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Education and fertility decline in China during transitional times: A cohort approach

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ABSTRACT

We examine the effect of education on birth outcomes in China during the period of economic transition and large-scale changes in mass education and population control measures. Retrospective micro data from the 2008 Chinese General Social Survey and discrete time event history analysis are used to examine the fertility history of several cohorts of women born between 1945 and 1968. We observed births at different parities, distinguishing the education effect across cohorts and rural/urban sectors. We found differences across cohorts consistent with unique features of the Chinese context, such as the radical egalitarian era of educational expansion, and the Reform Era. We also found that despite the increase in some education levels across cohorts (e.g., junior high school in rural areas), birth chances were more likely to be concentrated among less educated women, suggesting the impact of factors related to returns to education and hence the desire for children.

1. Introduction

In developing countries, education is among the most established and widely studied socio-economic determinants of fertility, and is usually thought to be inversely associated with it (Bongaarts, 2003; Cleland and Rodriguez, 1988; National Research Council, 1999). However, few studies have examined the relationship between these two facets of economic development in the recent history of China, a country which has witnessed national experiments unprecedented in human history, including the Great Leap forward, the Cultural Revolution, the One Child Policy, and the Economic Reform Era. Even before the initiation of the One Child Policy, China experienced an extraordinary drop in the nation's birth rate, especially relative to its level of economic development (Feeney and Yuan, 1994; Zeng, 1996; Gu, 2008). This phenomenon has spawned great debate over the causes of decline (Cai, 2010; Guo et al., 2012).

In the past half-century, as the fertility rate dropped precipitously from a high of about six births per woman in the mid-1960s, to a level just above replacement in the 1980s, before reaching sub-replacement level in the 1990s (Cai, 2008; Morgan et al., 2009), China's education system also changed appreciably, reflecting periods of fluctuating political ideologies and development priorities (Hannum, 1999; Tsang, 2000). In this study, we contribute to the literature on Chinese fertility reduction by using micro-level retrospective life history data from the 2008 Chinese General Social Survey (CGSS). We examine how educational attainment affects fertility behavior across birth cohorts of women, and we situate their

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experiences within a changing historical context of rapid economic development, significant changes in family planning policies, and wide swings in educational strategy that greatly differentiated rural and urban settings. By reconstructing the life histories of these women, we examine births occurring during their main reproductive years.

2. Background

Explanations for Chinese fertility decline vary, but most studies point to either the effect of socioeconomic development, population policy, or other features of the institutional context (e.g., Cai, 2010; Guo et al., 2012; Harrell et al., 2011). Few studies of Chinese fertility consider the role of education, despite its emphasis in the wider fertility literature, which identifies both demand- and supply-side explanations linking education and fertility (see Axinn and Barber, 2001 for review). Not to be confused with Easterlin's (1975) economic framework of fertility, which focuses on the availability of, and desire for, children, "supply and demand" in this context emphasizes how the educational availability and returns to education, respectively, impact fertility outcomes.

Demand-side explanations deal with individual-level factors through which education affects people's desire for children. By attending school, prospective parents acquire some knowledge or status that influences their attitudes, plans, or behavior in such a way that they limit childbearing (Axinn and Barber, 2001). Education can influence individual fertility experiences through economic and ideational mechanisms. Economic mechanisms include the rising opportunity costs of childbearing as women gain new alternatives to status attainment other than having children (Easterlin and Crimmins, 1985). Ideational mechanisms include growing rationality increasing the likelihood of contraception use (Notestein, 1953); the spread of Western family values, which reduces the demand for children (Caldwell et al., 1985); decreased interaction with family, which weakens historical family values (Thornton and Lin, 1994); increased consumer aspirations, which changes the relative costs of children (Easterlin, 1980); as well as the spread of contraceptive knowledge (Hermalin, 1983).

Supply-side explanations focus on how the availability of schooling, at the macro- and community level — usually a result of the spread of mass education — has implications for lowering fertility levels. Logically, the wider availability of education could affect childbearing in two ways. On the one hand, as schools become more pervasive and an increasing number of people attend them, they engender compositional changes in the population of prospective parents.[1] On the other hand, more widespread schooling can trigger various demand-side mechanisms, which would concentrate births among the relatively less educated. Indirect evidence for the latter explanation comes from Bongaarts (2003) analysis of Demographic and Health Survey data from 57 developing countries, which revealed a robust relationship between the level of education and fertility during the process of fertility transition: at each stage of fertility transition, women with primary education had higher fertility than women with secondary-or-higher levels of education, while women with no schooling had higher fertility than women with primary schooling. Assuming any compositional changes in education, it is likely that the highest fertility levels were concentrated among the least educated. More direct evidence from other research shows that, in developing countries, net of individual educational attainment, contextual factors, like the level of education within a given geographic region or even the experience of living in proximity to a school during childhood, impact the level of fertility of individuals (Axinn and Barber, 2001; Kravdal, 2002).

While the supply and demand framework is useful, it takes a static view of the relationship between schooling and birth, rather than being sensitive to how this relationship unfolds over the life course. A more nuanced view must recognize that, especially in developing settings in which the overall level of education is low, schooling acquired in early life tends to impact fertility behavior in later life. Thus, both the prevailing educational policies governing the availability of schooling during childhood and adolescence, and conditions facing prospective parents in their prime reproductive years (including those affecting returns to education), are significant in determining the impact of education on childbearing. Following Ryder (1965) and Elder (1974), we argue that this life course component can be captured by examining differences across birth cohorts. Especially in China, where education and population control policy, as well as the economic milieu, changed so dramatically and rapidly in the latter half of the twentieth century, we should find cohort differences in the association between education and fertility.

The supply and demand framework also does not account for how the relationship between education and fertility might differ across parity level. The reason that the education effect could differ by parity is because motivations for having children vary at different birth orders. For instance, Bulatao (1981) showed that people desired to have a first child for affective reasons, such as having someone to love and care for, to carry on the family name (particularly important in a Confucian country like China), and to bring spouses together. Second and later children, in contrast, are often rationalized as "family building," or providing a sibling for the first child or perhaps balancing the sex composition of the family. This rationale for higher-order births is especially undermined by socioeconomic changes, whereas lower-order births are less affected (Morgan, 2003). Accordingly, studies have shown that the recent historical reduction in births across cohorts in China was

[1] To see this, consider a hypothetical population of 100 women. Suppose that 75 percent of them have a primary school education, while the other 25 have secondary schooling. Imagine that the fertility rate is 50 percent (i.e., 50 women have births). Suppose further that the educational composition of this population changed such that 50 percent of women had secondary schooling and the remaining 50 had only primary schooling. Assuming that the fertility rate remains constant, a higher proportion of women with a secondary school education will necessarily have children.