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The labor force effects of unplanned childbearing ☆

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HIGHLIGHTS

- The paper estimates the impact of unplanned birth on female labor force participation.
- Miscarriages are used as a source of exogenous variation to family size.
- Unplanned births strongly reduced female labor force participation.
- Fertility planning plays a key role on the size of the impact of childbearing.

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ABSTRACT

This paper explores the impact of unplanned births on female labor force participation and income. I estimate the causal effect of birth analyzing a sample of unplanned pregnancies, defined as those that happened while the woman was using contraception. Women with high labor force attachment may be more likely to use contraception or to have an induced abortion if contraception fails. I use spontaneous fetal losses as a source of exogenous variation in births. Unplanned births significantly reduce labor force participation, especially at the beginning of the sample period (1973–2004) and when the child is below 6 years of age. This effect is remarkably higher than the estimates traditionally reported in the literature, suggesting that family planning plays a key role in the limited magnitude of previous estimates. The negative impact decreases over the sample period. There are no significant differences in the effect of an unplanned birth by level of education and its impact on income is small.

1. Introduction

In 2002, 30% of American women 15 to 44 years old had experienced an unintended birth (Chandra et al., 2005). Either unwanted or mistimed, the prevalence of unintended fertility and its persistence over time is striking given the available contraceptive technology. Its occurrence is higher among women whose wealth is below 150% of the poverty level or who are high school dropouts (over 50% and 60%, respectively, had ever had an unplanned child), but it is not negligible among highly educated women, of whom 18% experienced an unintended birth.

The prevalence of unplanned pregnancy and its potentially negative consequences have induced policy measures, such as the expansion of eligibility for Medicaid coverage of family planning.[1] Unintended pregnancies are not only correlated with delayed access to prenatal care, lower birth weight, and poor child care and development (Kost et al., 1998; Joyce et al., 2000), but they also affect the woman's ability to participate effectively in the workforce. This in turn impacts her income and poverty status.

There is a large literature on the effect of a birth on maternal labor supply. Goldin (1990) proposes reductions in fertility as a major driver of large increases in female labor force participation after World War II. However, the impact of a birth on labor supply is, although significant, of moderate magnitude, and fails to fully explain the extent of changes in female labor force participation that took place during the last century.[2]

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[1] In 2006, more than nine million women received publicly funded contraceptive services (Gold et al., 2009), which cost Federal and state governments $1.85 billion. Kearney and Levine (2009) estimate that the expansion of Medicaid family planning eligibility, which occurred at the state level from 1993 to 2008, reduced births for newly eligible women by 9%.

[2] Angrist and Evans (1998) report an 8% reduction in female labor force participation caused by the birth of the third child, while Bronars and Grogger (1994) found that only African-Americans among unwed mothers suffered a long term penalty on earnings. According to Jacobsen et al. (1999), decreases in fertility only account for a small proportion (between 6 and 13%) of the increase in the labor supply of married women.

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Bailey (2006) argues that traditional findings in the literature underestimate the impact of highly effective contraception, since they abstract from the role of birth timing.

In this paper, I address the impact of unplanned births on female labor force participation. Using data from the National Survey of Family Growth, I select a sample of unplanned pregnancies defined as those which happened to women actively trying to prevent them through contraception. Within a range of samples of unplanned pregnancies, I use spontaneous fetal losses to address the endogeneity generated by the presence of abortion.

It is unlikely that women who experienced an unintended pregnancy are similar in unobservable characteristics to those who did not. Nevertheless, understanding the effects of unplanned birth on this group is of interest. First, it addresses policymakers' concerns about the high incidence of unplanned childbearing. Furthermore, failing to find any difference between the labor supply of planned and unplanned births will cast doubts on the hypothesis that the ability of timing pregnancies shaped the evolution of female labor force participation.

As a preview of the findings, an unplanned birth reduces female labor force participation strongly, although the negative effect decreases over time. The impact of an unplanned birth is significantly higher than the impacts previously reported in the literature, indicating that family planning plays a key role in the effects of childbearing on labor force participation. There is no evidence of an unplanned birth affecting low- and highly-educated females differently.

2. Empirical strategy

Childbearing and female labor supply choices are, in general, a product of the household maximization problem. Although the occurrence of an unplanned pregnancy is correlated with the contraceptive method chosen and its proper use, it causes the woman to re-optimize her fertility choices, opting either to take the pregnancy to term or to abort.

In a range of samples of unplanned pregnancies, spontaneous fetal losses are used in this analysis to identify the causal effect of a birth on labor force participation and other outcomes of interest.[3] Within each sample, where pregnancies happened during the use of any type of contraception, I estimate the following specification

$$Y = \alpha + \beta Birth + Birth X_1' \lambda + X' \gamma + \varepsilon$$

where *Birth* takes the value 1 if the pregnancy ended in birth and 0 if it ended in miscarriage. This term is interacted with a subset of controls[4] (X_1) to capture non-linearities in the effect. I estimate these parameters using two identification strategies. In the first, excluding from the sample those pregnancies that end in abortion, I use OLS to estimate the effect of a birth by comparing outcomes for women who had a birth versus those who suffered a miscarriage. In the second specification, I add back in those pregnancies that ended in abortion, and use the incidence of a miscarriage as an instrument for the effect of a birth on the outcome of interest. For reasons discussed below, the OLS estimates should be biased towards finding a more negative effect of an unplanned birth, while the IV results should be biased in the opposite direction.

The rest of this section presents and justifies the various samples used in the analysis, and informs the interpretation of the corresponding results. Additionally, it discusses the evidence supporting the use of miscarriages as a source of exogenous variation to family size.

2.1. Recall bias

Since I use miscarriages as an instrument, the bias arising from inaccurate recall or misreporting might be severe. Women who miscarried their pregnancies might be more likely to rationalize ex post the pregnancy as unwanted or mistimed, while women who gave birth might experience the opposite process. Rosenzweig and Wolpin (1993) find significant differences in the level of intention if it was recorded during pregnancy or after birth, while Bankole and Westoff (1998) report that ex post rationalization is likely to increase with time since pregnancy. Given that pregnancy intentions are reported up to several years after the outcome of the pregnancy, relying on them might cause an important recall bias.[5] Selecting a sample of unplanned pregnancies using objective information, such as contraceptive use and its discontinuation before pregnancy, reduces the possibility of recall and social desirability bias on the level of planning of the pregnancy.

2.2. Isolating the direct effect

Ideally, using all unplanned pregnancies would allow a precise estimation of the effect of birth on labor force participation and its variation as the child ages. However, an unplanned birth might not only affect labor force participation, but also other choices such as future fertility (e.g., the number and timing of subsequent births). These can also impact and be impacted by the woman's labor force status, as fertility and labor force status are likely to be jointly determined. If the unplanned birth is unwanted, it only changes total fertility and the interpretation of the effect remains straightforward. Mistimed births, on the other hand, could affect not only labor force participation, but also later fertility choices.

An example serves to illustrate this point. Consider two identical women, each planning to have a (first) child at age 26. Suppose that each then had an unplanned pregnancy at age 22 (which neither intended to abort), but one suffered a miscarriage. To isolate the direct effect of the unplanned birth, one would like to be able to compare their labor force participation at age 30, after each has had the planned birth at age 26, but only one has had the additional unplanned birth at age 22. This would isolate the effect of the unplanned birth. Yet the woman who gives birth at 22 might, ex post, choose to update her fertility plans: for instance choosing to forgo the (now second) child at 26, or shift its timing to either earlier or later. Furthermore, future fertility choices are likely to be endogenous to the woman's labor force status.

In the data, there is evidence that unplanned births have an influence on subsequent fertility. For instance, having a birth instead of a miscarriage after a first, unplanned pregnancy leads to less than one additional child at the time of the interview.[6] Additionally, women whose first pregnancy was unplanned wait longer until their second pregnancy. In combination, this suggests that some unplanned children substitute for subsequent intended births, and/or lead women to delay additional births. Using all pregnancies would necessarily require careful modeling of the impact on subsequent fertility and its interaction with labor force participation. Unfortunately, the data used in the analysis do not allow one to fully estimate this relationship. As explained in

[3] Biological fertility shocks have been previously used as exogenous variation in family size. Hotz et al. (2005) and Ashcraft et al. (2013) use miscarriage as an instrument for birth and estimate the effects of teenage childbearing, while Miller (2011) instruments for age at first birth using age at first conception, occurrence of miscarriage, and contraceptive use. In addition, randomly assigned sex of children and parents' preferences for a mixed-sex set of children (Angrist and Evans, 1998) or twinning (Bronars and Grogger, 1994; Jacobsen et al., 1999) have also been used as sources of exogeneity.

[4] Birth is interacted with the pregnancy happening less than 6 years before the interview, such that the child is below the age of compulsory schooling in case of birth, year in which it happened and parity at the time she conceives the baby in question (i.e., the number of children already present in the household).

[5] Kost et al. (1998) or Joyce et al. (2000), among others, use self-reported pregnancy intentions. These papers, however, only include live births in the analysis and use reporting during pregnancy or shortly after.

[6] Women who gave birth always have a significant higher parity (i.e., number of children) than women who miscarry, and the increase is significantly less than one when the child is over age 6.