

Fertility regulation in Iran: an analysis of reproductive life history and synthetic parity progression ratios

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Abstract

While a significant body of literature has addressed fertility decline in Iran and its major associates, most of these studies focus on conventional age-based measures of fertility. This paper aims to use detailed parity based measures to fully understand the dynamic reproductive behavior of Iranian women. As a result of major political changes in Iran fertility reached to the highest level of 7 births per woman after 1979-Islamic revolution. Our findings confirm the onset of fertility decline in the mid-1980s, a few years earlier than the government-led fertility control policy in 1989, reaching replacement level within a decade, and remaining relatively stable at around 2.0. Using reproductive life history analysis, factors of women's education and long term contraceptive use with back-up usage of termination explain well the course of the fertility transition before 2000. Comparison of parity progressions for real and synthetic cohorts after 2000 reveal that in Iran only minor tempo effects in each parity progression occur, and thus these effects do not significantly influence the total fertility rate. Tempo effects arise mainly from increasing age at first birth and there has been little rise in age at first birth among Iranian women. Indeed, more than 93 per cent of women had their first birth within average interval of 2-3 years. The childbearing lifespan has shrunk with women under 25 years contributing nearly half of the level of fertility in contrast with other developed countries where most births occur in late twenties due to the rise in the mean age at first birth. Our findings suggest that marriage, fast progression to first child after marriage and desire for having the second child are norms of childbearing among Iranian families. These insights are useful for the purpose of formulating feasible strategies and policies to prevent further decline in Iran's fertility.

Introduction:

It is known that Iran's fertility fell sharply from around 7 to 2 births per woman in less than two decades. There is a precise association of the movements in fertility with the timing of the momentous socio-political and population policy shifts before and after the 1979 Islamic Revolution. Women's education and autonomy, expansion of health system network, rural development, inflation and economic pressures and family planning program were recognized as driving forces behind fertility decline (Abbasi et al. 2009). However, since 2009, there has been growing concern among conservatives in Iran that Iran's fertility has reached a very low level and will continue downwards. This led to the formulation of a draft pronatalist population law that, among other things, encouraged teenage marriage for women and priority in employment for married males which later was relaxed by a statement issued by the supreme leader in April 2014. More than 50% of Iranian women marry before age 23, and a majority of them have their first and second child before age 30 (Hosseini et al. 2013, 2015). The shortening reproductive lifespan indicates that a majority of Iranian women complete their desired number of children at an age that is many years below the age when it becomes unacceptable for them to use sterilization, where women are exposed to the risk of unwanted pregnancy and abortion.

Using the latest 2010 Iran MIDHS data and reproductive life history analysis, this paper aims to compare the trends in synthetic cohort parity progression ratios in Iran across the past 25 years. Then trends in the

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total fertility rate derived from parity progression ratios are estimated. These provide detailed information to interpret the observed synthetic parity progressions across time in terms of the tempo and quantum of fertility. Second, the role of marriage, urbanization and FP are examined in association with synthetic parity progression measures are examined, and trends in TFR with estimates from other data sources and methods are compared.

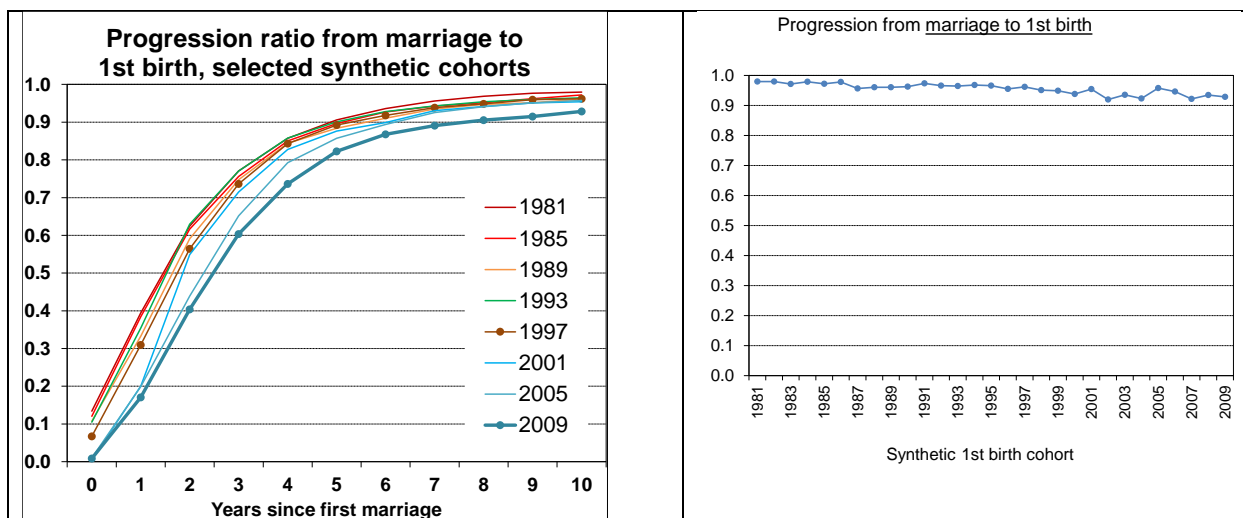
Data:

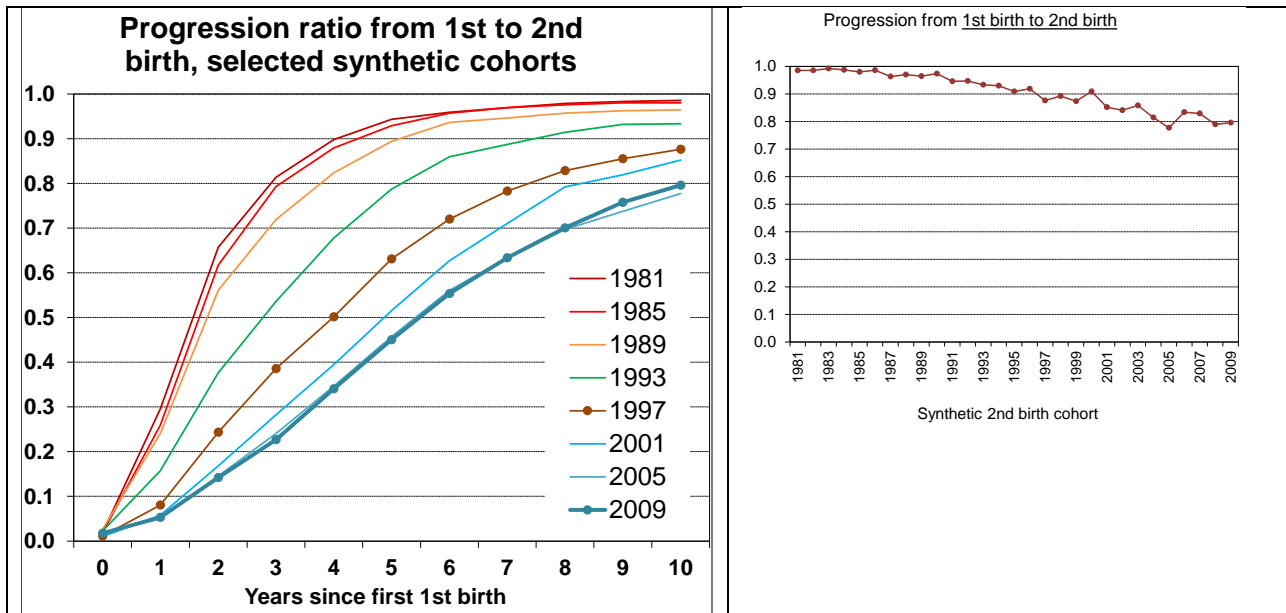
The 2010 Iran Multiple-indicators Demographic and Health Survey (IrMIDHS) is the latest available data that provides detailed information for reproductive life history. This data set is a representative sample of 31,350 households (94.4% response) throughout the country. Systematic cluster sampling was utilized to randomly select 10 households in each cluster, and 35,305 women aged 15-54 contacted with response rate of 98% providing a sample of 34,438 eligible women. The fertility history information in the sample includes 65,587 births occurred to 26,116 women aged 15-54 that are applied to the parity progression ratios analysis.

Method:

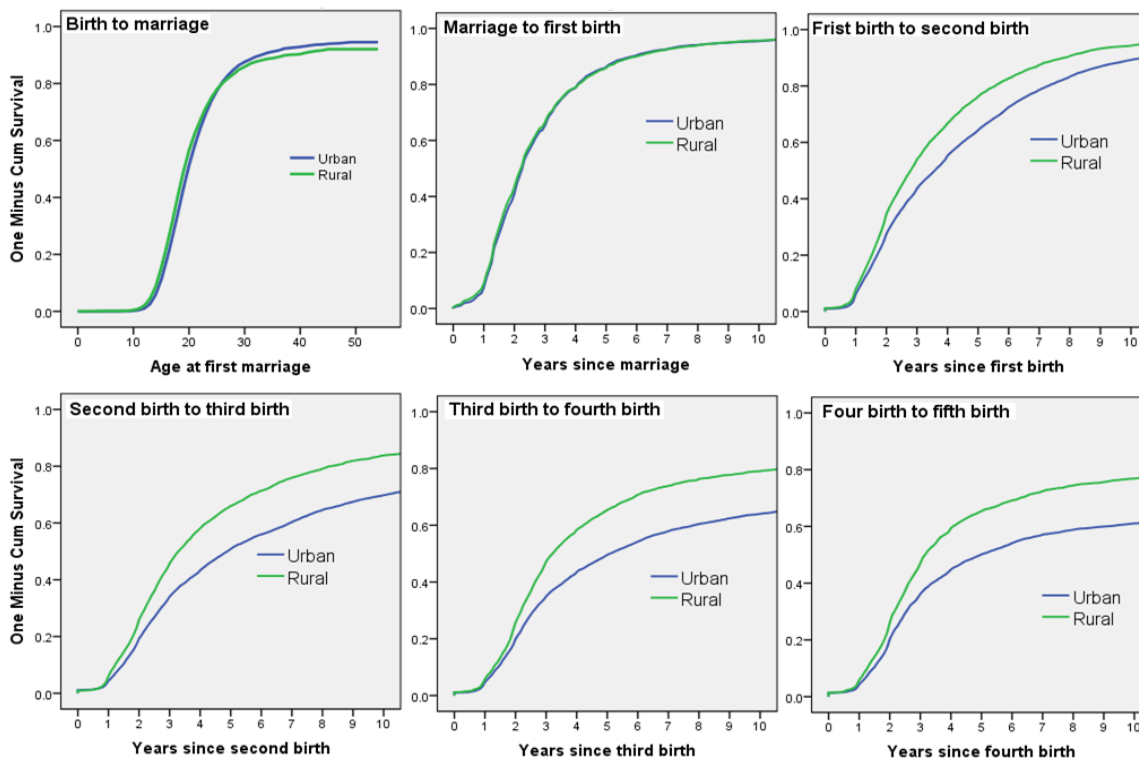
Parity progression for birth cohorts describes the timing (age) of progression from one birth to the next across the lifetime of real birth cohorts. Age (marriage) cohort summary measures relating to age (duration) at first birth and age (duration) at last birth can be derived from data in this form. In case of synthetic parity progression ratios, we bring together all those who had a birth of a given parity in a particular year and measure the probability that they would do this given the time since their previous birth. These probabilities are then combined into a summary synthetic measure for all durations since the previous birth. Finally, the synthetic probabilities obtained for women of each parity can be combined into a single measure analogous to the total fertility rate. Applying life table techniques to one-year probabilities, we can calculate the (synthetic) lifetime probability that a woman will progress from the (i-1)th birth to the ith birth. The literature suggests that a lifetime's experience is measured adequately by the 10 years of experience after the (i-1)th birth. That is, birth intervals longer than 10 years are very rare and my data confirms this. And, for the first interval, the date of marriage is taken as the starting point. The PPRs can be used to calculate the (synthetic) average number of births that a group of women would have across their lifetimes, the parity equivalent of the total fertility rate. Information from contraceptive use history with fertility history also are combined to measure PPRs among non-users of contraception to investigate the dynamics role of contraceptive use in fertility control.

Results:

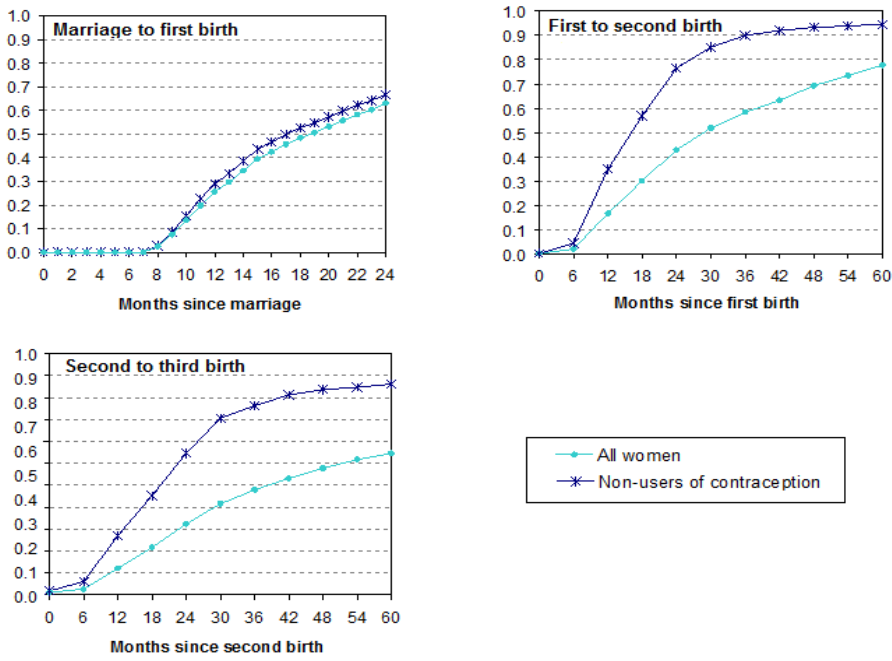




Parity Progression Ratios, Women 15-54, Iran, 2010



Cum. life table probabilities of progressing to parity 1, 2 and three All women versus non-users of contraception, 2010 Iran MIDHS



Proportion of women who had their first birth and their last birth by age and educational level of women – Iran

