The varying impact of educational hypogamy on the transition to parenthood

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Introduction

Educational expansion has proceeded faster among women compared to men, leading to unprecedented shifts in assortative mating patterns (Esteve et al. 2016; Hirschl et al., 2024). As a result, unions in which women have a higher education level than their male partners, referred to as educationally hypogamous unions, have become more common. An important question emerging in the light of these developments concerns how such changes in the relative education of partners impact fertility. Some studies show that hypogamous couples tend to postpone transition to parenthood to a higher degree compared to homogenous couples (Bagavos, 2017) and exhibit higher risks of childlessness (Osiewalska, 2017). Other studies find no clear disadvantage of hypogamous couples in the transition to parenthood (Bueno & García-Román, 2021; Nitsche et al., 2018). Moreover, the effects of hypogamy on fertility have been shown to differ across societal contexts (Nitsche et al. 2018; Osiewalska, 2017) and life course stages (Nitsche, 2024).

Despite the growing body of research on educational pairings and fertility, little is known about how the transition to parenthood differs between hypogamous and homogamous couples as the partnership progresses. At the same time, research linking partnership duration and stability with fertility has not explicitly considered educational pairings as a potential effect modifier (Kuang et al., 2025). In this paper, we provide theory-guided arguments explaining why different stages of a partnership, as captured by union duration, may have different meanings for hypogamous and homogamous partnerships.

Theoretical focus

Union duration has long been recognised as one of the key "clocks" of fertility, alongside biological age and calendar time (Rahnu & Jalovaara, 2023). The pace of this clock, however, may vary across couples depending on partners' relative educational positions. From a theoretical perspective, hypogamous unions may differ from homogamous ones in several respects. According to Oppenheimer's (1997) resource pooling model and theories of value consensus and bargaining, differences in partners' resources and expectations may generate tension and negotiation costs, particularly early in the relationship. These dynamics may lead hypogamous couples to postpone childbearing compared to homogamous couples. Over time, as relationships mature, partners may experience fewer disagreements, higher perceptions of stability, and greater economic pooling and joint investments, such as homeownership (Hatch & Bulcroft, 2004; Trinh et al., 2023). In this scenario, fertility differentials between union types may narrow over time.

Alternatively, based on the literature on partner selection, individuals strongly oriented towards family formation may "lower the bar" in partner choice to realise their fertility goals within preferred life-course timelines (Corti, 2021). In this case, hypogamy may be associated with

higher first-birth risks early in the union, followed by a decline at later durations as the more selective couples remain.

Previous research investigating couples' fertility decisions has also shown that childbearing is partly determined by changes in the composition of couples that arise due to differential risks of union dissolution (Lillard & Waite 1993; Berrington et al., 2015). Given that hypogamous couples are more likely to experience tensions and conflicts within partnerships, it is likely that the group of hypogamous unions changes across the time since union formation, because couples with the lowest relationship quality will separate. Most likely, these dissolutions occur before the transition to parenthood, leading to an underrepresentation of certain types of hypogamous unions within the risk pool observed in the data, particularly at later durations.

Based on these perspectives, we test three hypotheses:
H1: At early stages of union duration, hypogamy is related to lower probabilities of transition to parenthood compared to homogamy, with differences decreasing over time.
H2: At early stages of union duration, hypogamy is related to higher probabilities of transition to parenthood compared to homogamy, with differences decreasing over time.
H3: At early stages of union duration, hypogamy is related to lower probabilities of transition to parenthood compared to homogamy, and these differences persist after accounting for differential risks of union dissolution.

Data

The analyses are based on Austrian population register data covering 2009–2021. The dataset includes detailed information on individuals' demographic characteristics, education, employment, household composition, as well as changes in partnership and childbearing. We identify all partnerships, both marital and cohabiting, formed in 2011 among childless women who have completed at least secondary education. Women with elementary education are excluded because they cannot form hypogamous unions. Partnerships are followed until the first birth, separation, or the end of the observation period in 2021.

Union type is measured based on the International Standard Classification of Education (ISCED) categories: elementary (1–2), secondary (2–4), and tertiary (5–8). This variable is time-varying, allowing for changes as partners complete additional education. Other control variables include partners' ages, age difference, participation in education, country of birth, degree of urbanity, and regional fixed effects (NUTS-2).

The analytical sample consists of 26,252 couples, of which 8,716 are homogamous and 12,474 hypogamous, and 2,286 hypergamous. Although hypergamous couples are included in the regression models to improve statistical precision, the main analyses focus on comparing homogamous and hypogamous unions.

Methods

We estimate discrete-time hazard models of first birth with a semi-parametric baseline hazard defined by year-specific dummies for union duration. To test whether the transition to parenthood differs across union duration, we interact duration with union type. This means that we explicitly allow hypogamous unions to have a different route to parenthood compared to homogamous unions. Control variables include both partners' ages (six categories), age difference, education levels, enrolment in education, country of birth (Austria vs. immigrant background), degree of urbanity, and regional fixed effects (NUTS-2).

To account for selectivity, we estimate multiprocess hazard models (Bartus, 2017) jointly modelling (1) the risk of forming a hypogamous partnership and (2) the risk of first birth. Indicators of mating market squeeze, i.e. the local ratio of highly educated women to men within 30-minute commuting areas, serve as exclusion restrictions, capturing the local educational composition of potential partners. We also jointly estimate the transition to parenthood and union dissolution to account for selection out of relationships prior to childbearing (following Lillard 1993).

Findings

Preliminary results from the discrete-time hazard model (Model 1) assuming proportional hazards show that hypogamous couples are not disadvantaged in fertility compared to homogamous ones. On average, hypogamous couples are slightly more likely to transition to parenthood than homogamous couples, with a predicted probability of 0.117 compared to 0.108, although this difference is not statistically significant.

When relaxing the assumption of proportional hazards (Model 2) to examine whether the risk of transition to parenthood varies with union duration distinct temporal patterns emerge. During the first three years of the union, hypogamous couples display significantly higher first-birth risks compared to homogamous couples, with differences of about 0.11-0.12 percentage points. After three years, the transition rates converge, and by year eight to nine hypogamous couples display somewhat lower probabilities of childbearing. These findings reject Hypothesis 1, which expected delayed childbearing among hypogamous couples, and instead support Hypothesis 2, suggesting that hypogamy is associated with higher early fertility, while differences diminish or even reverse over time.

When controlling for selectivity into hypogamy using a multiprocess model (Model 3), the early fertility advantage largely disappears. Predicted probabilities of first birth are similar for hypogamous and homogamous couples during the first years of the relationship. From around year four onwards, hypogamous couples exhibit a modest disadvantage, with birth probabilities one to two percentage points lower than those of homogamous couples. This pattern indicates that the initial higher birth risks among hypogamous couples were primarily driven by selective sorting of family-oriented women into such unions rather than by structural differences between the union types.

Finally, accounting for selectivity due to union dissolution (Model 4) reveals a small and temporary early advantage for hypogamous couples that fades quickly. Results reveal that while hypogamous couples retain a slightly higher predicted probability of transition to parenthood at the very start of the union the difference is small and only statistically significant at the year of union formation. During the following years, the predicted probabilities of first birth for the two union types remain largely similar until around year 3. Thereafter, homogamous couples display gradually higher probabilities of becoming parents. By year 8, the predicted probability for homogamous couples reaches approximately 0.12, compared to about 0.08 among hypogamous couples, corresponding to a difference of roughly three percentage points. These results suggest that higher instability among hypogamous unions contributes to their lower fertility at longer durations. Once selection into both union formation and dissolution is considered, early fertility differences are small and temporary, while a modest disadvantage emerges at later stages of partnership duration.

Together, the results from Models 2-4 provide partial support Hypothesis 2, while rejecting Hypothesis 1 and 3. In the initial models, hypogamous couples appear somewhat more likely

to transition to parenthood during the early years of the union, contradicting the expectation of delayed childbearing posited in Hypothesis 1. This early advantage, however, largely disappears once we account for selectivity into union formation, indicating that family-oriented women are more likely to enter hypogamous partnerships to realise parenthood earlier. When dissolution dynamics are also considered, the differences between union types are small and temporary in the early years but shift toward a modest disadvantage for hypogamous couples at longer durations. These results suggest that fertility patterns in hypogamous unions are time-dependent and shaped by both selection into and out of relationships, rather than by a persistent structural disadvantage associated with women's higher educational attainment relative to their partners.

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