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## Family Change and Continuity in Iran: Birth Control Use Before First Pregnancy

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### Abstract

Using data from the 2002 Iran Fertility Transition Survey, we examined birth control use between marriage and first pregnancy. We focused on the post-1990 increase in birth control use and develop two explanations. The first posits that birth control use reflects a new marriage form, the conjugal marriage, which places a heightened value on the spousal relationship while deemphasizing the centrality of parenthood. A second explanation stresses the use of a new resource, effective birth control, within an Iranian-Islamist view of marriage. Key to this explanation is the role of the state—Iranian political/religious actors encourage early marriage and the use of birth control. Although the explanations could be complementary, evidence provides more support for the latter.

### Keywords

birth control; family change; Iran; Islamic; population policy; pregnancy interval

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Aspects of Iranian family and gender have changed dramatically; examples include the most rapid fertility decline ever observed, from over six births to slightly above two in the 1985 – 2000 period (Abbasi-Shavazi, 2002; Abbasi-Shavazi & McDonald 2006; Aghajanian & Mehryar, 1999), and then to 1.9 in 2006 (Abbasi-Shavazi, McDonald, & Hosseini-Chavoshi, 2009). Also, women's literacy level has increased dramatically (from 36% in 1976 to 80% in 2006), and women who successfully pass university entrance exams now outnumber men (Abdollahyan, 2004). But equally striking is the stability of other traditional patterns. Labor force participation is low for all women and especially if one focuses on those married and with children (Mehryar & Tajdini, 1998). Although age at marriage is rising (Abbasi-Shavazi, Hosseini-Chavoshi, & McDonald, 2007; Bahramitash & Kazemipour, 2006), women still marry relatively young as compared with many other low fertility countries in Southeast Asia

(Jones, 2005, 2007); most women marry eventually, and there is no evidence of voluntary childlessness (Hosseini-Chavoshi, 2007). Finally, consanguinity (marriage with relatives) has remained high (around 40%) over the last four decades (Abbasi-Shavazi, Hosseini-Chavoshi, & McDonald, 2008; Givens & Hirschman, 1994; Saadat, Ansari-Lari, & Farhud, 2004; Torabi, 2006). How can we understand this mixture of family change and stability in the Islamic Republic of Iran, the world's most visible theocracy?

Our empirical focus is on a small component of family and fertility change, the length of the interval between marriage and first pregnancy (or first birth). This focus is not driven by the importance of this change in accounting for the dramatic fertility decline noted above—in this respect the lengthening of the period to first pregnancy is trivial (see Hosseini-Chavoshi, McDonald, & Abbasi-Shavazi, 2006). Rather we concentrated on the first pregnancy interval because of its substantive importance as a possible marker of the changing nature of marriage and gender relations. Alternatively, the changes we documented may reflect an attempt to maintain the status quo in the face of exigencies encouraging marriage and fertility delay.

More generally, we contrasted two broad theoretical interpretations. First, a widely used theoretical model posits a shift in family structure from arranged to companionate marriage driven by industrialization and Western ideology (e.g., Goode, 1963; also see Thornton, 2001, 2005). This fundamental shift in the basis for marriage would, in turn, predict the observed changes in the first pregnancy interval. Alternatively, the changes we documented could reflect a path-dependent attempt to maintain the status quo in the face of exigencies encouraging marriage and fertility delay.

Below we explain our interest in the first birth interval and then develop these two explanations that can account for recent large increases in birth control use between marriage and the first birth. This exercise provides a window into family and gender in contemporary Iran.

## First Birth Interval and the Meaning of Marriage

In the Asian contexts studied by Rindfuss and Morgan (1983) and Wang and Quanhe (1996), there was virtually no birth control use in the first birth interval despite its use at higher parities. Specifically, Rindfuss and Morgan documented shortening first birth intervals (i.e., shorter durations between marriage and first birth) in Taiwan, Malaysia, and South Korea. They considered a range of possible explanations, but they concluded that these shorter first birth intervals resulted from increases in coital frequency early in marriage (and virtually no use of contraception). The more frequent coitus, in turn, reflected a shift in marriage from arranged marriages to ones with substantial input from the partners. Rindfuss and Morgan argued that greater familiarity, initial closeness, and physical attraction associated with “love matches” were conducive to more frequent coitus. This empirical finding has been replicated and its interpretation adopted elsewhere in Asia (see Wang & Quanhe on China). Note that the shortening of the first birth interval as described by Rindfuss and Morgan was still within a view of marriage as primarily a context for parenthood. In short, marriage was postponed in these contexts until the couple was ready to become parents. Contraception was used at subsequent parities to reduce the number of children.

In contrast, and as we show below, birth control use immediately after marriage is becoming common in Iran, especially among the most educated. How do we understand this new phenomenon? Is it best understood as signaling gender and marriage change—an emerging feminist ideology and companionate marriage? Or, in the Iranian context, is birth control allowing for maintenance of an early marriage regime consistent with Iranian-Islamist ideology?

## Conceptualizing Family Change and Stability

We are interested in how Iranian couples and society respond to the contemporary, internationally pervasive exigencies posed by economic development and globalization, that is, a high premium on human capital formation, an expanding range of consumer items, and low economic security and predictability. Two other pervasive contextual components are Western ideas promoting egalitarian marriages and the availability of highly effective birth control. Many studies have applied the life course framework to show how individuals respond to more training or schooling, higher aspirations, and insecurity (see Blossfeld, 2005; Thornton & Lin, 1994). Young men and women do not eschew marriage and parenthood; they postpone it. Cross-nationally, the postponement of parenthood is a common response to these factors.

But how is this postponement realized? Given effective contraception, the logical possibilities include frequent nonmarital unions and relationships but postponement of marriage and childbearing (e.g., Scandinavia, Northern Europe, and the United States; see Bumpass, Sweet, & Cherlin, 1991), abstinence and postponement of both marriage and childbearing (e.g., Southern Europe, much of Asia, and in Iran), or early marriage and birth control within marriage (e.g., an emerging pattern we observe in Iran). Each strategy postpones parenthood and thus facilitates other investments and activities. How do we explain the Iranian proclivity for the latter two, especially the last?

A first explanation, the conjugal or Western marriage argument, has appeal that is based on long-standing theoretical and empirical claims of global convergence in family forms. Specifically, Goode (1963) argued that Western ideologies supporting free mate choice and egalitarianism (Western family schemas or worldviews) were overwhelmingly attractive to non-Western indigenous young people. Further, if accompanied by economic development and nonfamilial employment (that shifted control of key resources to young adults), industrialization allowed the freedom from elders necessary for young people to act on the basis of these new ideologies—to choose one's partner, to marry for love, and to build couple-centered egalitarian relationships. The global march of industrialization and the ideology that accompanied it were powerful agents of family change. Goode argued they would produce a global, isomorphic “conjugal family.”

This conjugal marriage explanation has appeal. It acknowledges the importance of both ideology and material conditions (see Sewell, 1992, 2005). It has grand (geographical and temporal) scope. Plus much empirical change is consistent with it, for example, in Iran fertility has been declining, age at marriage has been rising, free mate choice is becoming more common, and nuclear residence is frequent in urban areas (see Ladier-Fouladi, 2000). And, most to the point for purposes here, birth control use before the first birth is increasing (Hosseini-Chavoshi, 2007). Further, the conjugal marriage legitimates partnerships for companionship and intimacy net of and distinct from parenthood. Thus, increasing birth control use could be viewed as part of a conjugal family (Goode, 1963) or “developmental idealism” (Thornton, 2001, 2005) package.

But also plausible are path-dependent explanations that stress cultural and historical continuity and the importance of historical events. Given the tumultuous history of Iran in the period of study, consideration of these special circumstances seems wise. McDonald (1994) posited that a fundamental structural component of all societies is an *idealized family morality*. Because family structure is central to biological and social replacement (functional prerequisites to group survival), this morality is fundamental to societal and individual identity. Domesticity and motherhood are the core components of Iranian women's traditional family ideology. The lynchpins of this structure are a sharp gendered division of labor and clear gender stratification. Early marriage is seen, probably correctly so, as a key behavior for maintaining both. Consistent

with these claims, only a small percentage of Iranian women worked outside the home after the Revolution in 1986 (approximately 7% of women), twice this percentage were employed prior to the Revolution (Mehryar & Tajdini, 1998). This figure had increased to around 16% by 2006 (Statistical Center of Iran, 2007).

The susceptibility of traditional behavior to change will vary with the availability of new ideologies, institutional support available for the enactment of each, and the actors' assessment of the best course of action. A key factor is the extent to which deviation from the idealized morality is tolerated. In particular, McDonald (1994; also see Abbasi-Shavazi & McDonald, 2007) argued that there is little variation from the idealized family morality in countries where the family system is reinforced by a strong social morality, that is, where "variation from the ideal is deemed to be illegal, antisocial, or contrary to the teachings of the prevailing religion" (MacDonald, p. 20). In such countries, the dominant family ideals are policed by the strong formal institutions of the society, principally the institutions of religion and the state—thus this explanation, too, acknowledges the importance of both ideology and material or institutional supports (see Sewell, 1992, 2005).

## The Iranian Situation

A path-dependent interpretation requires consideration of "facts on the ground." We took the era of the Pahlavi Shah (the 1960s and 1970s) as a point of departure. The Shah attempted to westernize Iran using all the resources of the state (including money from the country's oil reserves). Aghajanian (1991, p. 709) noted that in the decade prior to the Revolution (1976 – 1986), the government had two policy approaches aimed at family and gender, one aimed at "enhancing the legal and social status of women and increasing their participation in the social and economic domains outside the household." The second policy aim was to lower fertility by making contraception widely available. Fertility was indeed declining during this decade, although the role of family planning efforts is in dispute (Raftery, Lewis, & Aghajanian 1995).

By the end of the 1970s, many Iranians considered their country wealthy but that they themselves were not sharing the fruits of that wealth. This frustration coupled with the insensitivity of the Shah's modernization campaign to religious and cultural values led to a regime change through popular revolution, the only example of such change in the Middle East in the past 40 years. The strong and viable alternative at the time was an Islamic Republic. Iran became a state with a new constitution that required all legislation passed by parliament to be reviewed by a Guardianship Council. The Council, consisting of leading Muslim clerics, evaluates proposed legislation for consistency with shari'a law and the Republic's constitution. Reform in the new republic was focused upon the application of a conservative social and religious regime and upon the realignment of foreign relationships.

Wright (2000), in the *Last Great Revolution*, described the Republic's early years as tumultuous and focused on the rejection of nearly everything Western. Appropriate Islamic public dress and appearance were codified and these rules strictly enforced, gender segregation was pervasive in public places, and domestic roles of women were glorified. Early marriage and motherhood were encouraged. Legal marriage ages were lowered to 13 and 15 (from 15 and 18) for women and men, respectively. Family planning was labeled an imperialist plot to reduce the number of Muslims (Hoodfar, 2008; Hoodfar & Assadpour, 2000). Many family planning clinics were closed and clinic personnel transferred to other jobs (Aghajanian, 1991, p. 712). Fertility increased after the Revolution because of these changes and other pronatalist policies (some possibly traceable to the Iran-Iraq War; see Abbasi-Shavazi, Mehryar, Jones, & McDonald, 2002). In fact, in the decade following the Revolution, Iran had the fastest

population growth rate in the world (nearly 4% per year; see Aghajanian; Mirzaie, 2005), driven primarily by total fertility rates of more than six births per woman.

By the late 1980s the excesses of the Revolution were colliding with the realities of governing an oil-rich country of nearly 60 million people (see Wright, 2000, pp. 160 – 165). The year 1986 constituted something of a watershed in the demographic history of Iran. In that year, the oil price plummeted greatly, reducing the revenues of the government, the war with Iraq was in its sixth year with no sign of resolution, and the Islamic Republic's first census revealed the massive growth of population and the high fertility rates that characterized the first years of the revolution. For 6 years the populace had experienced unmet economic aspirations now coupled with falling oil prices and a broad sense that worsening circumstances were likely. For a country struggling to find work for its burgeoning number of young people, the future challenge seemed immense. Over the next few years, a series of meetings was held in this crisis environment. These led eventually to the reinstatement of the national family planning program and its support by Iran's religious leaders, including the supreme leader, Ayatollah Khomeini.

Hoodfar and Assadpour (2000; also see Abbasi-Shavazi et al., 2002) described how policy makers and intellectuals lobbied religious leaders on the “population crisis.” But before religious leaders could embrace family planning they needed to reinterpret it, not as they had previously as a tool of Western imperialism but as inherently Islamic:

The religious authorities saw as their first and primary task to dispel the myth that the population debate originated in modern Western society. Reviewing debates on the permissibility of fertility control and sponsoring research and republication of medieval Islamic works on population and contraception, they established that concern about population had preoccupied Muslim scholars long before it was discussed in the West. Thus, the authorities were able to celebrate Iran's Islamic heritage, to promote family planning, and to reinforce their independence from the West. (Hoodfar & Assadpour, 2000, p. 28)

Once reinterpreted as Islamic, major clerics endorsed family planning. In fact, having only the children that one can care for is now interpreted consistently as an obligation of good Muslim mothers and fathers. Religious leaders took an active role in relaying the message. Government-funded family planning clinics quickly reemerged. Analogous to China's “barefoot doctors,” thousands of women from around the country were recruited and were lightly trained as medical professionals (Mehryar & Ahmad-Nia, 2005; Shadpour, 1994). Afterward they returned to home villages with the message and materials needed for effective family planning. The result of all of these changes was the dramatic decline in the total fertility rate from around 7 in 1980 to 1.9 in 2006 (see Abbasi-Shavazi, 2002; Abbasi-Shavazi et al., 2009).

Postrevolutionary gender liberalization has been far more uneven. On the one hand, highly visible reforms included such changes as separation of the sexes in schools and public places and the enforcement of a strict dress code. The Islamic view is that women are different from, but not inferior to, men. Nevertheless male/female differences (in reproduction and parenthood) necessitate different rights and obligations. Thus a gendered division of labor and gender stratification remain fundamental pillars of gendered behavior in contemporary Iran. Using Aghajanian's (1991, p. 712) understated description:

[T]he roles and status of women were more narrowly circumscribed in the context of the new Islamic Republic. Religious and political leaders suggested that the dignity of women would be best attained if they were restored to domestic areas and to raising generations of good Muslims. Legal and social changes were introduced and enforced to perpetuate the traditional role of women and to remove all influences deriving from policies of Westernization.

On the other hand and contrary to Western stereotypes, an egalitarian spirit prevailed in the streets during the period of the revolution. Men and women alike joined in the demonstrations, marches, and strikes that culminated in the Islamic Republic of Iran. This visible participation of women presented a new image of females, and women themselves recognized their strength in numbers (Touba, 1985, p. 131). More concretely, the egalitarian nature of the revolution extended to women full access to education and health services. Iranian girls and women remain in schools and universities for more years than in the past. University enrollment has shifted in favor of girls. In 1998, 52% of government university admits were girls. This figure increased to 57% in 1999, to 60% in 2000, and to 62% in 2001 (Abdollahyan, 2004).

The state's willingness to tolerate some change in order to maintain early marriage is illustrated by contemporary marriage requirements and incentives. For instance, beginning in the early 1990s, before couples could obtain a marriage certificate they were required to attend a family counseling class. These classes provide explicit information about human reproduction and about specific methods of birth control. Couples are encouraged to plan both the timing and number of their births. In addition, engaged couples are provided with a “starter sample” of a recommended birth control method. This policy encourages marriage while providing couples with knowledge and techniques to postpone births.

The government also provided direct incentives to marry and targeted the more educated women. Various government organizations (e.g., the Youth Organization) have indicated the importance of providing incentives, including financial support for young men and women to marry. The Office of Supreme Leader at universities across Iran have initiated programs that encourage students (men and women) in their universities to marry. For instance, in recent years the Office of Supreme Leader organized public ceremonies on religious occasions to acknowledge students who married other student in the university. The couples were presented with gold coins (worth approximately US\$200) by the government, and other community donors provided basic amenities to the couples, items such as a refrigerator, carpet, and so forth. Similar initiatives have been introduced in other Middle Eastern countries, but the impacts of such programs are in dispute (Rashad, Osman, & Roudi-Fahimi, 2005).

Thus in the Iranian context, it is reasonable to interpret increasing birth control use after marriage as a response to existing exigencies and new resources and not as reflecting Western-style change in the nature of Iranian marriage.

## Tests of Competing Claims

Which explanation is correct: the conjugal or path-dependent (Iranian-Islamist) marriage argument? Of course, the answer need not be “either-or.” Both explanations above could be partly valid and could operate simultaneously. But we seek to assess the dominant process in the analyses that follow. Specifically, our data allow for a key test involving women's education and aspects of the conjugal “marriage package,” that is, egalitarian views, freedom of movement, and so forth. Consistent with the conjugal marriage interpretation, it is plausible that education signals exposure to new ideas (world-views or schemas), including those supportive of conjugal marriage and egalitarian marital relations. In fact, increased education is associated with egalitarian attitudes in the West (Mason, Czajka, & Arber, 1976) and, according to recent survey data, in Iran (Kurzman, 2008). Further, education is associated with more liberal attitudes and measures of freedom of movement that are available in the data we use here (items discussed later in this paper). Thus, education effects could reflect an emerging feminist ideology (i.e., a new schema) supportive of conjugal marriage; these ideas and greater freedom of movement could then be the more proximate cause of birth control use. This explanation predicts that education effects will be sharply attenuated or eliminated once

egalitarian indicators, measuring new marriage schemas, are included in the multivariate model.

Alternatively, in the competing perspective, the more educated may use birth control to sustain early marriage or, more precisely, to marry in accordance with traditional Islamic schema while still postponing parenthood. Thus, in our multivariate analyses, this interpretation will be supported if education effects remain strong in the face of statistical controls on gender ideology and freedom of movement. This direct education effect indicates that the costs of early marriage are reduced if marriage does not imply immediate parenthood. Postponement of parenthood allows the couple and their families more time to establish an economic basis for marriage, including the completion of schooling, obtaining a job, and establishing a residence. Each of these goals is more demanding and time-consuming for higher status, more educated couples. Further, delayed parenthood allows the couple to mature so that they will be more ready to become good parents. Note that none of these arguments implies greater gender equality, lessened gender stratification, or a conjugal marriage ideology.

## Method

### Data: The 2002 Iran Fertility Transition Survey

In April and May of 2002 The Iran Fertility Transition Survey (IFTS) team reinterviewed 5,190 women aged 15 – 49 who had been first interviewed as part of the 2000 Iran Demographic and Health Survey (IDHS). The IFTS questionnaire included approximately 100 questions on various demographic and socioeconomic characteristics as well as attitudes of women regarding childbearing, marriage, women's employment, and gender equity within and outside the family.

The IFTS reinterview selected 50% of IDHS respondents in four provinces (Sistan & Baluchistan, West Azarbaijan, Gilan, and Yazd). This sample included approximately equal numbers of urban and rural respondents in each of the provinces. The sample is not representative of Iran but does reflect Iran's diversity. First, these provinces have displayed very different fertility levels during the period 1972 – 1996. A comparison of fertility levels of all provinces with the national average revealed that Sistan & Baluchistan and West Azarbaijan had higher fertility as compared to the total population, whereas Gilan and Yazd displayed considerably lower fertility than the national level (Abbasi-Shavazi & McDonald, 2006). Second, socioeconomic characteristics such as literacy, employment, and access to electricity and safe water vary markedly across these provinces. Sistan & Baluchistan province (located in the southeastern part of Iran and sharing borders with Afghanistan and Pakistan) stands out with the lowest level of socioeconomic development, whereas Gilan and Yazd approach the highest levels of socioeconomic development in the country (Abbasi-Shavazi, McDonald, & Hosseini-Chavoshi, 2003, pp. 3 – 4).

The interviewers were selected from among Health Officers (*behvarz*) who have been working in Health Houses (*khanah-e Behdasht*) for several years. Most of these interviewers had participated in the IDHS data collection and had accurate knowledge of the households and respondents (particularly in rural areas). The interviewers were trained by the first and third authors at workshops held in each province. Field supervisors from the Iran Ministry of Health were present in the field at the time of data collection to supervise the interviewer teams and to check data accuracy. Analyses of these data and comparisons with the IDHS and other sources indicate that data analyzed here are of high quality (see Abbasi-Shavazi et al., 2008).

## Results

### Testing Explanations for Birth Control Use in the First Pregnancy Interval

Table 1 shows the proportion in each marriage cohort using birth control. This proportion increases from 3.4% for the first cohort to over 20% for the most recent cohort. A more recent survey, the 2005 Iran Low Fertility Survey, focused on a different set of provinces (those with the lowest levels of fertility). These data suggest a continuation of marriage cohort trends toward greater birth control use early in marriage, with levels surpassing 42% in Tehran city (Hosseini-Chavoshi, 2007, p. 135).

Earlier we developed two competing explanations for birth control use in the first pregnancy interval. The first stressed a goal of postponing motherhood to allow the couple time to develop a close emotional attachment. Such an interpretation suggests a new marriage form in the Iranian context, the *conjugal marriage*. The second explanation posits that birth control use might emerge because it helps maintain the status quo marriage system, *Iranian-Islamist marriage*.

We used variation in birth control use following marriage to assess the usefulness of these explanations. Table 2 shows sample distributions on key variables and percentages using birth control by categories of these key variables. We focused on variation (bivariate associations) in use among recent marriage cohorts, the post-1990 cohorts, but we also present data for all marriage cohorts as well.

The four regions show substantial variation that reflects very different levels of economic development as discussed earlier. There are also striking differences in birth control use by level of woman's education: The most educated are much more likely to be first pregnancy interval users, 34% compared to only 4% for illiterate women. This bivariate association, however, is indeterminate with respect to the competing explanations above, as explained in an earlier section.

Next are two variables reflecting circumstances of marriage that should be linked to the conjugal-early marriage distinction: postnuptial residence and whether the husband is a relative of the wife. Traditionally both postnuptial residence with husband's parents and marriages to a relative were preferred arrangements. Thus, those who live with parents postnuptially or marry a relative are adopting features of the traditional Iranian marriage pattern. If birth control is a feature of a new marriage form (conjugal marriage), then it should be less prevalent among those living with parents postnuptially and among those marrying a relative. The bivariate associations show modest differences in the directions predicted by the conjugal marriage explanation.

Table 2 also shows birth control use by age at marriage, a variable clearly related to the conjugal versus early marriage explanations. First, later marriage is not a preferred pattern and thus could signal a conjugal marriage orientation. Further, later marriage allows more time for persons to become more assertive and to influence more strongly partner choice. These arguments suggest greater birth control use with later age at marriage. In contrast, the absence of such an association or even a negative association would signal that birth control use is "substituting" for later marriage in an innovative strategy to maintain early marriage while postponing motherhood. The bivariate association offers some support for both explanations. Those married very early, before age 18, are least likely to report use in first pregnancy interval. But among the other categories there is no such pattern; in fact the association is weakly negative for those not marrying very early.



The remaining items in Table 2 are both interesting and problematic. They are problematic because they refer to the current period and thus not at the time of marriage. As a result we cannot be certain that those giving more egalitarian answers at the survey were also more egalitarian at marriage. Focusing on recent (post-1990) marriages reduces this concern but does not eliminate it. We also note that associations (and subsequent multivariate results) remain substantively the same if we limit the sample to those married in 1995 or later. But, again, this minimizes the issue without fully resolving it. Finally and fortunately, the most likely bias makes our conclusions cautious; we return to this point below.

We consider these response items, despite the problem above, because they provide measurements central to our arguments. These items measure key characteristics associated with conjugal marriage: egalitarian gender attitudes and autonomy (as measured by freedom of movement). As such these items should be strongly associated with birth control use in the first pregnancy interval if the conjugal marriage argument is most relevant. Note that the items point in this direction but certainly are not as strong as proponents of the conjugal marriage argument might expect. For example, on the item “a woman should not work outside the home,” those who agree and disagree have percentages reporting birth control use of 13.6% and 19.1%, respectively. We also note that these items were selected from a larger battery of items that we show in the Appendix. We selected these items on the basis of face validity, but they reflect associations between birth control use and these sets of items more generally.

### Multivariate Analysis

Proponents of both the conjugal marriage and the Iranian-Islamist marriage arguments can find some support in the Table 2 bivariate associations. We now turn to a set of multivariate results that provide stronger clues to the possible causal relationships and thus to the most useful explanation. Of course, reality is not as simple as our conceptual distinctions nor does reality require that only one explanation be operative. We return to these broader issues in the discussion and conclusion.

Odds ratios in Table 3 are estimated using logistic regression. Birth control use in the first pregnancy interval (*yes* vs. *no*) is the dependent variable. Model 1 provides key results. Controlling on province and a number of other factors, education effects remain very strong; those with at least a high school diploma are over seven times more likely to use birth control than those not literate.

Note that the effects of postnuptial residence and marrying a relative are not statistically significant and are substantively trivial (only the co-residence variable is even in the predicted direction). These associations suggest that education does not operate by reducing postnuptial residence and the likelihood of marrying a relative; rather the education effects are direct. Such direct education effects could reflect pragmatic decisions within the context of the Iranian-Islamist marriage regime. Fertility is postponed to provide an opportunity for the couple to establish a residence, complete schooling, and secure a job for the husband.

The net age at marriage effects in Table 3 show the same pattern as in the bivariate results (see Table 2): Those marrying very early (prior to 18, the omitted category) are least likely to use birth control (evidenced by odds ratios greater than 1.0 for all other age at marriage categories). But differences among those marrying older, the majority of those in the post-1990 marriage cohorts, are negligible and slightly negative. Specifically the odds ratios for the three older age categories do not continue to increase; rather they decline moderately, suggesting a “substitution” of birth control use for later marriage. The Iranian-Islamist marriage argument is consistent with this finding: Early marriage coupled with birth control use (to postpone the first birth) is encouraged. In contrast, we view later marriage as a core component of any conjugal marriage nexus. From this perspective one would expect a strong positive association

between age at marriage and early birth control use: Both are mutually supporting features of the conjugal marriage.

In the subsequent models we explore the role of egalitarian attitudes and reports of freedom of movement (measures of female autonomy). In Model 2, we include the item “a woman should not work outside the home; her duty is housekeeping,” an item with high face validity regarding support or opposition toward a sharp gendered division of labor. Interestingly and importantly, this item has no net effect on birth control use. We obtain the same result if we substitute the other item on egalitarian gender relations from Table 2. As noted above, there is a larger set of items available in this data set. We have tried all seven items in turn and only one, an item we judge as a problematic measure (see the Appendix, Table A1, Item 4), provides any support for the conjugal marriage explanation. In short, egalitarian gender views are not associated with greater birth control use and thus, we found no evidence that birth control use is part of a new, conjugal marriage form.

The third model in Table 3 includes a measure of freedom of movement, a key component of women's autonomy. As for egalitarian attitudes, we selected the item with the greatest face validity, “can the woman go to a neighboring village alone.” Here we found a positive association, net of other variables: A yes response to this item increases the likelihood of birth control use by a factor of 1.51 (an effect not likely attributable to sampling variability,  $p = .017$ ). Although this evidence supports the conjugal marriage explanation, additional evidence regarding related items weakens it. Specifically, if we substituted the second freedom of movement item from Table 2 we did not find a significant effect. Further, if we substituted, one by one, the set of other freedom of movement items (shown in the appendix), then we did not find another item that was significantly associated with birth control use. In fact, no other item even approached statistical significance (see the appendix, Table A1). Thus, we did not confidently interpret the effect for the item used in Model 3 as strong evidence for the conjugal marriage explanation. We do not yet understand why this single item, apparently similar to others in the battery of items, shows a statistically significant positive effect. Model 4 shows that these interpretations are not altered if both attitude and freedom of movement indicators are included in the model, that is, education effects are not mediated by indicators of a conjugal marriage orientation.

Overall, we found very modest evidence consistent with the conjugal marriage explanation. Instead, key tests support the claim that birth control is being used to reduce the costs of earlier marriage. Caution is warranted because the attitudes are measured at the time of the survey and not at marriage. But the most likely bias would be for attitudes to change over time to conform to behavior. Specifically, using birth control could allow for behaviors that might facilitate more egalitarian ideas, thus producing an association via a causal influence from behavior to attitude. But we found no such association. Thus, to the extent that this bias operates, it makes our findings (of no or weak associations between attitudes and autonomy and birth control use) even more striking.

## Summary and Discussion

We contrasted two explanations for the Iranian increase in birth control use immediately following marriage. The first, the conjugal marriage explanation, posits that this innovative behavior signals the emergence of a new marriage form (the conjugal marriage) characterized by strong emotional bonds between husband and wife, egalitarian values, and a weakened gender division of labor. Globalization and westernization and available Western world-views or schemas (supportive of individualism and self-actualization) drive marriage change in this direction (Goode, 1963; also see Thornton, 2001, 2005).

We found the weight of the evidence examined here supportive of an alternative explanation, an Iranian-Islamic one. This explanation posits an idealized Islamic family morality supported by powerful institutions and personified in Iran by the state-religion nexus. In this arena, the state has focused on encouraging early marriage and provides resources for doing so. As a result, individuals turn to birth control early in marriage to conform to early marriage expectations while postponing parenthood. This explanation posits the new behavior as conservative, maintaining earlier marriage than would be expected without state or religious support. Thus a new behavior, birth control use, can be seen as strengthening and sedimenting the traditional schema because birth control use is interpreted and motivated by the traditional schema. This schema was legitimated by religious leaders' reinterpretation of family planning as fundamentally Islamic (and not as "originating in modern Western society"; Hoodfar & Assadpour 2000, p. 28; Hoodfar, 2008; Mehryar, 2005).

Our results encourage attention to local institutions, local culture, and local constraints in interpreting trends that are found elsewhere, such as in the West or in Asia. Similar behavior does not necessarily imply similar causes or understandings. Increasing birth control use in Iran does not reflect the emergence of the conjugal family, at least not yet. Westernization is sometimes characterized as an unstoppable march. The march, at least partly, advances on the wings of the West's economic and military power. But some also claim its ideology (stressing individualism and self-actualization) is inherently attractive (see Goode, 1963). Sometimes, indigenous cultures are characterized as defenseless in the face of a Western onslaught of ideas, institutions, and products. But, increasingly, researchers, motivated by results such as ours, are recognizing the active role played by societies that interact with (or react to) the West (see literature on birth control use in Africa, e.g., Bledsoe, Hill, D'Alessandro, & Langerock, 1994; Caldwell, Orubuloye, & Caldwell, 1992). Societies with long and rich cultural traditions, like Iran, can adopt and resist selectively. Consider just a few of the changes and initiatives that followed the Islamic Revolution: The veil became compulsory, schools were segregated for boys and girls, and women were discouraged from working outside the home. But there were strong initiatives for universal education and access to health care, and, by 1990, strong support for access to birth control for married women. All of these initiatives are interpreted locally as Islamic.

Contrasts with the United States are instructive. Specifically, let us consider Goldin and Katz's (2000) claims about the introduction of the oral contraceptive, "the pill," in the 1970s. They argued that the pill allowed women to invest in education and careers because it gave women greater control over reproduction without requiring abstinence. With this control, they could confidently invest in their educations and human capital. As a result U.S. women postponed marriage and parenthood. Highly effective contraception allowed an elaboration of the U.S. dating schema to include premarital sex and eventually cohabitation. The prevailing *idealized family morality* in the United States could not forestall these changes because this period was a tumultuous one; many conventions were being challenged. Traditional institutions (religion, the state, the extended family) were weakened in their ability to sanction new behaviors, as increasing equity in the labor force and other nonfamilial institutions provided resources for those contemplating new behaviors (also see Rosenfeld, 2007). Feminist and egalitarian ideologies provided schemas that suggested and supported new behavior.

In contrast, postrevolutionary Iran was gripped by a revolutionary fervor that was channeled toward the establishment of an Islamic state, one consistent with traditional teaching and values (Wright, 2000). The Iranian political-religious regime exercised impressive power to enforce codes of dress and of public behavior; it enforced restrictions on dating and imposed strong sanctions against premarital sex. Segregation of boys and girls and men and women was pervasive. Although some liberalization is evident after 1990, this context remains highly relevant. Given this Iranian social structure, birth control was employed very differently than

in the United States. Women postponed marriage to some extent but proceeded to marry at relatively young ages (Abbasi-Shavazi et al., 2002). They postponed parenthood so they could complete schooling, work for some time, and save or invest for the costs of parenthood. These behaviors were preferred by both families and political-religious leaders. They threatened less the prevailing family morality (than would change legitimating dating and premarital intercourse). Given economic development, increased schooling, and increased material aspirations, parenthood was certainly going to be delayed; birth control use early in marriage offset some of the pressure for marriage postponement.

Our interpretation of these results, our use of the concept of idealized family morality, and the importance we attach to Iranian religion-state support of the early marriage regime all beg the question: Can this early marriage regime be maintained over the coming decade and for the decade that follows? The answer hinges on the same issue raised here for the short run: Are contemporary changes best interpreted as moves toward a Western conjugal model? Or are they better understood as an Islamic Iranian use of new technology? Here we find evidence in favor of the later. But the question we pose about the future signals that we are unsure if this pattern will be sustained over the long run. Clearly demographic change creates “space” or an opportunity for new institutional forms. Davis and van den Oever (1982) argued that demographic change set the stage for the Western feminist movement of the 1960s and 1970s. Likewise the fundamental changes in fertility behavior in Iran have reduced the number of years women spend in childbearing and childrearing (Abbasi-Shavazi et al., 2007). If these demographic changes continue to shrink the importance of childbearing in women's lives, what will fill this space? Denied access to non-familial employment, what will women do with these years? Change will certainly take place (see Askari-Nodoushan & Abbasi-Shavazi, 2009; Azadarmaki & Bahar, 2006); claims that Arab countries will maintain the status quo because of the stranglehold of cultural forces have been discredited (see Rashad, 2000; Yount & Rashad, 2008). But a distinctly Islamic response, as opposed to movement toward a Western model, must be considered as a possible template for future Iranian social change.

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## Appendix: Additional Description and Analysis of Gender Attitudes and Freedom of Movement Indicators Included in Ifts

This appendix provides additional detail on gender attitudes and freedom of movement items discussed in the text. Table A1 shows the descriptive information in Table 2 for the full battery of items in IFTS. The purpose is to allow readers to examine the full set of items.

For the items in Table A1, Table A2 shows results comparable to those in Table 3. To explain, effects in Table A2 come from separate regressions where each specific item replaces, in turn, the one used in Table 3 (i.e., gender item 1 and freedom of movement item 5). Specifically, the first item in panel 1 (“a woman should not work outside the home”) is included in Table 3; the estimated effect is .92. Subsequent rows show the effects of each item if it is substituted for this first item (in the models estimated in Table 3).

**Table A1**

Use of Birth Control Between Marriage and First Pregnancy by Attitude and Freedom of Movement Response Items

Factors	All Marriage Cohorts			Marriage Cohorts 1990+		
	%	N	Missing	%	N	Missing
Attitudes toward women's employment						
1. A woman should not work outside home; her duty is housekeeping						
Conservative	6.5	1,913	10	13.6	517	1
Liberal	10.2	3,054		19.1	1,017	
2. Employed women cannot rear their children very well						
Conservative	7.1	1,847	11	14.6	509	2
Liberal	9.7	3,119		18.4	1,024	
3. Employed women have less children						
Conservative	11.2	1,445	11	18.8	540	
Liberal	7.8	3,521		16.4	994	
4. Women must be employed for financial autonomy						
Conservative	10.5	1,388	10	17.2	509	
Liberal	8.1	3,579		19.2	1,025	
5. Women should not work outside home like men						
Conservative	7.1	2,030	10	13.7	572	1
Liberal	9.9	2,937		19.3	962	
6. Women should work outside home to support family financially						
Conservative	9.0	3,563	10	17.9	1,082	1
Liberal	8.3	1,404		15.5	452	
7. Women should work outside home for social participation						
Conservative	9.0	2,151	19	16.1	692	3
Liberal	8.6	2,807		18.1	840	
Freedom of movement						
1. Going to a health center or doctor's office						
No freedom	6.8	1,937	25	13.2	649	3
Has freedom	9.9	3,015		19.8	883	
2. Going to religious ceremonies						
No freedom	7.6	1,778	72	14.0	641	20
Has freedom	9.4	3,127		19.6	874	
3. Going to relatives' home						
No freedom	7.6	1,888	24	14.3	640	3
Has freedom	9.5	3,065		19.2	892	
4. Going to wedding ceremonies						
No freedom	7.9	2,466	26	14.6	846	3
Has freedom	9.5	2,485		20.1	686	
5. Going to neighboring towns or villages						
No freedom	7.6	3,723	30	14.8	1,209	4

Factors	All Marriage Cohorts			Marriage Cohorts 1990+		
	%	N	Missing	%	N	Missing
Has freedom	11.8	1,224		24.7	322	
Total	8.8	4,907	0	17.2	1,535	0

**Table A2**

Effect of Attitude and Freedom of Movement Items on Use of Birth Control in Model 2 or 3 and Model 4 of Table 3

Attitudes Toward Women's Employment	Model 2		Model 4	
	Odds Ratio	Sig.	Odds Ratio	Sig.
1. A woman should not work outside home; her duty is housekeeping	0.92	0.614	0.93	0.674
2. Employed women cannot rear their children very well	0.84	0.280	0.85	0.312
3. Employed women have less children	1.04	0.815	1.04	0.789
4. Women must be employed for financial autonomy	1.07	0.041	0.75	0.050
5. Women should not work outside home like men	1.07	0.656	1.10	0.534
6. Women should work outside home to support family financially	1.01	0.964	0.99	0.940
7. Women should work outside home for social participation	1.11	0.478	1.12	0.461

  

Freedom of Movement	Model 3		Model 4	
	Odds Ratio	Sig.	Odds Ratio	Sig.
1. Going to a health center or doctor's office	1.06	0.712	1.07	0.676
2. Going to religious ceremonies	1.00	0.997	1.01	0.975
3. Going to relatives' home	1.02	0.920	1.03	0.882
4. Going to wedding ceremonies	1.30	0.084	1.31	0.074
5. Going to neighboring towns or villages	1.52	0.017	1.52	0.016

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**Table 1**

Report of Birth Control Use in First Pregnancy Interval by Marriage Cohort

Marriage Cohort	2002 IFTS	
	Number	%
1971 – 1975	553	3.4
1976 – 1980	789	4.3
1981 – 1985	762	5.3
1986 – 1990	742	8.2
1991 – 1995	755	14.7
1996 – 2000	780	20.3
Missing	526	10.1
Total	4,907	8.8

**Table 2**  
Percent Using Birth Control (After First Marriage but Before First Pregnancy) by Selected Factors (i.e., Bivariate Associations)

Factors	All Women			Marriage Cohorts 1990+		
	% Use	N	Missing	% Use	N	Missing
Province						
Sistan & Baluchistan	5.0	1,232		7.5	347	
West Azarbaijan	6.9	1,326		14.5	421	
Yazd	14.5	1,197		29.6	354	
Gilan	10.8	1,222		20.8	413	
Area of residence						
Rural	6.5	2,499	0	12.7	812	0
Urban	10.8	2,478	0	21.7	723	0
Live in extended family during first 2 years of marriage						
Yes	7.8	3,578	10	15.5	1,070	3
No	11.5	1,389		22.1	462	
Married to relative						
Relative	7.4	2,239		14.6	632	1
Nonrelative	9.7	2,732	6	18.7	902	
Education level						
Illiterate	2.9	1,958	0	4.3	279	0
Primary	5.5	1,584		9.1	504	
Secondary	14.7	782		19.8	391	
Diploma or higher	25.2	653		34.4	361	
By age at marriage						
<18	6.6	2,197		11.3	547	
18 – 19	10.3	922	342	22.9	327	0

Factors	All Women			Marriage Cohorts 1990+		
	% Use	N	Missing	% Use	N	Missing
20 – 22	10.4	880		19.4	338	
23+	14.0	636		18.7	323	
Attitudes toward women's employment						
A woman should not work outside home; her duty is housekeeping						
Conservative	6.5	1,913		13.6	517	1
Liberal	10.2	3,054	10	19.1	1,017	
Employed women cannot rear their children very well						
Conservative	7.1	1,847		14.6	509	
Liberal	9.7	3,119	11	18.4	1,024	2
Freedom of movement						
Going to relatives' home						
No freedom	7.6	1,888		14.3	640	3
Has freedom	*		24	*		
Going to neighboring towns or villages						
No freedom	7.6	3,723		14.8	1,209	
Has freedom	*		30	*		4
Total	11.8	1,224		24.7	322	
	8.8	4,977	0	17.2	1,535	0

\*The percentage using birth control varies significantly (at the .01 level) across these categories, as judged from a chi-square test.

**Table 3**

Effect of Selected Factors on Birth Control Use: Post-1990 Marriage Cohorts

Variable Name	Model 1		Model 2		Model 3		Model 4	
	Odds Ratio	Sig.	Odds Ratio	Sig.	Odds Ratio	Sig.	Odds Ratio	Sig.
Province								
Gilan (ref.)								
Yazd	1.51	0.03	1.51	0.03	1.70	0.007	1.71	0.007
West Azarbaijan	0.87	0.47	0.87	0.47	0.99	0.97	0.99	0.96
Sistan & Baluchistan	0.47	0.00	0.47	0.00	0.48	0.01	0.48	0.01
Education level								
Illiterate (ref.)								
Primary	1.89	0.06	1.91	0.06	1.77	0.09	1.79	0.09
Secondary	3.89	0.00	3.97	0.00	3.62	0.00	3.70	0.00
Diploma or higher	7.39	0.00	7.65	0.00	6.70	0.00	6.91	0.00
Age at marriage								
<18 (ref.)								
18 – 19	1.64	0.01	1.64	0.01	1.67	0.01	1.67	0.01
20 – 22	1.13	0.56	1.13	0.56	1.10	0.64	1.10	0.64
23+	1.18	0.43	1.19	0.42	1.09	0.69	1.10	0.67
Married to relative								
Relative (ref.)								
Nonrelative	0.90	0.50	0.89	0.48	0.90	0.52	0.90	0.51
Postnuptial residence								
Co-residence (ref.)								
Not co-residence	1.08	0.65	1.08	0.64	1.07	0.67	1.07	0.67
Attitude toward "A woman should not work outside home; her duty is housekeeping"								
Conservative (ref.)								
Liberal			0.92	0.61			0.93	0.67
Going to neighboring towns or villages								
No freedom (ref.)								
Freedom of movement					1.52	0.02	1.52	0.02
Constant	0.06	0.00	0.06	0.00	0.05	0.00	0.05	0.00

Variable Name	Model 1		Model 2		Model 3		Model 4	
	Odds Ratio	Sig.	Odds Ratio	Sig.	Odds Ratio	Sig.	Odds Ratio	Sig.
Number included	1,531		1,530		1,527		1,527	
-2 Log likelihood	1,266.6		1,266.2		1,256.9		1,256.8	