The delayed transition to motherhood in Iran: The role of women's employment and education

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Introduction

Over the past decade, the fertility rate has remained low in Iran. The current national total fertility rate is estimated to be 1.6 children per woman. In fact, six provinces, including Tehran, have a rate under 1.5 children with the rates for 20 out of 31 provinces less than two children (Erfani, 2013). The persistent low fertility has become an increasing concern for political leaders and policy makers in Iran, as it leads to rapidly ageing populations, a declining labor force, and smaller overall population size. As a result, increasing attention is being paid to policies to reduce the social and economic burdens of the negative consequences of low fertility. However, the success of any policy attempts to raise fertility levels relies on improving our understanding of factors related to declining fertility rates.

Recent Iranian fertility studies have related the decline of fertility to the wide prevalence of contraceptive use, postponement of marriage, incidence of induced abortion (Erfani and McQuillan, 2008; Erfani, 2011), and low fertility intention (Erfani, 2014). Nevertheless, the role of timing of childbearing in reducing the fertility rate in Iran has received less attention. The decrease in the transition time to the motherhood leads to an increase in period fertility rates (Feeny, 1983). Recent evidence shows that postponement of childbearing and the delay in transition to the motherhood lead to "very low" fertility in Europe (Sobotka, 2000a, 2000b) and some subgroups of the population, with higher education levels in the United States and other countries (Rindfuss et al., 1988; Heck et al., 1997). On the other hand, the shortening of transition time from marriage to the first birth among all subgroups of women in Iran, who married right after the 1979 Islamic Revolution, led to a slight increase in the period fertility rate (Erfani and McQuillan, 2014). Some demographers call this shift in the timing of childbearing, from a short to a long first birth interval, as "postponement transition" (Kohler et al., 2002; Goldstein et al., 2009).

Generally speaking, the delayed transition to motherhood has both negative and positive consequences for the mother and children. The rise of mother's age at the first birth reduces her fecundity and increases the risk of still birth (Leridon, 2008), health costs related to the use of assisted reproductive technology (Allen et al., 2006; Luke and Brown, 2007) and the risk of breast cancer (Collaborative Group on Hormonal Factors in Breast Cancer 2001). Other evidences, however, show that the delayed transition to motherhood related to family stability, economic stability of parents, and self-efficacy of children (Mills et al., 2011). The postponement of childbearing through the use of modern contraceptives leads to educational

advancement of women after marriage (Erfani, forthcoming) and improvement in their employment and income (Miller, 2010).

This study aims to examine changes in the transition time to the first birth over the past 15 years in the city of Tehran, and investigates determinants of transition time to motherhood, measured by the length of first birth interval. We use data from four large-scale demographic and fertility surveys, conducted in 2000, 2009, 2011, and 2014, to investigate changes in the timing of first birth and its determinants. The findings of this study improve awareness of population policy makers about the factors associated with low fertility in Iran.

Data

To investigate trends of transition time to motherhood from 2000 to 2014, this research uses data from four surveys: the 2000 Iran Demographic and Health Survey (IDHS) (MOHME, 2000), the 2009 Tehran Survey of Fertility (2009 TSF), the 2012 Tehran of Fertility Intention (TFI), and the 2014 Tehran Survey of Fertility (2014 TSF). The last three surveys were conducted by the first author. We use data from the most recent survey (2014 TSF) to examine the determinants of first birth interval. The 2014 TSF was administrated to a representative sample of 2,955 population of currently married women aged 15-49 residing in 22 residential districts of the city of Tehran, through face-to-face interviews conducted by more than 30 trained and experienced female interviewers, employing a two-stage stratified cluster random sampling design.

Methods

A cohort analysis approach is used to study change in the timing of first birth among a young cohort of women aged 15-35, whose transition time to the first birth influence the future fertility rate, over the four time points (2000, 2009, 2012, 2014)[1]. Cox's regression survival analysis models are used to include all the right-censored cases into the analyses of first birth interval. As non-parametric methods, the Kaplan-Meier methods are used to estimate median survival time of the occurrence of births. Kaplan-Meier estimates cumulative survival probability for time-to-event data which is the proportion of all cases that are still alive at a particular time point. Median survival time is the first observed time at which the cumulative survival is 50% or less. For example, a median survival time at 35 months for a third birth interval distribution, related to a sample of women, tells us that 50% of the women have not experienced the third birth 35 months after the birth of their second child.

The results of the Cox's hazard models are presented in terms of *risk ratios*. A risk ratio greater than unity means a shorter transition time to the motherhood, while a ratio less than one denotes a longer birth interval, and hence a slower transition to a the birth, compared with the reference group .

Some Preliminary Results

[1] We limit the sample to women aged 15-35, since the study population in the 2012 Tehran Survey of Fertility Intention include women aged under 36.

Figure 1. Trends of median survival time (in month) from marriage to the first birth (median of first birth interval) among married women aged 15-35 living in the city of Tehran: 2000-2014

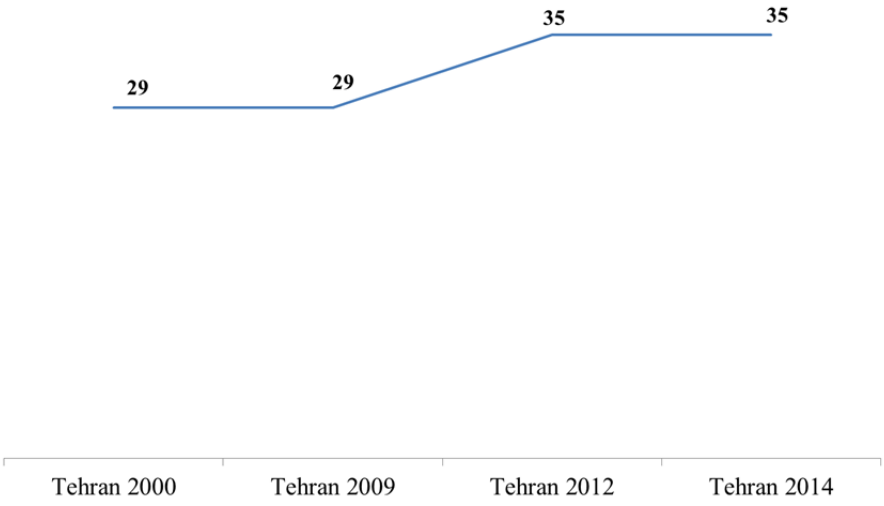

Table 1. Relative risk ratios of experiencing the first birth by selected covariates among married women living in Tehran, Iran: 2014

Covariates	Risk Ratio
Age at first marriage (years)	
< 20 (*ref.*)	1.00
20-22	0.94
23-24	1.16
25+	1.53***
Contraceptive use before pregnancy with the child	
No method (*ref.*)	1.00
Any modern	0.84*
Any traditional	0.75***
Years of schooling at the time of marriage	
< 12 (*ref.*)	1.00
12	0.86*
13+	0.71***
Employment status before pregnancy with the child	
Unemployed (*ref.*)	1.00
Employed	0.71***
Household monthly expenditure (US $)	
Low (less than $270) (*ref.*)	1.00
Middle ($270-$384)	1.09
High (greater than $384)	1.10
Residential District	
Northern districts (*ref.*)	1.00
Central districts	1.07
Southern districts	1.18*

Note: Significance: * ≤ 0.05; ** ≤ 0.01; ***p ≤ 0.001; @ ≤0.10. *(ref)* = reference group.
Source: The 2009 Tehran Survey of Fertility.

References

Allen, Victoria M., R. Douglas Wilson, and Anthony Cheung. 2006. "Pregnancy outcomes after assisted reproductive technology." *Journal of Obstetrics and Gynaecology Canada* 28:220–250.

Collaborative Group on Hormonal Factors in Breast Cancer. 2001. "Familial breast cancer: collaborative reanalysis of individual data from 52 epidemiological studies including 58,208 women with breast cancer and 101,986 women without the disease." *Lancet* 358:1389–1399.

Erfani, Amir. 2014. "Low Fertility Intentions in Tehran, Iran: The Role of Attitudes, Norms, and Perceived Behavioral Control", presented in The 2014 annual meeting of the Population Association of America, Boston, MA, May 1, Session 69: *Fertility Intentions: High and Low Fertility Countries*. http://paa2014.princeton.edu/sessions/69

Erfani, Amir. 2013."Fertility in Tehran City and Iran: Rates, Trends and Differentials," *Population Studies* 1(1): 87-107 [in Persian].

Erfani, Amir. 2011. "Induced Abortion in Tehran, Iran: Estimated rates and Correlates," *International Perspectives on Sexual and Reproductive Health*, 37(3):134–142.

Erfani, Amir and Kevin McQuillan. 2014. "The changing timing of births in Iran: An explanation on the rise and fall in fertility after the 1979 Islamic Revolution," *Biodemography and Social Biology* 60:1–20.

Erfani, Amir and Kevin McQuillan. 2008. "Rapid fertility decline in Iran: Analysis of intermediate variables," *Journal of Biosocial Science*, 40(3): 459-478.

Feeney, Griffith. 1983. "Population dynamics based on birth intervals and parity progression." *Population Studies*, 37(1): 75-89

Goldstein, Joshua R., Tomas Sobotka, and Aiva Jasilioniene. 2009. "The end of lowest-low fertility? *Population and Development Review* 35:663–700.

Kohler, Hans-Peter, Francesco C. Billari, José Antonio Ortega. 2002. The emergence of lowest-low fertility in Europe during the 1990s," *Population Development Review* 28:641–660.

Leridon Henri. 2008. "A new estimate of permanent sterility by age: sterility defined as the inability to conceive. *Population Studies* 62:15–24.

Luke, Barbara, Morton B. Brown. 2007. "Elevated risks of pregnancy complications and adverse outcomes with increasing maternal age." *Human Reproduction* 22:1264–1272.

Miller, Amalia R. 2010. "The effect of motherhood timing on career path." *Journal of Population Economics* 24:1071– 1100.

Mills, Melinda, Ronald R. Rindfuss, Peter McDonald, and Egbert te Velde. 2011. "Why do people postpone parenthood? Reasons and social policy incentives," *Human Reproduction Update*, 17(6): 848–860.

Rindfuss, Ronald R., S. Philip Morgan, and Gray Swicegood. 1988. *First Births in America. Changes in the Timing of Parenthood*. Berkeley, CA: University of California Press.

Sobotka Tomas. 2004b. "Is lowest-low fertility in Europe explained by the postponement of childbearing?" *Population and Development Review* 30:195–220.

Sobotka Tomas. 2004b. *Postponement of childbearing and low ertility in Europe*. Amsterdam: Dutch University Press.