

# Fertility Restrictions and Life Cycle Outcomes: Evidence from the One Child Policy in China

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## Abstract

I use the experience of China's One Child Policy to examine how fertility restrictions affect economic and social outcomes over the lifetime. The One Child Policy imposed a birth quota and heavy penalties for "out-of-plan" births. Using variation in the fertility penalties across provinces over time, I examine how fertility restrictions imposed early in the lives of individuals affected their educational attainment, marriage and fertility decisions, and later life economic outcomes. Exposure to stricter fertility restrictions when young leads to higher education, more white-collar jobs, delayed marriage, and lower fertility. Further consequences include higher household income, consumption, and saving. Finally, exposure to stricter fertility restrictions in early life increases female empowerment as measured by an increase in the fraction of households headed by women, female-oriented consumption and gender-equal opinions. Overall, fertility restrictions imposed when agents are young have powerful effects throughout the life cycle. (*JEL* classification: H70, I20, J00, O12)

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# 1 Introduction

Economists have long been interested in the relationship between fertility and economic outcomes, particularly those of women. This study uses China's One Child Policy (OCP) as an exogenous shock to fertility (and fertility expectations) to investigate the impact of exposure to fertility restrictions in early life on lifecycle outcomes.<sup>1</sup> The expectation of having fewer children implies that individuals growing up under the OCP may have formulated different plans for their lives and faced different incentives for human capital investment than did previous cohorts. Specifically, I examine the following three sets of lifetime outcomes: 1) demographic transitions including the age at first marriage and fertility; 2) socioeconomic outcomes including education, income, consumption, and saving; and 3) female empowerment, including household head, distribution of consumption, and subjective opinions.<sup>2</sup>

The OCP, which was formally started in late 1979, is well known as the most radical fertility policy affecting the largest population in world history. Compared with birth control policies such as the "pill" or abortion regulations, China's OCP is unique in imposing a mandated birth quota and heavy penalties for "out-of-plan" births (Schultz, 2007). Even though the One-Child Policy was announced for all of urban China, this study exploits the geographic variation in the government-imposed financial penalties for an unauthorized birth because the penalties varied substantially across provinces.

Matching the OCP penalties to a nationally representative sample covering 1940 to 1980 birth cohorts with more than 10 million observations, I first investigate the effects of exposure to the fertility restrictions in early life (i.e., ages 6 to 20) on education, marriage, labor market and fertility outcomes. The estimates suggest that exposure to the fertility restrictions imposed by the OCP

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<sup>1</sup>The current literature on the OCP is mainly based on the household model and most of the studies focus on the contemporaneous effects such as sex ratio and its consequences (Ebenstein, 2010; Edlund et al., 2013; Wei and Zhang, 2011).

<sup>2</sup>Starting with Goldin and Katz (2002) and continuing with Bailey (2006), Hock (2008), Miller (2010), and Ananat and Hungerman (2012), researchers have found that increased access to the pill by young unmarried women in the 1960s and 1970s affected the marital, educational, labor market and child outcomes. Similarly, abortion access has profound impacts on children's circumstances and women's lifetime outcomes (Gruber et al., 1999; Pop-Eleches, 2006; Ananat et al., 2007, 2009).

when agents are young lead to a 6.5 percentage points higher (35 percent of the mean) senior high school completion rate for women, and 3.7 percentage points (16 percent) higher completion rate for men.<sup>3</sup>

In addition, the estimates suggest that exposure to the OCP in early life leads to a significant higher likelihood of married after age 25 and white-collar job occupation, for both men and women. For the women experiencing the OCP in early life, I also find a significant reduction in number of births (12 percent) and improved quality of the children. By contrast, among the minorities, I do not find any significant effects of exposure to the OCP in early life on education, white-collar job occupation, late marriage and fertility outcomes.

Furthermore, I extract a sample composed of the same birth cohorts in the urban household survey (UHS) data and find that fertility restrictions in early life leads to an increase household income, consumption, saving, as well as more households headed by women and more female-oriented consumption. Finally, the data from China Family Panel Studies (CFPS) show that women experiencing fertility restrictions when young are happier, more satisfied with life in general, more satisfied with spousal housework duty and less agreement on the statement that marriage and children are important to women's lives.

My findings suggest that (expected) fertility plays an important role in human capital accumulation, economic development and female empowerment.<sup>4</sup> The results suggest fertility as an important factor linking to both economic development and female empowerment. In addition, this study also contributes to the literature on the OCP by showing the long-run effects of fertility restrictions throughout the life cycle.<sup>5</sup>

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<sup>3</sup>For college completion, the corresponding numbers are 2.1 percentage points (40 percent) for women, and 2.2 percentage points (31 percent) for men. These estimates are consistent with the findings in previous literature on the power of the pills (Hock, 2008; Ananat and Hungerman, 2012) but have much larger magnitudes. For example, the pills availability increase college proportion by 0.5 percentage points in the US.

<sup>4</sup>See ?Becker et al. (1990); Galor and Weil (1996); Goldin and Katz (2002); Bailey (2006); Ananat and Hungerman (2012); Duflo (2012); Ashraf et al. (2013).

<sup>5</sup>See Li and Zhang (2007); Qian (2009); Ebenstein (2010); Wei and Zhang (2011); Li et al. (2011).