Evaluating Fertility Intentions and Behavior: Towards a New Behavioral Model

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Extended Abstract

The first purpose of this paper is to create a systematic and longitudinal study of fertility intent and behavior by tracking the same women over the course of their entire reproductive life. My aim is to replicate and update the methods and data from Quesnel-Vallee and Morgan (2004) in order to accomplish two things: first, track instability of fertility intentions for individuals across the life course, and secondly, quantify the extent to which stated fertility intention and realized parity are discordant. Using the results of this analysis, I then propose a series of testable hypotheses using theories from psychology and economics that will address this evidence, in hopes to eventually create a better model of fertility behavior.

Data and Sample

I use data from the National Longitudinal Survey of Youth 1979 to assess the stability of intentions and the predictive validity of intentions to fertility behavior. The sample includes women who were 16 to 20 in 1979, which corresponds to the 1959 to 1963 birth cohorts. These women were censored at age 45 in 2004, the last data point in my sample. I excluded cases which had missing values for any of the following variables: parity in 1982 and 2004 and/or intentions in 1982. While the NLSY79 does include data for men, this study limits the sample only to women. Finally, in order to keep with consistent analysis, I included only women who had a value for total expected number of children and children ever born for each of the 15 waves of the survey. With these specifications, the sample included 1, 156 respondents.

Preliminary Results

While at the aggregate, fertility intention closely matches realized childbearing, the analysis from the NLSY79 shows significant discrepancies at the individual level, with over 75 percent of women "missing the mark" on their fertility behavior. Tables 1 and 2 show that there is clearly a lack of consistency for many women between the intended parity they stated at the beginning of the survey study (1982) and their

realized parity *(Tables 1 and 2 here)*. A far greater share of births are due to over-targeting, even though at the individual level, there are more women that "underachieve"[1] their fertility than that "over achieve." Having two children is the modal response for both intended and actual parity. Still, large variations do exist. For example, women who claim at the ages of 19-23 that they intended to remain childless often have one or more children. Likewise, women tend to "over-achieve" at the parity of both two and three children, while underachieving by less significant measures at higher parities.

While this gap shrinks when one considers intentions at older ages, this seeming correspondence is confounded with instable state fertility intentions. So, while age most certainly matters in this context, isolating its impact is extremely difficult. Moreover, differences appear to exist among race, income level and educational completion. *(Tables 3-6 here)* Finally, continuous labor market participation also appears to be correlated with a mismatch between intended and realized parity. *(Table 7 here)*

The immediate next step to this analysis will be to build upon these bivariate descriptions to create a multivariate analysis in attempts to create a better understanding of the events and characteristics of women that prevent intention to match actualized parity. With a better understanding of those mechanisms, the next goal will be to use theories from psychology and economics to build a better understanding of why women's stated intended parity is so rarely realized.

Towards a new behavioral model

In addition to documenting the discrepancies that exist in current reproductive action, the second purpose of this paper is to begin to advance a series of testable hypotheses from the psychology and economics literature. These hypotheses will be formalized and tested in this paper. These hypotheses can be thought of separately, or ideally and eventually, in conjunction. The ultimate aim will be to incorporate theoretical results from psychology and economics to help build a more representative model of fertility behavior.

Reference Dependence

One theoretical framework in which there are obvious extensions to fertility behavior is that of reference dependence. Under model with standard preferences, individuals use backward induction to achieve their desired outcome. This is particularly true in rational choice models of childbearing, which focus almost exclusively on completed family size. In contrast, Tversky and Kahneman's (1974) seminal paper shows

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[1] This language is borrowed from Quesnel-Vallee and Morgan (2004).

that individuals evaluate choices relative to a reference point, with that reference point usually the status quo. Kahneman and Tversky (1979) expanded this idea through the conception of Prospect Theory and the inclusion of theories of loss aversion; they demonstrated that individuals are more averse to losing an object than they are desirous of gaining an object of equal value. Moreover, the reference point in can change at different points in time.

If women make choices relative to their reference point, then either age or parity can be used as a model reference point to explain both the instability in intentions over time and the deviations in realized parity relative to stated intention.

Hyperbolic Discounting

Secondly, the notion of hyperbolic discounting might be an appropriate theory in which to frame the temporal aspects of fertility decisions. There have been many attempts to incorporate sequential decision-making into fertility theory, but none using the notion of inconsistent time preferences. If individuals (women) value their closer time periods more than the future, perhaps one can formalize the "procrastination" of childbearing relative to pursuing a higher education, careers goals, greater leisure and higher levels of disposable incomes.

Misrepresenting Probabilities

The third hypothesis I would like to develop is with respect to the notion that individuals may have inconsistent measures of probabilistic events, and may overestimate small probabilities. This could play out in two ways. For one, women may have inaccurate impressions of the probabilities of contraceptive failure and pregnancy risk and so their actions may be discordant to their stated intentions. However, this theory has two potential problems. For one, if women overestimate the small probabilities of contraceptive failures, then theory would predict that women should be more and not less diligent in their contraceptive practice. Secondly, the evidence that women seem to be both over *and* under achieve their target does not seem consistent with this idea. However, this framework could be applied in a different way. If we believe that women have inaccurate assessment of the probabilities that certain life course events will take place (and hence disrupt their ability to enact their "true" intentions), then we can incorporate this into a life course framework of fertility. In other words, when women state their fertility intentions at the beginning of their life, they do so with a sense of the probabilities of their life course will be. A woman who states she wants three children, for example, may assume that there is a high likelihood that she will be married by a certain age, reach certain career milestones by a certain time, etc. Likewise, she may inaccurately predict the probability that she, for example, is still unmarried by the age

of 35 or 40 years old (relative to population-level probabilities). I would like to incorporate this individual-level distortion of probabilities into a fertility life course model.