Economic Barriers, Uncertainty, or the Gender Revolution?

Factors Shaping Young STEM Professionals Perspectives on Parenthood

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Transitions into parenthood have become increasingly protracted in developed societies, with delays across the income spectrum. In the United States, growing shares of those of child-bearing age are projected to reach the end of their childbearing years without ever becoming parents (Guzzo, 2022). Demographers have argued that fertility declines are driven by various factors not well measured by existing survey and register data (Comolli & Vignoli, 2021; Guzzo & Hayford, 2023; van Wijk & Billari, 2024). While economic explanations have long been proffered to account for delayed union formation and childbearing (see Sassler & Lichter, 2020 for a review), in Europe a growing theoretical body of literature has sought to explain the role that persistent uncertainty – broadly defined to incorporate the ways that globalization has upended the association between human capital acquisition and employment trajectories, as well as concerns over climate change and the spread of media narratives emphasizing life's challenges – plays in shaping fertility goals (Guetto, Morabito, Vollbracht, & Vignoli, 2023; Hummer, 2024; Kearney & Levine, 2014). Yet others seek to understand fertility decline by focusing on unequal changes in men's and women's engagement in paid employment and care work (Goldscheider, Bernhardt, & Lappegård, 2015; Han & Brinton, 2022). Seldom are these three perspectives examined in tandem among mixed-gender samples, however. This is a major omission, given the fact that fertility decision-making is unlikely to hinge on any single one of these considerations but, rather, all these explanations may be simultaneously playing some role in fertility decline.

The relationships between fertility desires, fertility intentions, and actual completed childbearing have been the subject of much theoretical and empirical debate. Persistent and growing gaps between desired, intended, and actual children born may reflect unrealized fertility due to constraints on achieving one's desires (Casterline & Han, 2017; Guzzo & Hayford, 2023; Miller, 2011; Yeatman et al., 2020). For example, individuals may desire (i.e., wish to have) more children than they intend (i.e., actually plan to have) or, for a wide variety of reasons, not give birth to the number of children they might have originally desired or intended earlier in their life course (Badolato, 2025). Still, stated desires and intentions for children have been shown to have predictive validity for future pregnancy, especially over the short-term (Schoen et al. 1999; Yeatman et al., 2020). Fertility desires and intentions are highly contingent and embedded in life course progression (Morgan & Rackin, 2010), yet most studies that repeatedly assess these metrics over time are quantitative, and thus unable to provide in-depth contextual understanding of how intertwined they are.

In this paper, we explore fertility views of a sample of college-educated STEM professionals using longitudinal, in-depth qualitative interviews. We ask whether intentions to have children change over time or vary as respondents transition from college to the work force and face the myriad challenges of transitioning to adulthood. We then interrogate whether economic factors, uncertainty, or gendered expectations influence fertility goals, how these intersect, and what differentiates the goals of educated men and women with above-average earnings prospects. Our paper builds on the theoretical work of various European and American scholars working to better understand the factors contributing to delayed family formation and fertility decline in the context of developed countries. Our unique contribution is to address these questions using qualitative, longitudinal data from a sample of recent college graduates with above-average career prospects. Results are interpreted in light of contemporary theories relating to fertility delay and decline.

DATA

Data are from a cohort of recent graduates from two large universities – a public Southern flagship university and a private Ivy-league Northern university. The analysis is part of a broader study that explores the early career transitions of recent STEM graduates. To select our sample of respondents we rely on a two-phase explanatory sequential mixed method data design (Creswell, 2014). In the first stage, the study team conducted a survey of undergraduates in Chemistry and Chemical Engineering during their final semester of college, in 2015 and 2016. Department representatives provided lists of the population of graduating students at each school; all students were invited to participate in a survey, for which they received compensation upon completion.[1]

From this sample of survey respondents a list of potential interviewees was then selected. Female respondents were oversampled, to obtain an equal number of men and women; Black and Hispanic respondents, who are underrepresented in STEM majors (Landivar, 2013), were also oversampled. The remainder of the sample was divided equally between randomly selected Asian and White students. Respondents were contacted for interviews yearly. To ensure an adequate diverse sample size, we repeated the same random and purposive selection process of interviewees from survey respondents for the 2016 cohort who were interviewed beginning in 2017. Respondents who graduated in 2015 provided five years of data (with interviews conducted in 2016, 2017, 2018, 2019, and 2020), while 2016 graduates provided four years of data (with interviews in 2017, 2018, 2019, and 2020). During the 2020 interview round, two researchers (the lead author and an advanced graduate student) conducted all the interviews over Zoom, with interviews that lasted between one to two-and-a-half hours. Interviews in prior years had been conducted via Skype or Zoom by a team of researchers at the two locations.

Sample

The initial sample contained 87 respondents, though sample attrition reduced our sample somewhat. Our final sample size for 2020 was **70** respondents – 35 men and 35 women. They serve as our final sample, for a retention rate of 80.5 percent of our initial respondents. Another

four respondents provided four interviews but were missing in 2020; the remaining missing respondents provided three or fewer interviews prior to 2020. Of the four respondents who were interviewed four times but were missing in 2020, the two women had desired children (and one had one child), whereas the two men reported being unsure about parenthood. In addition to the 2020 interviews, we also draw on respondent interviews from years one and three post-graduation to ascertain change over time in relationship status or fertility desires. As noted each respondent has at least two interviews (in 2016 or 2017, their first interview, and in 2020), though most have more (FOOTNOTE how many have 3 or 4 in 2020).

Our efforts to obtain a diverse sample of STEM graduates were successful. Our sample has equal numbers of men and women. While White and Asian STEM professionals account for the largest shares among our respondents, nearly one-third of our sample are made up of Black, Hispanic, and mixed-race respondents. This is larger than their share of the broader STEM workforce and enables us to assess group differences in discussions of fertility. Descriptive statistics from our sample are presented in Table 1.

[Table 1 about Here]

Analytic Approach

All interviews were recorded and transcribed verbatim, and then anonymized; pseudonyms were assigned to protect respondent anonymity. Interviews were analyzed using Dedoose software for data management. Two coders reviewed each transcript from 2020 and assigned codes relating to discussions of family goals and related factors (e.g., employment, timing or parenthood), following a flexible coding approach (Deterding & Waters, 2018). Data were coded thematically and common patterns identified through repeated readings of the transcript. In instances where coders did not concur, results were discussed until agreement was reached.

Open coding was used initially to generate broad topical themes relating to the major theoretical paradigms utilized to study fertility. Within the broad "uncertainty" code were sub-codes capturing distinct components such as discussions about (the absence of) partners or insecurity about career prospects, as well as references to media coverage of uncertainty. Within our broad "costs" code were subcodes that referenced earnings prerequisites, the need for a (bigger) house, or the costs of childcare. Sub-codes for "gender equity" referenced concern over how partners would manage juggling family and employment, concerns over intensive parenting pressures or provider-caretaker norms. Axial coding helped connect the topics as well as allowed the further exploration of variability within unique codes. The final step will utilize selective coding to return to the data, refining categories and constructing an overall story line to help explain how uncertainty, career demands and economic prerequisites, and relationship expectations relating to gender roles shape the childbearing intentions of young male STEM-educated professionals.

Preliminary Findings

Consistent with the research on fertility intentions, only a handful of our respondents expressed an outright desire to remain childless at the time of their 2020 interview. But about a quarter of those interviewed expressed uncertainty about whether they would become parents. In total, about a third of our respondents did not intend to become parents or were vacillating about becoming parents in the future. While views about parenthood shifted over time, with some becoming more certain that parenthood was in their future, the more common experience was to become less confident about parenthood across the years. Yet as of 2020, about two-thirds of our respondents answered affirmatively about parenting intentions. That still leaves a sizable proportion whose intentions are weaker – and intentions are more closely associated with behaviors than is ambivalence – and who are not intending to have children. These results suggest the further deinstitutionalization of the institution of the family (Cherlin, 2004; Sassler & Miller, 2023).

Our (preliminary) findings suggest the need to better incorporate the gender perspective into studies of fertility intentions; both men and women reference believing that it will be challenging to juggle work and parenthood. The costs of parenthood dominated as a concern relating to fertility, with gender equity emerging as a second explanatory justification, and uncertainty emerging as a distant third, perhaps due to how amorphous it is. Both women and men desire high earnings and being fiscally established before becoming parents; they frequently note the importance of "getting their ducks in order" (being financially established, in a good role in their career, as well as having savings and owning a home) as necessary prerequisites, consistent with the elevated income bar theorized by van Wijk and Billari (2024). We also observe desired work-arounds for addressing the messiness of early parenthood and career development that differ by sex, providing support for the Gender Revolution framework (Goldscheider et al., 2015; Han & Brinton, 2022). Women more often report an intention to remain childless then men, while men who intend to become parents often rely on magical thinking and neotraditional logics to enable them to eschew shared responsibility and the career impacts that may bring (Gerson, 2009). References to uncertainty – whether climate or concerns about the difficulties of parenthood disseminated by media and social influencers – were mentioned far less often, though a sizable share of the sample referenced the need for a partner in considerations of parenthood, highlighting the intersection of fertility delay and deferred union formation.

We received responses from 626 survey respondents; the survey response rate was 71% for the Southern School and 59% for the Northern school.

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