Occurrence	M1	M2	M3
Educational pairing (ref. low–low)			
wlow–mmed	–0.411	–0.417	–0.429
	[–0.483 –0.339]	[–0.489 –0.345]	[–0.501 –0.357]
wlow–mtertiary	–0.088	–0.075	–0.058
	[–0.196 0.020]	[–0.184 0.034]	[–0.167 0.052]
wmed–mlow	–0.420	–0.425	–0.415
	[–0.481 –0.359]	[–0.486 –0.364]	[–0.476 –0.354]
med–med	–0.576	–0.568	–0.568
	[–0.649 –0.503]	[–0.641 –0.495]	[–0.641 –0.495]
wmed–mtertiary	–0.414	–0.383	–0.362
	[–0.519 –0.309]	[–0.489 –0.277]	[–0.468 –0.256]
wtertiary–mlow	–0.123	–0.107	–0.091
	[–0.218 –0.029]	[–0.202 –0.012]	[–0.186 0.004]
wtertiary–mmed	–0.343	–0.305	–0.300
	[–0.449 –0.237]	[–0.412 –0.198]	[–0.408 –0.193]
tertiary–tertiary	–0.662	–0.632	–0.614
	[–0.751 –0.574]	[–0.722 –0.542]	[–0.705 –0.524]
Mother's cohort	0.005	0.008	0.007
	[–0.013 0.023]	[–0.011 0.026]	[–0.011 0.026]
Age difference between partners (ref. man older)			
Age homogamy	–0.200	–0.206	–0.195
	[–0.239 –0.161]	[–0.245 –0.167]	[–0.235 –0.156]
Female two or more years older	–0.222	–0.254	–0.236
	[–0.286 –0.157]	[–0.319 –0.190]	[–0.301 –0.171]
Mother's citizenship (ref. Austrian)			
Foreign	0.028	–0.037	–0.092
	[–0.032 0.087]	[–0.098 0.023]	[–0.154 –0.031]
Missing	–0.783	–0.897	–0.933
	[–1.438 –0.129]	[–1.556 –0.237]	[–1.595 –0.271]
Father's citizenship (ref. Austrian)			
Foreign	–0.310	–0.353	–0.322
	[–0.386 –0.234]	[–0.430 –0.276]	[–0.399 –0.245]
Missing	0.625	0.641	0.653
	[0.548 0.702]	[0.564 0.718]	[0.575 0.730]
Married at first birth (ref. unmarried)			
Married	0.248	0.289	0.299
	[0.176 0.321]	[0.216 0.363]	[0.226 0.372]
Mother's region of residence at first birth (ref. Vienna)			
Missing	0.063	0.015	–0.047
	[–0.034 0.159]	[–0.082 0.112]	[–0.145 0.050]
Lower Austria	–0.388	–0.372	–0.383
	[–0.448 –0.327]	[–0.432 –0.311]	[–0.443 –0.322]
Burgenland	–0.118	–0.100	–0.111
	[–0.236 –0.001]	[–0.217 0.018]	[–0.229 0.006]
Upper Austria	–0.589	–0.565	–0.578
	[–0.651 –0.527]	[–0.627 –0.503]	[–0.640 –0.515]
Styria	–0.209	–0.197	–0.214
	[–0.272 –0.145]	[–0.261 –0.133]	[–0.278 –0.150]
Carinthia	–0.336	–0.328	–0.347
	[–0.419 –0.253]	[–0.411 –0.245]	[–0.430 –0.264]
Salzburg	–0.609	–0.590	–0.596
	[–0.688 –0.530]	[–0.669 –0.511]	[–0.675 –0.517]
Tirol	–0.614	–0.601	–0.611
	[–0.689 –0.539]	[–0.676 –0.526]	[–0.686 –0.536]
Vorarlberg	–0.703	–0.688	–0.691
	[–0.799 –0.608]	[–0.783 –0.592]	[–0.787 –0.595]

Table C-1a: (Continued)

Occurrence	M1	M2	M3
Relative age at first birth by educational pairing	0.151	0.161	0.163
	[0.133 0.170]	[0.142 0.180]	[0.144 0.182]
Joint income (ref. first quartile)			
Second		–0.180	–0.212
		[–0.234 –0.126]	[–0.266 –0.158]
Third		–0.289	–0.344
		[–0.345 –0.234]	[–0.402 –0.285]
Fourth		–0.297	–0.374
		[–0.356 –0.238]	[–0.438 –0.310]
Relative income (ref. hypergamy)			
Homogamy			–0.108
			[–0.149 –0.068]
Hypogamy			–0.250
			[–0.304 –0.196]
Intercept	–0.649	–0.475	–0.342

Note: Estimated coefficients and 95% confidence intervals (negative coefficient = higher likelihood to progress to the second child).

Table C-1b: Full model results for the timing of a second birth (M1: controls + educational pairing, M2: M1 + joint income, M3: M2 + relative income)

Timing	M1	M2	M3
Educational pairing (ref. low–low)			
wlow–mmed	0.040	0.042	0.044
	[0.015 0.066]	[0.017 0.068]	[0.019 0.070]
wlow–mtertiary	–0.054	–0.055	–0.053
	[–0.096 –0.013]	[–0.097 –0.014]	[–0.094 –0.011]
wmed–mlow	0.018	0.019	0.018
	[–0.004 0.040]	[–0.003 0.041]	[–0.004 0.040]
med–med	0.056	0.057	0.057
	[0.032 0.081]	[0.032 0.081]	[0.032 0.082]
wmed–mtertiary	–0.005	–0.009	–0.007
	[–0.042 0.032]	[–0.046 0.028]	[–0.045 0.030]
wtertiary–mlow	0.007	0.003	0.003
	[–0.030 0.043]	[–0.033 0.040]	[–0.033 0.039]
wtertiary–mmed	0.010	0.005	0.006
	[–0.028 0.048]	[–0.034 0.043]	[–0.033 0.044]
tertiary–tertiary	–0.056	–0.059	–0.057
	[–0.087 –0.025]	[–0.090 –0.027]	[–0.089 –0.026]
Mother's cohort	0.010	0.010	0.010
	[0.003 0.017]	[0.003 0.016]	[0.003 0.016]
Age difference between partners (ref. man older)			
Age homogamy	0.061	0.063	0.061
	[0.047 0.075]	[0.049 0.077]	[0.047 0.075]
Female two or more years older	0.057	0.064	0.062
	[0.031 0.084]	[0.038 0.091]	[0.035 0.089]
Mother's citizenship (ref. Austrian)			
Foreign	–0.017	–0.006	–0.001
	[–0.038 0.003]	[–0.027 0.015]	[–0.023 0.020]
Missing	–0.047	–0.023	–0.024
	[–0.245 0.151]	[–0.221 0.174]	[–0.221 0.174]

Table C-1b: (Continued)

Timing	M1	M2	M3
Father's citizenship (ref. Austrian)			
Foreign	0.073	0.080	0.079
	[0.049 0.097]	[0.056 0.104]	[0.054 0.103]
Missing	0.229	0.224	0.222
	[0.204 0.255]	[0.198 0.250]	[0.196 0.248]
Married at first birth (ref. unmarried)			
Married	0.018	0.008	0.006
	[–0.005 0.042]	[–0.016 0.032]	[–0.018 0.030]
Mother's region of residence at first birth (ref. Vienna)			
Missing	–0.090	–0.081	–0.077
	[–0.125 –0.054]	[–0.116 –0.045]	[–0.113 –0.041]
Lower Austria	–0.077	–0.081	–0.081
	[–0.100 –0.055]	[–0.103 –0.058]	[–0.104 –0.058]
Burgenland	0.078	0.073	0.072
	[0.032 0.125]	[0.027 0.120]	[0.026 0.119]
Upper Austria	–0.076	–0.081	–0.082
	[–0.099 –0.053]	[–0.104 –0.059]	[–0.105 –0.059]
Styria	–0.058	–0.061	–0.061
	[–0.083 –0.033]	[–0.086 –0.036]	[–0.086 –0.036]
Carinthia	0.001	–0.001	–0.001
	[–0.030 0.033]	[–0.033 0.030]	[–0.033 0.030]
Salzburg	–0.033	–0.038	–0.039
	[–0.061 –0.005]	[–0.066 –0.010]	[–0.067 –0.011]
Tirol	–0.017	–0.021	–0.021
	[–0.044 0.010]	[–0.048 0.007]	[–0.048 0.006]
Vorarlberg	–0.097	–0.102	–0.102
	[–0.129 –0.064]	[–0.134 –0.069]	[–0.134 –0.069]
Relative age at first birth by educational pairing	–0.006	–0.008	–0.008
	[–0.013 0.001]	[–0.015 –0.001]	[–0.015 –0.001]
Joint income (ref. first quartile)			
Second		0.049	0.049
		[0.030 0.067]	[0.031 0.068]
Third		0.065	0.062
		[0.046 0.085]	[0.041 0.083]
Fourth		0.056	0.053
		[0.034 0.078]	[0.029 0.077]
Relative income (ref. hypergamy)			
Homogamy			0.028
			[0.013 0.043]
Hypogamy			0.014
			[–0.005 0.033]
Intercept	3.208	3.170	3.159
	[3.177 3.239]	[3.138 3.203]	[3.125 3.194]
Shape			
Intercept	–0.327	–0.328	–0.329
	[–0.334 –0.320]	[–0.335 –0.322]	[–0.335 –0.322]
N	76683	76683	76683

Notes: Estimated coefficients and 95% confidence intervals. A negative coefficient implies shorter birth intervals; hence a faster tempo.

D: Robustness checks: Selecting couples where both partners have been in the labor market for at least five years consecutively before first birth

Table D-1a: Full models (occurrence part) with an alternative universe of couples (n = 33,657)

Occurrence	M1	M2	M3
Educational pairing (ref. low–low)			
wlow–mmed	–0.084	–0.092	–0.091
	[–0.100 –0.067]	[–0.108 –0.076]	[–0.107 –0.075]
wlow–mtertiary	–0.037	–0.023	–0.023
	[–0.068 –0.005]	[–0.053 0.007]	[–0.052 0.007]
wmed–mlow	–0.097	–0.099	–0.098
	[–0.112 –0.081]	[–0.113 –0.084]	[–0.113 –0.084]
med–med	–0.112	–0.123	–0.124
	[–0.124 –0.099]	[–0.136 –0.110]	[–0.137 –0.111]
wmed–mtertiary	–0.102	–0.100	–0.101
	[–0.121 –0.083]	[–0.124 –0.075]	[–0.126 –0.075]
wtertiary–mlow	–0.082	–0.072	–0.072
	[–0.109 –0.055]	[–0.099 –0.045]	[–0.100 –0.045]
wtertiary–mmed	–0.087	–0.084	–0.086
	[–0.107 –0.068]	[–0.106 –0.062]	[–0.109 –0.063]
tertiary–tertiary	–0.127	–0.108	–0.109
	[–0.149 –0.104]	[–0.130 –0.086]	[–0.132 –0.085]
Mother's cohort	–0.005	–0.003	–0.003
	[–0.009 –0.000]	[–0.007 0.001]	[–0.007 0.001]
Age difference between partners (ref. man older)			
Age homogamy	–0.031	–0.037	–0.036
	[–0.041 –0.022]	[–0.046 –0.027]	[–0.045 –0.027]
Female two or more years older	–0.035	–0.042	–0.040
	[–0.055 –0.015]	[–0.061 –0.023]	[–0.059 –0.022]
Mother's citizenship (ref. Austrian)			
Foreign	0.025	0.019	0.019
	[0.001 0.050]	[–0.006 0.044]	[–0.005 0.044]
Missing	NA	NA	NA
Father's citizenship (ref. Austrian)			
Foreign	–0.041	–0.049	–0.048
	[–0.067 –0.016]	[–0.075 –0.022]	[–0.074 –0.021]
Missing	0.076	0.068	0.067
	[0.050 0.102]	[0.042 0.094]	[0.041 0.094]
Married at first birth (ref. unmarried)			
Married	0.019	0.020	0.021
	[–0.007 0.044]	[–0.005 0.045]	[–0.004 0.046]
Mother's region of residence at first birth (ref. Vienna)			
Missing	–0.007	–0.015	–0.016
	[–0.086 0.071]	[–0.093 0.064]	[–0.094 0.063]
Lower Austria	–0.100	–0.100	–0.099
	[–0.117 –0.082]	[–0.118 –0.082]	[–0.117 –0.081]
Burgenland	–0.052	–0.056	–0.056
	[–0.087 –0.018]	[–0.090 –0.022]	[–0.090 –0.022]

Table D-1a: (Continued)

Occurrence	M1	M2	M3
Upper Austria	–0.134	–0.136	–0.136
	[–0.152 –0.117]	[–0.153 –0.119]	[–0.154 –0.119]
Styria	–0.063	–0.065	–0.065
	[–0.083 –0.042]	[–0.085 –0.045]	[–0.085 –0.045]
Carinthia	–0.107	–0.108	–0.107
	[–0.133 –0.082]	[–0.133 –0.083]	[–0.132 –0.082]
Salzburg	–0.158	–0.155	–0.155
	[–0.179 –0.136]	[–0.177 –0.134]	[–0.176 –0.134]
Tirol	–0.159	–0.158	–0.158
	[–0.180 –0.138]	[–0.179 –0.138]	[–0.179 –0.138]
Vorarlberg	–0.166	–0.162	–0.162
	[–0.185 –0.146]	[–0.183 –0.142]	[–0.183 –0.142]
Relative age at first birth by educational pairing	0.028	0.031	0.031
	[0.023 0.032]	[0.027 0.036]	[0.027 0.036]
Joint income (ref. first quartile)			
Second		–0.031	–0.029
		[–0.042 –0.020]	[–0.041 –0.017]
Third		–0.050	–0.049
		[–0.062 –0.038]	[–0.062 –0.037]
Fourth		–0.049	–0.050
		[–0.064 –0.035]	[–0.064 –0.035]
Relative income (ref. hypergamy)			
Homogamy			–0.008
			[–0.018 0.002]
Hypogamy			–0.000
			[–0.015 0.015]
Intercept	0.405	0.439	0.442
	[0.375 0.435]	[0.409 0.469]	[0.411 0.473]

Notes: Estimated coefficients and 95% confidence intervals in brackets. A negative coefficient in the occurrence part implies a lower likelihood to remain without a second child; hence a higher likelihood to progress to a second child.

Table D-1b: Full models (timing part) with an alternative universe of couples (n = 33,657)

Timing	M1	M2	M3
Educational pairing (ref. low–low)			
wlow–mmed	–0.018	–0.017	–0.013
	[–0.053 0.017]	[–0.051 0.018]	[–0.048 0.022]
wlow–mtertiary	–0.069	–0.073	–0.074
	[–0.130 –0.007]	[–0.135 –0.010]	[–0.136 –0.011]
wmed–mlow	–0.006	–0.006	–0.010
	[–0.036 0.023]	[–0.036 0.023]	[–0.039 0.020]
med–med	–0.026	–0.025	–0.026
	[–0.059 0.008]	[–0.059 0.009]	[–0.060 0.008]
wmed–mtertiary	–0.022	–0.024	–0.028
	[–0.074 0.031]	[–0.078 0.030]	[–0.082 0.026]
wtertiary–mlow	–0.006	–0.012	–0.021
	[–0.056 0.044]	[–0.063 0.038]	[–0.072 0.030]
wtertiary–mmed	–0.043	–0.048	–0.053
	[–0.097 0.012]	[–0.103 0.008]	[–0.108 0.003]
tertiary–tertiary	–0.082	–0.088	–0.094
	[–0.128 –0.037]	[–0.135 –0.040]	[–0.141 –0.046]
Mother's cohort	0.012	0.011	0.011
	[0.003 0.021]	[0.002 0.020]	[0.002 0.020]
Age difference between partners (ref. man older)			
Age homogamy	0.044	0.045	0.041
	[0.025 0.063]	[0.026 0.064]	[0.022 0.060]
Female two or more years older	0.027	0.032	0.027
	[–0.010 0.065]	[–0.006 0.070]	[–0.011 0.065]
Mother’s citizenship (ref. Austrian)			
Foreign	0.062	0.069	0.074
	[0.011 0.112]	[0.018 0.119]	[0.024 0.125]
Missing	0.198	0.193	0.192
	[–0.370 0.766]	[–0.375 0.761]	[–0.376 0.760]
Father’s citizenship (ref. Austrian)			
Foreign	0.072	0.077	0.077
	[0.017 0.128]	[0.021 0.133]	[0.021 0.133]
Missing	0.164	0.168	0.169
	[0.117 0.212]	[0.120 0.215]	[0.122 0.217]
Married at first birth (ref. unmarried)			
Married	–0.034	–0.034	–0.033
	[–0.080 0.012]	[–0.080 0.012]	[–0.079 0.013]
Mother's region of residence at first birth (ref. Vienna)			
Missing	–0.079	–0.075	–0.070
	[–0.216 0.059]	[–0.212 0.062]	[–0.207 0.068]
Lower Austria	–0.064	–0.065	–0.064
	[–0.098 –0.031]	[–0.098 –0.031]	[–0.097 –0.030]
Burgenland	0.099	0.098	0.097
	[0.038 0.159]	[0.038 0.158]	[0.037 0.157]
Upper Austria	–0.087	–0.091	–0.089
	[–0.121 –0.054]	[–0.124 –0.057]	[–0.123 –0.056]
Styria	–0.030	–0.029	–0.026
	[–0.067 0.007]	[–0.066 0.008]	[–0.063 0.011]

Table D-1b: (Continued)

Timing	M1	M2	M3
Carinthia	–0.002	–0.002	–0.000
	[–0.047 0.043]	[–0.047 0.043]	[–0.045 0.045]
Salzburg	–0.029	–0.031	–0.032
	[–0.070 0.011]	[–0.071 0.009]	[–0.073 0.008]
Tirol	–0.028	–0.029	–0.028
	[–0.067 0.011]	[–0.068 0.010]	[–0.067 0.011]
Vorarlberg	–0.121	–0.127	–0.127
	[–0.170 –0.073]	[–0.176 –0.078]	[–0.175 –0.078]
Relative age at first birth by educational pairing	–0.001	–0.003	–0.004
	[–0.010 0.008]	[–0.012 0.007]	[–0.013 0.006]
Joint income (ref. first quartile)			
Second		0.037	0.043
		[0.012 0.062]	[0.018 0.068]
Third		0.038	0.047
		[0.012 0.064]	[0.020 0.074]
Fourth		0.030	0.045
		[0.000 0.060]	[0.014 0.076]
Relative income (ref. hypergamy)			
Homogamy			0.034
			[0.014 0.053]
Hypogamy			0.069
			[0.035 0.104]
Intercept	3.292	3.266	3.235
	[3.237 3.347]	[3.209 3.324]	[3.176 3.294]
Shape			
Intercept	–0.435	–0.435	–0.436
	[–0.445 –0.425]	[–0.445 –0.425]	[–0.446 –0.426]
N	33657	33657	33657

Notes: Estimated coefficients and 95% confidence intervals in brackets. A negative coefficient in the timing part implies shorter birth intervals; hence a faster tempo.

E: Stratified models by woman's age at first birth

Table E-1a: Full model results for the occurrence of a second birth stratified by woman's age at first birth; estimated coefficients and 95% confidence intervals (M1: controls + educational pairings, M3: full model, M1 + joint and relative income)

Occurrence	Age ≤ 22		Age 23–26		Age 27–29		Age 30+	
	M1	M3	M1	M3	M1	M3	M1	M3
Educational pairing (ref. low–low)								
wlow–mmed	–0.033	–0.033	–0.022	–0.020	–0.046	–0.044	–0.034	–0.035
	[–0.049	[–0.049	[–0.042	[–0.040	[–0.074	[–0.073	[–0.062	[–0.064
	–0.017]	–0.017]	–0.002]	–0.000]	–0.018]	–0.016]	–0.005]	–0.006]
wlow–mtertiary	0.037	0.040	–0.030	–0.027	–0.111	–0.108	–0.121	–0.118
	[–0.017	[–0.013	[–0.070	[–0.067	[–0.148	[–0.145	[–0.153	[–0.150
	0.092]	0.093]	0.009]	0.012]	–0.074]	–0.071]	–0.090]	–0.087]
wmed–mlow	0.008	0.005	–0.055	–0.051	–0.042	–0.035	–0.063	–0.062
	[–0.010	[–0.013	[–0.071	[–0.067	[–0.067	[–0.059	[–0.089	[–0.088
	0.025]	0.022]	–0.039]	–0.035]	–0.018]	–0.010]	–0.038]	–0.036]
med–med	–0.026	–0.028	–0.076	–0.071	–0.116	–0.106	–0.124	–0.123
	[–0.046	[–0.048	[–0.095	[–0.090	[–0.144	[–0.133	[–0.152	[–0.152
	–0.005]	–0.008]	–0.057]	–0.052]	–0.089]	–0.078]	–0.095]	–0.094]
wmed–mtertiary	0.009	0.002	–0.090	–0.082	–0.160	–0.152	–0.183	–0.179
	[–0.049	[–0.055	[–0.117	[–0.109	[–0.191	[–0.183	[–0.214	[–0.210
	0.066]	0.059]	–0.063]	–0.056]	–0.129]	–0.121]	–0.153]	–0.149]
wtertiary–mlow	0.076	0.064	–0.040	–0.040	–0.079	–0.075	–0.114	–0.112
	[0.014	[0.001	[–0.068	[–0.068	[–0.112	[–0.107	[–0.145	[–0.143
	0.139]	0.127]	–0.013]	–0.012]	–0.047]	–0.043]	–0.083]	–0.080]
wtertiary–mmed	–0.002	–0.009	–0.065	–0.063	–0.157	–0.153	–0.155	–0.153
	[–0.070	[–0.077	[–0.096	[–0.094	[–0.186	[–0.183	[–0.188	[–0.187
	0.067]	0.059]	–0.033]	–0.031]	–0.127]	–0.123]	–0.121]	–0.120]
tertiary–tertiary	–0.066	–0.087	–0.101	–0.104	–0.192	–0.189	–0.277	–0.275
	[–0.129	[–0.150	[–0.119	[–0.124	[–0.211	[–0.208	[–0.294	[–0.293
	–0.003]	–0.025]	–0.083]	–0.084]	–0.174]	–0.170]	–0.260]	–0.256]
Mother's cohort	0.004	–0.000	–0.004	–0.004	–0.011	–0.011	–0.048	–0.048
	[–0.000	[–0.004	[–0.007	[–0.008	[–0.016	[–0.016	[–0.050	[–0.050
	0.008]	0.004]	0.000]	–0.000]	–0.005]	–0.006]	–0.046]	–0.046]
Age difference between partners (ref. man older)								
Age homogamy	0.004	–0.002	–0.023	–0.023	–0.044	–0.042	–0.058	–0.061
	[–0.010	[–0.015	[–0.035	[–0.035	[–0.057	[–0.055	[–0.072	[–0.076
	0.017]	0.012]	–0.011]	–0.011]	–0.030]	–0.028]	–0.043]	–0.047]
Female two or more years older	0.019	0.006	0.006	0.005	–0.006	–0.007	–0.092	–0.092
	[–0.036	[–0.051	[–0.023	[–0.025	[–0.033	[–0.034	[–0.109	[–0.110
	0.074]	0.063]	0.036]	0.035]	0.021]	0.020]	–0.074]	–0.074]
Mother's citizenship (ref. Austrian)								
Foreign	–0.003	–0.013	0.020	0.011	0.019	0.002	–0.003	0.001
	[–0.020	[–0.030	[0.003	[–0.006	[–0.005	[–0.023	[–0.024	[–0.020
	0.013]	0.005]	0.036]	0.028]	0.043]	0.027]	0.018]	0.022]
Missing	–0.298	–0.309	–0.263	–0.275	–0.090	–0.098	–0.036	–0.032
	[–0.449	[–0.458	[–0.387	[–0.399	[–0.335	[–0.340	[–0.328	[–0.325
	–0.148]	–0.159]	–0.140]	–0.151]	0.154]	0.144]	0.257]	0.261]
Father's citizenship (ref. Austrian)								
Foreign	–0.045	–0.045	–0.052	–0.052	–0.038	–0.037	–0.051	–0.049
	[–0.063	[–0.063	[–0.071	[–0.072	[–0.063	[–0.063	[–0.077	[–0.075
	–0.026]	–0.026]	–0.032]	–0.032]	–0.012]	–0.011]	–0.024]	–0.023]
Missing	0.138	0.142	0.099	0.100	0.084	0.085	0.040	0.033
	[0.116	[0.120	[0.077	[0.079	[0.058	[0.058	[0.015	[0.008
	0.160]	0.164]	0.121]	0.122]	0.111]	0.112]	0.065]	0.058]

Table E-1a: (Continued)

Occurrence	Age ≤ 22		Age 23–26		Age 27–29		Age 30+	
	M1	M3	M1	M3	M1	M3	M1	M3
Married at first birth (ref. Unmarried)								
Married	0.062	0.069	0.029	0.033	0.017	0.019	0.013	0.006
	[0.043	[0.051	[0.010	[0.013	[–0.007	[–0.004	[–0.010	[–0.017
	0.080]	0.088]	0.049]	0.052]	0.041]	0.043]	0.037]	0.029]
Mother's region of residence at first birth (ref. Vienna)								
Missing	–0.014	–0.024	0.002	–0.006	0.005	–0.011	–0.008	–0.013
	[–0.043	[–0.052	[–0.031	[–0.039	[–0.039	[–0.056	[–0.044	[–0.051
	0.015]	0.005]	0.036]	0.028]	0.050]	0.035]	0.028]	0.024]
Lower Austria	–0.045	–0.045	–0.079	–0.081	–0.064	–0.063	–0.068	–0.071
	[–0.067	[–0.067	[–0.100	[–0.103	[–0.089	[–0.088 –	[–0.090	[–0.093
	–0.023]	–0.024]	–0.057]	–0.059]	–0.039]	0.038]	–0.045]	–0.048]
Burgenland	0.005	0.005	–0.032	–0.037	–0.009	–0.010	–0.019	–0.023
	[–0.047	[–0.046	[–0.074	[–0.078	[–0.061	[–0.062	[–0.063	[–0.066
	0.056]	0.057]	0.009]	0.005]	0.043]	0.042]	0.024]	0.021]
Upper Austria	–0.039	–0.038	–0.115	–0.119	–0.138	–0.138	–0.099	–0.102
	[–0.060	[–0.060	[–0.135	[–0.140	[–0.162	[–0.162	[–0.120	[–0.124
	–0.017]	–0.016]	–0.094]	–0.098]	–0.115]	–0.114]	–0.077]	–0.080]
Styria	–0.012	–0.013	–0.046	–0.050	–0.045	–0.047	–0.007	–0.009
	[–0.037	[–0.038	[–0.070	[–0.074	[–0.072	[–0.075	[–0.030	[–0.032
	0.013]	0.012]	–0.023]	–0.027]	–0.017]	–0.020]	0.016]	0.014]
Carinthia	–0.044	–0.048	–0.073	–0.077	–0.057	–0.060	–0.044	–0.048
	[–0.074	[–0.079	[–0.101	[–0.105	[–0.091	[–0.095	[–0.072	[–0.076
	–0.014]	–0.018]	–0.044]	–0.048]	–0.022]	–0.025]	–0.016]	–0.020]
Salzburg	–0.045	–0.041	–0.124	–0.126	–0.127	–0.126	–0.085	–0.086
	[–0.070	[–0.067	[–0.149	[–0.150	[–0.156	[–0.155	[–0.112	[–0.113
	–0.019]	–0.016]	–0.100]	–0.102]	–0.098]	–0.097]	–0.058]	–0.059]
Tirol	–0.041	–0.038	–0.091	–0.092	–0.146	–0.145	–0.120	–0.122
	[–0.068	[–0.063	[–0.117	[–0.118	[–0.173	[–0.172	[–0.144	[–0.146
	–0.014]	–0.012]	–0.065]	–0.066]	–0.119]	–0.119]	–0.095]	–0.097]
Vorarlberg	–0.041	–0.038	–0.118	–0.117	–0.124	–0.123	–0.143	–0.145
	[–0.071	[–0.068	[–0.145	[–0.144	[–0.156	[–0.156	[–0.166	[–0.170
	–0.011]	–0.008]	–0.091]	–0.091]	–0.091]	–0.090]	–0.119]	–0.119]
Joint income (ref. first quartile)								
Second		–0.027		–0.006		–0.006		0.006
		[–0.045		[–0.022		[–0.027		[–0.012
		–0.010]		0.010]		0.015]		0.025]
Third		–0.050		–0.001		–0.028		0.017
		[–0.068		[–0.019		[–0.050		[–0.003
		–0.031]		0.016]		–0.005]		0.037]
Fourth		–0.062		–0.028		–0.034		0.001
		[–0.082		[–0.046		[–0.056		[–0.020
		–0.043]		–0.010]		–0.011]		0.022]
Relative income (ref. Hypergamy)								
Homogamy		–0.012		–0.012		–0.025		0.001
		[–0.028		[–0.024		[–0.041		[–0.014
		0.003]		0.001]		–0.009]		0.015]
Hypogamy		–0.027		–0.024		–0.042		–0.023
		[–0.046		[–0.040		[–0.063		[–0.042
		–0.008]		–0.008]		–0.021]		–0.005]
Intercept	0.115	0.185	0.279	0.298	0.381	0.415	0.349	0.355
	[0.079	[0.143	[0.250	[0.267	[0.348	[0.378	[0.316	[0.318
	0.150]	0.228]	0.307]	0.329]	0.415]	0.452]	0.383]	0.392]

Notes: Negative coefficient = lower likelihood to remain without a second child.

Table E-1b: Full model results for the timing of a second birth stratified by woman's age at first birth; estimated coefficients and 95% confidence intervals (M1: controls + educational pairings, M3: full model, M1 + joint and relative income)

Timing	Age ≤ 22		Age 23–26		Age 27–29		Age 30+	
Educational pairing (ref. low–low)	M1	M3	M1	M3	M1	M3	M1	M3
wlow–mmed	0.089	0.086	–0.006	–0.010	–0.019	–0.017	0.009	0.003
	[0.047	[0.044	[–0.045	[–0.050	[–0.067	[–0.066	[–0.045	[–0.052
	0.131]	0.128]	0.034]	0.029]	0.030]	0.032]	0.064]	0.058]
wlow–mtertiary	0.011	0.019	–0.072	–0.063	–0.072	–0.071	–0.032	–0.033
	[–0.114	[–0.106	[–0.151	[–0.143	[–0.139	[–0.138	[–0.092	[–0.093
	0.135]	0.143]	0.007]	0.016]	–0.005]	–0.003]	0.027]	0.027]
wmed–mlow	0.037	0.042	–0.028	–0.030	0.014	0.005	0.048	0.036
	[–0.005	[–0.000	[–0.060	[–0.062	[–0.029	[–0.038	[–0.001	[–0.013
	0.079]	0.084]	0.004]	0.002]	0.056]	0.047]	0.096]	0.084]
med–med	0.119	0.123	–0.004	–0.011	–0.028	–0.032	0.052	0.040
	[0.070	[0.074	[–0.044	[–0.052	[–0.077	[–0.082	[0.001	[–0.012
	0.168]	0.172]	0.037]	0.030]	0.021]	0.017]	0.103]	0.092]
wmed–mtertiary	0.083	0.102	–0.017	–0.012	–0.045	–0.045	–0.001	–0.007
	[–0.044	[–0.026	[–0.082	[–0.078	[–0.103	[–0.104	[–0.055	[–0.062
	0.211]	0.229]	0.049]	0.054]	0.014]	0.014]	0.053]	0.047]
wtertiary–mlow	0.145	0.163	–0.002	0.000	–0.061	–0.064	0.038	0.032
	[–0.004	[0.014	[–0.061	[–0.058	[–0.119	[–0.122	[–0.018	[–0.024
	0.293]	0.312]	0.056]	0.058]	–0.004]	–0.007]	0.094]	0.089]
wtertiary–mmed	0.299	0.318	–0.041	–0.042	–0.050	–0.051	0.021	0.011
	[0.144	[0.162	[–0.105	[–0.106	[–0.110	[–0.112	[–0.038	[–0.049
	0.454]	0.473]	0.022]	0.022]	0.011]	0.009]	0.080]	0.071]
tertiary–tertiary	0.241	0.281	–0.093	–0.075	–0.114	–0.110	–0.021	–0.027
	[0.100	[0.139	[–0.141	[–0.123	[–0.152	[–0.149	[–0.055	[–0.063
	0.383]	0.423]	–0.046]	–0.027]	–0.076]	–0.071]	0.013]	0.009]
Mother's cohort	0.010	0.017	0.011	0.012	0.004	0.004	0.027	0.026
	[0.001	[0.007	[0.003	[0.004	[–0.006	[–0.006	[0.021	[0.021
	0.020]	0.027]	0.018]	0.020]	0.014]	0.014]	0.032]	0.032]
Age difference between partners (ref. man older)								
Age homogamy	0.099	0.107	0.061	0.063	0.025	0.020	0.029	0.024
	[0.065	[0.072	[0.036	[0.038	[–0.001	[–0.006	[0.001	[–0.003
	0.132]	0.141]	0.086]	0.087]	0.051]	0.046]	0.056]	0.051]
Female two or more years older	0.039	0.059	0.108	0.125	0.078	0.077	0.019	0.018
	[–0.095	[–0.076	[0.051	[0.067	[0.030	[0.029	[–0.016	[–0.018
	0.174]	0.194]	0.165]	0.183]	0.125]	0.126]	0.054]	0.053]
Mother's citizenship (ref. Austrian)								
Foreign	–0.016	0.003	0.019	0.035	–0.037	–0.012	–0.036	–0.013
	[–0.058	[–0.041	[–0.019	[–0.005	[–0.082	[–0.059	[–0.077	[–0.056
	0.026]	0.047]	0.057]	0.075]	0.009]	0.035]	0.006]	0.030]
Missing	0.105	0.117	–0.144	–0.109	–0.044	–0.012	0.102	0.146
	[–0.343	[–0.330	[–0.455	[–0.421	[–0.442	[–0.410	[–0.459	[–0.416
	0.553]	0.564]	0.167]	0.202]	0.354]	0.386]	0.664]	0.707]
Father's citizenship (ref. Austrian)								
Foreign	0.100	0.099	0.106	0.121	0.041	0.045	0.051	0.059
	[0.051	[0.050	[0.063	[0.077	[–0.013	[–0.009	[–0.000	[0.008
	0.149]	0.149]	0.150]	0.165]	0.094]	0.099]	0.102]	0.111]
Missing	0.295	0.284	0.273	0.264	0.171	0.165	0.120	0.115
	[0.238	[0.227	[0.226	[0.217	[0.117	[0.111	[0.069	[0.064
	0.352]	0.341]	0.320]	0.311]	0.224]	0.219]	0.171]	0.165]
Married at first birth (ref. unmarried)								
Married	0.020	0.002	0.028	0.013	0.003	–0.006	0.001	–0.008
	[–0.031	[–0.049	[–0.015	[–0.031	[–0.047	[–0.056	[–0.045	[–0.055
	0.071]	0.054]	0.071]	0.056]	0.053]	0.044]	0.048]	0.040]

Table E-1b: (Continued)

Timing	Age ≤ 22		Age 23–26		Age 27–29		Age 30+	
	M1	M3	M1	M3	M1	M3	M1	M3
Mother's region of residence at first birth (ref. Vienna)								
Missing	–0.034	–0.017	–0.134	–0.122	–0.104	–0.086	–0.110	–0.086
	[–0.105 0.037]	[–0.089 0.054]	[–0.199 –0.069]	[–0.188 – 0.056]	[–0.184 –0.024]	[–0.167 –0.005]	[–0.184 –0.035]	[–0.161 –0.010]
Lower Austria	–0.064	–0.070	–0.112	–0.118	–0.094	–0.097	–0.045	–0.046
	[–0.118 –0.011]	[–0.123 –0.016]	[–0.154 –0.070]	[–0.160 –0.076]	[–0.138 –0.049]	[–0.141 –0.053]	[–0.086 –0.004]	[–0.087 –0.005]
Burgenland	0.131	0.125	0.109	0.101	0.063	0.059	–0.043	–0.046
	[0.019 0.243]	[0.013 0.237]	[0.029 0.188]	[0.022 0.181]	[–0.026 0.151]	[–0.029 0.148]	[–0.134 0.048]	[–0.137 0.045]
Upper Austria	–0.032	–0.041	–0.141	–0.149	–0.079	–0.085	–0.072	–0.077
	[–0.085 0.021]	[–0.095 0.012]	[–0.184 –0.099]	[–0.191 –0.106]	[–0.123 –0.035]	[–0.129 –0.040]	[–0.114 –0.031]	[–0.118 –0.035]
Styria	–0.029	–0.035	–0.113	–0.117	–0.056	–0.057	–0.059	–0.059
	[–0.088 0.030]	[–0.094 0.025]	[–0.158 –0.067]	[–0.163 –0.071]	[–0.104 –0.008]	[–0.105 –0.008]	[–0.105 0.013]	[–0.105 –0.013]
Carinthia	0.081	0.078	–0.048	–0.053	0.006	0.004	–0.075	–0.074
	[0.008 0.154]	[0.005 0.151]	[–0.105 0.008]	[–0.110 0.003]	[–0.055 0.068]	[–0.057 0.066]	[–0.135 0.014]	[–0.135 –0.013]
Salzburg	0.034	0.025	–0.099	–0.106	–0.028	–0.035	–0.066	–0.071
	[–0.032 0.101]	[–0.041 0.092]	[–0.150 –0.048]	[–0.157 –0.055]	[–0.084 0.027]	[–0.090 0.021]	[–0.117 –0.015]	[–0.123 –0.020]
Tirol	0.064	0.055	–0.065	–0.071	–0.048	–0.053	–0.050	–0.050
	[–0.003 0.131]	[–0.012 0.122]	[–0.117 –0.013]	[–0.123 –0.019]	[–0.099 0.003]	[–0.104 –0.002]	[–0.096 –0.003]	[–0.097 –0.003]
Vorarlberg	–0.034	–0.048	–0.160	–0.168	–0.133	–0.136	–0.100	–0.102
	[–0.110 0.042]	[–0.124 0.028]	[–0.220 –0.099]	[–0.228 –0.108]	[–0.196 –0.071]	[–0.199 – 0.074]	[–0.159 –0.042]	[–0.160 –0.044]
Joint income (ref. first quartile)								
Second		0.060		0.082		0.034		0.043
		[0.016 0.104]		[0.048 0.116]		[–0.004 0.071]		[0.006 0.080]
Third		0.098		0.078		0.073		0.077
		[0.052 0.144]		[0.040 0.117]		[0.031 0.114]		[0.037 0.117]
Fourth		0.104		0.078		0.042		0.055
		[0.054 0.155]		[0.038 0.117]		[–0.001 0.084]		[0.013 0.097]
Relative income (ref. hypergamy)								
Homogamy		0.039		0.006		0.036		0.036
		[0.001 0.076]		[–0.020 0.033]		[0.007 0.065]		[0.007 0.065]
Hypogamy		0.036		–0.006		0.043		0.033
		[–0.008 0.081]		[–0.042 0.029]		[0.003 0.082]		[–0.004 0.070]
Intercept	3.136	3.017	3.246	3.193	3.275	3.222	3.333	3.273
	[3.047 3.225]	[2.914 3.120]	[3.189 3.304]	[3.128 3.258]	[3.211 3.340]	[3.151 3.292]	[3.266 3.399]	[3.201 3.344]
Shape								
Intercept	–0.173	–0.175	–0.328	–0.330	–0.423	–0.424	–0.472	–0.473
	[–0.188 –0.159]	[–0.189 –0.160]	[–0.340 –0.316]	[–0.342 –0.318]	[–0.436 –0.409]	[–0.437 –0.410]	[–0.486 –0.458]	[–0.487 –0.459]
N	18318	18318	21977	21977	16341	16341	20047	20047

Notes: Negative coefficient = shorter birth interval; hence faster tempo.

F: Model 4: Including a control variable for father taking parental leave within two years of first birth

Table F-1a: Full model results for the occurrence of a second birth (M4: M3 + father took parental leave)

Occurrence	M4 (M3 + father leave)
Educational pairing (ref. low–low)	
wlow–mmed	–0.082
	[–0.094 –0.071]
wlow–mtertiary	0.014
	[–0.002 0.031]
wmed–mlow	–0.073
	[–0.083 –0.064]
med–med	–0.088
	[–0.098 –0.078]
wmed–mtertiary	–0.021
	[–0.035 –0.008]
wtertiary–mlow	–0.006
	[–0.023 0.012]
wtertiary–mmed	–0.049
	[–0.068 –0.030]
tertiary-tertiary	–0.068
	[–0.081 –0.055]
Mother's cohort	0.003
	[–0.000 0.005]
Age difference between partners (ref. man older)	
Age homogamy	–0.019
	[–0.025 –0.013]
Female two or more years older	–0.027
	[–0.041 –0.014]
Mother's citizenship (ref. Austrian)	
Foreign	–0.009
	[–0.017 –0.001]
Missing	–0.170
	[–0.242 –0.098]
Father's citizenship (ref. Austrian)	
Foreign	–0.046
	[–0.055 –0.038]
Missing	0.100
	[0.090 0.109]
Married at first birth (ref. unmarried)	
Married	0.027
	[0.019 0.035]
Mother's region of residence at first birth (ref. Vienna)	
Missing	–0.018
	[–0.035 –0.001]
Lower Austria	–0.054
	[–0.065 –0.042]

Table F-1a: (Continued)

Occurrence	M4 (M3+Father leave)
Mother's region of residence at first birth (ref. Vienna)	
Burgenland	–0.008
	[–0.032 0.016]
Upper Austria	–0.084
	[–0.094 –0.074]
Styria	–0.031
	[–0.044 –0.019]
Carinthia	–0.053
	[–0.069 –0.037]
Salzburg	–0.087
	[–0.100 –0.075]
Tirol	–0.096
	[–0.109 –0.083]
Vorarlberg	–0.081
	[–0.094 –0.067]
Relative age at first birth by educational pairing	0.030
	[0.027 0.033]
Joint income (ref. first quartile)	
Second	–0.038
	[–0.046 –0.031]
Third	–0.061
	[–0.069 –0.052]
Fourth	–0.082
	[–0.093 –0.071]
Relative income (ref. hypergamy)	
Homogamy	–0.021
	[–0.028 –0.014]
Hypogamy	–0.041
	[–0.049 –0.033]
Father took leave within two years of first birth (ref. no)	
Yes	0.023
	[0.009 0.037]
Intercept	0.406
	[0.391 0.422]

Notes: About 6% of fathers took parental leave within two years of a first birth. Estimated coefficients and 95% confidence intervals. A negative coefficient implies a lower likelihood to remain without a second child; hence a higher likelihood to progress to a second child

Table F-1b: Full model results for the timing of a second birth (M4: M3 + father took parental leave)

Timing	M4 (M3 + father leave)
Educational pairing (ref. low–low)	
wlow–mmed	0.048
	[0.023 0.074]
wlow–mtertiary	–0.064
	[–0.105 –0.023]
wmed–mlow	0.018
	[–0.004 0.040]
med–med	0.053
	[0.028 0.078]
wmed–mtertiary	–0.023
	[–0.060 0.014]
wtertiary–mlow	–0.017
	[–0.053 0.019]
wtertiary–mmed	–0.014
	[–0.052 0.025]
tertiary–tertiary	–0.084
	[–0.115 –0.052]
Mother's cohort	0.007
	[0.001 0.014]
Age difference between partners (ref. man older)	
Age homogamy	0.060
	[0.046 0.073]
Female two or more years older	0.059
	[0.032 0.086]
Mother's citizenship (ref. Austrian)	
Foreign	–0.000
	[–0.022 0.021]
Missing	–0.004
	[–0.202 0.194]
Father's citizenship (ref. Austrian)	
Foreign	0.081
	[0.057 0.105]
Missing	0.220
	[0.194 0.246]
Married at first birth (ref. unmarried)	
Married	0.009
	[–0.015 0.032]
Mother's region of residence at first birth (ref. Vienna)	
Missing	–0.082
	[–0.118 –0.047]
Lower Austria	–0.078
	[–0.100 –0.055]
Burgenland	0.076
	[0.030 0.122]
Upper Austria	–0.090
	[–0.113 –0.068]
Styria	–0.055
	[–0.080 –0.031]
Carinthia	0.006
	[–0.025 0.037]

Table F-1b: (Continued)

Timing	M4 (M3 + father leave)
Mother's region of residence at first birth (ref. Vienna)	
Salzburg	–0.035
	[–0.063 –0.007]
Tirol	–0.015
	[–0.042 0.012]
Vorarlberg	–0.095
	[–0.128 –0.063]
Relative age at first birth by educational pairing	–0.010
	[–0.017 –0.004]
Joint income (ref. first quartile)	
Second	0.055
	[0.037 0.074]
Third	0.068
	[0.047 0.089]
Fourth	0.065
	[0.041 0.088]
Relative income (ref. hypergamy)	
Homogamy	0.025
	[0.010 0.040]
Hypogamy	0.008
	[–0.011 0.027]
Father took leave within two years of first birth (ref. no)	
Yes	0.220
	[0.192 0.247]
Intercept	3.144
	[3.110 3.179]
Shape	
Intercept	–0.333
	[–0.340 –0.327]
N	76683

Notes: About 6% of fathers took parental leave within two years of a first birth. Estimated coefficients and 95% confidence intervals. Negative coefficient = shorter birth interval.