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Fertility and maternal labor supply in Japan: Conflicting policy goals?



Andrew S. Griffen^{a,*}, Makiko Nakamuro^b, Tomohiko Inui^c

^a University of Tokyo, Japan

^b Keio University, Japan

^c Gakushuin University and RIETI, Japan

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ABSTRACT

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Using panel data on Japanese mothers, this paper estimates the impact of fertility on maternal labor supply using twins as an instrument for the total number of children. We find that having twins actually has a longer term *positive* impact on maternal labor force participation in Japan. To understand this result, we present evidence that the effects of age and cost of children can generate this finding, are particularly salient in Japan and differ in important ways between twins and non-twin families of the same size. Implications for fertility and labor supply policy in Japan are discussed. *J. Japanese Int. Economies* **38** (2015) 52–72. University of Tokyo, Japan; Keio University, Japan; Gakushuin University and RIETI, Japan.

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* Corresponding author.

E-mail addresses: griffen@e.u-tokyo.ac.jp (A.S. Griffen), makikon@sfc.keio.ac.jp (M. Nakamuro), tomohiko.inui@gakushuin.ac.jp (T. Inui).

1. Introduction

In 2012, newly elected Prime Minister Shinzo Abe of Japan began a series of audacious policy reforms in an attempt to reverse two decades of sluggish or non-existent economic growth in Japan. While most are familiar with the Keynesian macroeconomic policies of *Abenomics*, less well known are policies to tackle issues of low fertility and lack of support for working mothers that are also considered potentially harmful to Japan's long run economic future.¹ Even after a 16 year upward trend, Japan's current total fertility rate of 1.39 births per woman is among the lowest in the developed world and demographers are forecasting a decline of 27% of the Japanese population by 2050 (Takahashi et al., 2003). Such large changes in population put tremendous pressure on traditional pay-as-you-go social security systems, which has led to the development of policies to increase both fertility and maternal labor supply. However, a possible unintended consequence of higher fertility rates is lower maternal labor force participation, which is why many modern pro-natal policies, including those in Japan, often operate through maternity leave laws or child care supports for working mothers. Unfortunately, the design of these joint fertility-labor supply policies in Japan are made in an almost complete vacuum of information about the responsiveness of Japanese mothers' labor supply to fertility.

A major difficulty in understanding the impact of fertility on maternal labor supply is that both are endogenous decisions made by households so that identifying variables that exogenously affect fertility but not labor supply is challenging. Two kinds of clever natural experiments have been used to address this problem. The first, developed by Rosenzweig and Wolpin (1980a,b), is the occurrence of a twin birth, which under some assumptions corresponds to an unexpected exogenous increase in the number of children. The second is the gender composition of earlier born children, which uses the randomness of gender together with parental preferences for sex ratio balance (Angrist and Evans, 1998) or for males (Lee, 2008).² Most results from this literature find a sizable negative impact of number of children on maternal labor supply, which is consistent with and can potentially explain secular decreases in fertility and increases in female labor supply in the 20th century.³

One criticism of this literature is the lack of focus on formal models, which has obscured some of the strong and implicit assumptions that these IV methods require. Rosenzweig and Wolpin (2000) develop a model of maternal labor supply and fertility to show that the validity of twins and sex-preference instruments for fertility rests not only on the randomness of twinning or child gender but also on strong assumptions about the structure of mothers' utility functions, the impact of children's ages and the costs of children in directly affecting maternal labor supply decisions. For example, in the Rosenzweig–Wolpin model, the occurrence of twins can actually increase maternal labor supply even though previous estimates from the US typically have not found evidence of such effects. Such an effect can occur if either children's age directly affects labor supply through preferences or if child costs vary by children's age and consumption and leisure are non-separable in the utility function. The results from the Rosenzweig–Wolpin model are quite intuitive. First, for some child expenditures,

¹ A complete discussion of Prime Minister Abe's policy proposals is contained in a document entitled "Japan Revitalization Strategy – Japan is Back" disseminated through the Prime Minister and his Cabinet's Public Relations office. Specific policy proposals include expanding slots in child care centers and increasing maternity leave from 1.5 to 3 years. Recently these policies have received push-back from business groups so the current status of their implementation is uncertain.

² Unlike the United States where preference for gender balance seems to exist among some subset of the population, sex-preference for sons is the so-called "Asian instrument" for fertility developed by Lee (2008) for Korea. For Japan, Kureishi and Wakabayashi (2011) present evidence of historical sex-preference for sons that faded out over time. We tried using the sex preference for males as an instrument but our first-stage results suggested that a first born daughter is not a strong predictor of additional fertility in Japan, which is consistent with the findings of Kureishi and Wakabayashi (2011) that sex-preference for sons is no longer a common feature of Japanese society.

³ Because modern families are small by historical standards, the majority of twins occur at the first birth so that twins papers typically identify the effect on labor supply from increasing from one to two children. Angrist and Evans (1998) use the sex ratio of the first two children to identify the impact of going from two to three children and compare their estimates with the impact of a twins instrument. Lee (2008) also examines the margin between 1 and 2 children by using preferences for males to predict subsequent fertility. As compared to the twins estimators, the preference estimators require that preference for sex balance or for males be independent of preferences for work or leisure. It is more challenging to identify effects on the margin between 0 and 1 children but identification strategies have looked at miscarriage (Joseph Hotz et al., 2005) and samples of women seeking fertility treatments (Cristia, 2008).

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