Fertility Decline in the Islamic Republic of Iran 1980–2006

A Case Study

May 2010
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→ This report is available on the following website:http://www.worldbank.org/hnppublications.
## List of Acronyms

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<th>Acronym</th>
<th>Description</th>
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<tr>
<td>AFTHE</td>
<td>Health, Nutrition, and Population unit of the Africa region</td>
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<tr>
<td>AFTQK</td>
<td>Africa Operational Quality and Knowledge Services</td>
</tr>
<tr>
<td>DPT</td>
<td>Diphtheria, Pertussis, Tetanus</td>
</tr>
<tr>
<td>EASHH</td>
<td>East Asia HNP Sector Unit</td>
</tr>
<tr>
<td>HDNHE</td>
<td>Human Development Network, Health, Nutrition and Population unit</td>
</tr>
<tr>
<td>HDNVP</td>
<td>Office of the Senior Vice President and Head of Human Development Network</td>
</tr>
<tr>
<td>IEGWB</td>
<td>Independent Evaluation Group, World Bank</td>
</tr>
<tr>
<td>WBIHS</td>
<td>World Bank Institute Health Systems</td>
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Despite its volatile history, the Islamic Republic of Iran has performed well on social indicators, especially in providing basic services such as health care and education. This country of 70 million people has undergone a substantial fertility decline in recent decades. In 1980 Iran’s total fertility rate was 6.58, but by 2006 it had declined to 1.9, with the most rapid decline during the 1990s.

Iran’s fertility decline may have proceeded in two stages, the first beginning in the late 1960s. The Iranian government introduced a family planning program during the 1960s with explicit health and demographic objectives. Between 1967 and 1977, fertility declined—mainly in urban areas—to an average of 4 children per woman. Although the family planning program continued after the 1979 Islamic revolution, it was suspended after war broke out with Iraq in 1980. During the war, the government pursued a pronatalist population policy, including incentives for childbearing.

Following the Iran-Iraq war, high unemployment and concerns about population sustainability prompted the government to pass the 1993 Family Planning Law. Family planning services were incorporated into the existing primary health care system as part of a package of services for maternal and child health. This enabled a rapid increase in family planning services to both rural and urban populations. Contraceptive prevalence rates increased rapidly between 1989 and 1992—from 49 percent to 64 percent—highlighting a significant unmet need. By 2000 contraceptive use had reached 74 percent.

The fertility decline coincided with improvements in primary and secondary education, possibly affecting the rapid decline in adolescent fertility during 1997–2006, especially when compared to other Middle East and North Africa region countries. Adult literacy programs introduced under the government’s development policies also brought education to rural women who had not had access to formal education. Female employment has increased since the 1980s, contributing to delayed childbirth and fertility decline, but remains low at 13.7 percent when compared to other lower-middle income countries.

Today regional disparities in fertility exist with higher fertility in less developed districts. Yet Iran’s example shows how good public policy interventions in health (including family planning) and education can reduce fertility and contribute to human development.
Figure 1 | Map of Iran

Source: World Bank Map Design Unit.
Introduction: Iran’s Fertility Transition

Home to over 70 million people in Central Asia (figure 1), the Islamic Republic of Iran has a rich and sometimes volatile history. Despite recent turbulence—including a decade-long war with Iraq and international sanctions—the country has performed well on social indicators for health and education (annex 1). Iran has recently accomplished a successful fertility transition—from a high total fertility rate of 6.58 in 1980 to a low of 1.9 in 2006—greater than other Middle East and North African countries and on a par with lower middle-income countries worldwide (figure 2).

Iran’s case is unusual because evidence indicates that its fertility decline may have occurred in two stages: starting in the early 1960s, stalled—and possibly reversed—during the late 1970s and early 1980s, then continuing from the late-1980s to the present day. Reasons for this interrupted fertility transition may include the drastic rise in oil revenues in 1973, the Islamic revolution of 1979, and the 1980–88 war with Iraq.

Iran is also on track to meet its child-related Millennium Development Goals by 2015. The country has made substantial progress in reducing infant and child mortality, though low birth weight has increased. The government’s proactive approach to primary health care—with local health workers visiting homes as necessary—has led to a continual decline in the infant mortality rate. In 1974 the infant mortality rate was 120 per 1,000 births, while in 2006 it was 20 per 1,000 births.

Figure 2 | Fertility Trends in Iran, 1965–2006

![Fertility Trends in Iran, 1965–2006](image)

live births in rural areas and 62 in urban centers. By 1990 the overall rate had dropped to 54 per 1,000 and by 2006 was estimated at 30 per 1,000. Neonatal mortality was 19 per 1,000 live births in 2004. On the other hand, incidence of low birth weight increased from 2.9 percent in 1993 to 4.6 percent in 2005, possibly indicating poor quality prenatal care.

Mortality of children under 5 years old also declined, partly because early investments in health systems improved child immunization. Under-5 mortality in 2006 was 35 per 1,000 live births, down from 72 in 1990. Immunizations rose from 32 percent for DPT and 39 percent for measles in 1980 to near-universal coverage by 2005—with 95 percent of children ages 12–23 months immunized for DPT and 94 percent for measles.

Data on maternal mortality show significant variation, ranging from a World Health Organization estimate of 140 per 100,000 live births in 2005 to an estimate using Ministry of Health and Medical Education data of 32 per 100,000 2001–05. Ministry of Health data show a significant decline in maternal mortality from a level of 237 per 100,000 live births in 1974 to 47 per 100,000 live births in the late 1990s to the current levels. But studies also confirm that, despite improvements in the overall maternal mortality ratio, there are inequalities across provinces, with those lagging behind in other development indicators (such as education and infrastructure), also lagging behind in maternal mortality ratios. The worst outcomes are in the Sistan va Baluchestan and Kohkilooye va Boyerahmad provinces. At the district level maternal mortality ratio can vary between zero deaths per 100,000 live births (such as in Tehran) to 174 deaths per 100,000 live births.
Reasons for High Fertility and the First Fertility Decline in Iran

Tradition and social practices created high levels of fertility in Iran, but changes affecting proximate determinants of fertility had begun to influence fertility rates by the end of the 1970s. The war with Iraq delayed or reversed many of these changes in the 1980s.

Proximate Determinants of High Fertility
Iran's traditionally high fertility was supported by early marriage and childbearing. The government’s introduction of family planning services in the 1960s and the rising age of marriage during the 1970s began to lower fertility rates, especially in urban areas.

Marriage
Shaped by early religious practices of Zoroastrianism and later the social philosophy of Islam, Iranian culture has always encouraged early marriage and parenthood. Historically, marriages were arranged by parents or family elders to create and maintain social and political alliances, especially within tribal groups. Children were betrothed at an early age as a sign of goodwill and married when they reached puberty. In modern Iran, bride and groom have direct say in their marriage decision. Marriages to biological relatives remain common, but with regional variations. According to the 2002 Iran Fertility Transition Survey, 78 percent of marriages in the provinces of Sistan and Baluchistan were consanguineous but only 23 percent in Gilan. Two traditional practices, temporary marriage (mut'a) and polygyny, are sanctioned but uncommon, limiting their influence—if any—on overall fertility.

Age at marriage
Because Islam prohibits extramarital sex, any discussion of fertility in Iran focuses on married women. Menarche is viewed as time of transition to adulthood. Once girls reach this biological threshold, they become eligible for marriage, regardless of age. In 1935 the Government of Iran established the legal age for marriage at 15 years for girls and 18 years for boys, but evidence—especially from rural Iran—shows that girls as young as 10 years old were being married into the early 1960s. Reasons for girls’ low age at marriage included poverty (compelling parents to marry off their daughters early), parents’ desire for the bride price (‘Mehr’iah’, typically higher for younger girls), social and political ties, women’s low social status, and religious beliefs.

Female age at marriage had begun to rise by the 1970s. In 1976 the average age at marriage for girls was 19.5 years, lower in rural areas (19.1 years) than in urban (20.2 years). By the early 1980s the government had adopted a pronatalist population policy encouraging early marriages. Scholars maintain that socioeconomic factors and culture have
remained the main forces determining age at marriage in Iran. However, data from the Iran Demographic and Health Survey (2000) show that the upward trend in female mean age at marriage stalled during 1979–84, before climbing sharply between 1986 and 1996. Mean age at marriage for women rose from 19.8 years in 1986 to 23.2 years by 2006, while the mean age at marriage for men rose from a low of 23.6 years in 1986 to 25.6 years by 1996 and has not changed since (figure 3).

**Age at first birth**
Because sexual union is strictly within the realm of marriage in Iran, women’s age at first birth is highly correlated to age at marriage. Traditionally, great cultural pressure to have children early into the marriage made contraception use rare prior to first birth, suggesting that age at first birth would also have been low. Analysis of evidence from the 1988 Fars Population Growth Rate Survey shows that age at first marriage had a moderately significant impact on the risk of first birth for all age cohorts in that province.

**Contraceptive prevalence**
Iran was one of the first developing countries to initiate government-sponsored family planning programs, the first in 1967. Initial efforts—focused on social marketing and providing free services—met with modest success. The 1977 Iran Fertility Survey indicated that 37 percent of eligible couples were using modern contraceptives (50 percent urban and 20 percent rural), mostly provided by the national family planning services. Fertility reflected an urban-rural difference in contraceptive use. Between 1966 and 1976 urban fertility declined from an average of 5.7 children per woman to 4.4, while rural fertility fell only slightly, from 7.2 to 6.6. And fertility in both rural and urban areas began to increase again before the Islamic revolution, perhaps indicating a decline in the quality of the family planning delivery system.

After the 1979 Islamic revolution, family planning programs continued to operate, but the general public and health service providers were confused about the legality of these programs under an Islamic regime. For the first

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**Figure 3 | Rise in Age at Marriage in Iran by Gender, 1966–2006**

![Figure 3](image-url)

*Source: Adapted from Mehryar 2008.*
two years following the revolution, the new government allowed the family planning program to continue, but with restrictions on abortion and sterilization.\textsuperscript{35} IUDs, male condoms, and oral contraceptives were considered acceptable forms of contraception and provided free of charge. Government and religious leaders allowed contraceptives as long as they did not physically harm the woman and both members of the couple agreed on their use.\textsuperscript{36} Sterilization was permitted but no longer free of charge.\textsuperscript{37} Yet during this time a dual decline in supply and demand for family planning services began, driven by uncertainty about the new regime’s policy on contraception.

After the war with Iraq began in 1980, government policies shifted from population control to population expansion, and the family planning program was eventually suspended.\textsuperscript{38} During the war years, the population of Iran grew rapidly, at a rate of 3.9 percent annually.\textsuperscript{39}

**Duration of breastfeeding**

Since the early 1980s the government of Iran has actively promoted breastfeeding as an Islamic value and as a means of safeguarding the health of children. The practice may have helped counter the impact of serious shortages in powdered milk during the war years.\textsuperscript{40} Although the active promotion and use of breastfeeding probably did affect fertility levels, the extent of its impact is unclear. A [1993] study of nearly two thousand married women aged 15 and above in Fars province found that the average duration of breastfeeding was 22.7 months for rural women and 18.7 months for urban women.\textsuperscript{41} Yet a 1994 study using available survey information indicated that, while 60–70 percent of women tended to breastfeed their children for at least a year, only 10 percent did so exclusively.\textsuperscript{42} Because the breastfeeding was not exclusive despite its extended length, the study concluded that the period of amenorrhea had most likely been short.

**Induced abortion**

The process for obtaining a legal abortion in Iran is complicated, and evidence suggests that most induced abortions are carried out secretly and are unsafe.\textsuperscript{43} An estimated 73,000 abortions are performed in Iran annually, about 7.5 abortions per 1,000 women in the 15–49 age group, with significant regional variations.\textsuperscript{44} Although insufficient evidence makes it difficult to estimate abortion’s impact on fertility, some evidence suggests that abortion would increase the birth interval between first and second birth.\textsuperscript{45} A study based on a sample survey of 1,287 ever-married women in the Kohgiluyeh and Bovairahmad province indicates that abortion would impact the birth interval between first and second births but would not significantly affect the interval between the second and third births.\textsuperscript{46}

**Infertility**

A 2004–2005 nationally representative sample survey estimates current primary infertility at 3.4 percent.\textsuperscript{47, 48} This is much lower than the estimated infertility of 8 to 12 percent worldwide.\textsuperscript{49} Historical trends on infertility in Iran are however not available. The scant evidence that exists on impact of exposure to chemicals during Iran’s war years does not show a significant impact on fertility.\textsuperscript{50} Research on the impact of consanguineous marriage on fertility is limited to small samples making it harder to extrapolate its effects at
the country level. Additionally, traditional Iranian social norms that greatly value large families, this may cause some underreporting, but given that the infertile population is a small proportion of the total, it is unlikely that infertility contributed significantly to the fertility trend.

**Socioeconomic Factors Affecting High Fertility**

Socioeconomic factors such as religion and gender roles affect the fertility rate. In Iran, changes in women’s education and workforce participation after the Islamic revolution may have affected long-term fertility trends. Though the government continued to support family planning services immediately after the 1979 Islamic revolution, its response to the Iran-Iraq war was a pronatalist public policy that ended the family planning program and gave families incentives to have more children.

**Religion**

Religious thought has played a key role in shaping the Iranian government’s family planning policies, especially since the Islamic revolution of 1979.

Since Islam does not prohibit use of contraceptives, the government’s family planning program was allowed to continue during the initial months of the post-revolution period. Given their traditionally favorable attitude to contraception, the Iranian clergy initially had no objection to a family planning program that addressed the needs of individual couples who wanted to delay or postpone pregnancy. But they hesitated to support a program explicitly designed to reduce fertility and keep the rate of population growth at a low level. Certain forms of contraception, such as sterilization and abortion (also not explicitly promoted by the pre-revolution family planning program), were discouraged.

**Iran-Iraq War**

When war with Iraq began in 1980, the government began to consider population a comparative advantage. A general belief that, with its vast area and natural resources, the country needed and could afford a much larger population was shared by many Iranian intellectuals and planners. Religious beliefs promoting marriage and childbearing were augmented with public programs that encouraged larger families.

Lasting for almost a decade, the Iran-Iraq war was mainly fought on the battlefield—not until 1985 did cities and towns on both sides of the border begin coming under attack. The greatest causalities were among the soldiers and volunteers mobilized by the Basij organization affiliated with the Guardians of Revolution. Most volunteers came from religious families where the idea of early marriage was taken very seriously, and most were married before volunteering for war. In other cases, boys may have been married early to avoid being drafted into the army.

During the war, the government offered incentives for early marriage and larger families. A new rationing system provided tangible incentives for fertility in separate rations for each newborn: infants were entitled to an adult’s share of subsidized food and other household items. These rations appear to have been a significant incentive for the population expansion of the early 1980s.
Child mortality and the value of children

Insufficient evidence exists on mortality trends during the war; deaths registered by the Civil Registration Organization of Iran are much lower than estimates by the United Nations Population Division. Given the economic value of having an identity card during wartime shortages, households may have refused to report deaths of their members. Although the rationing system encouraged timely registration of births and therefore an improvement in the birth registration system, it may have had the reverse effect on the timely registration of deaths.57

The economic literature on fertility suggests that when the cost of bearing children is low, fertility is high, and vice versa. Iran’s wartime rationing system provided a distorted incentive to have larger families by reducing the cost of bearing children. Though empirical evidence is unavailable, it seems likely that, in the absence of the ration card incentive, Iranian fertility would have continued its decline. But by rationing food and other services on the basis of family size with separate rations for infants, the incentive for larger families may have distorted the fertility trend upwards.57

Education

The link between education and fertility is well-established. Girls who stay in school longer have a higher age at marriage and childbirth. Immediately following the Islamic revolution, the government of Iran had reorganized the education system, included a revision of all curricula. During this reorganization, all education institutions were temporarily closed, with primary schools reopening fairly quickly but universities remaining closed for two years.58 Female higher education also suffered a setback. For example, within months of the revolution, the Ayatollah Khomeini issued a decree dismissing all female judges and barring women from attending from law schools (see box 1 for a chronology of women’s rights before and after the revolution).59 In the absence of educational opportunities, especially for women in urban regions, the incentive to get married was higher. On the other hand, these measures probably had little impact on female enrollment and marriage in rural areas, where families had already been under pressure from the clergy to keep girls from attending the country’s coeducational public schools.60

However, after the reorganization, schools became segregated by gender and free, addressing the socio-economic obstacles posed to rural populations for sending daughters to school.

Female participation in the labor force

Women’s employment is positively associated with lower fertility and higher age at marriage. Economic inequalities before the revolution created availability of cheap female labor, which was in higher demand than male labor.61 Yet, as with most patriarchal social systems, women had little control over their resources. It was among this cadre of women that the revolution found support.62 Women’s labor force participation declined considerably after the Islamic revolution, from 12.9 percent in 1976 to 8.2 percent in 1986.63 This decline was primarily caused by a drastic decline in rural female labor force participation during 1976–86, from nearly 17 percent to 8 percent. Urban female labor participation declined
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more slowly during the same time period, 9 percent to 8.1 percent.\textsuperscript{64}

Although the revolutionary government did not ban women from working, post-revolution labor markets were segmented along gender lines and the labor market for women shrunk: female employment shifted from the private sector to the public sector, mainly in education and health,\textsuperscript{65} affecting rural women’s employment more than urban women’s. And few new opportunities for women kept their workforce participation steady at lower levels. While the government enacted laws to provide support to women in the workplace, including provisions for child care centers and maternity leave, the cost of these measures fell on employers—creating disincentives for private sector employment of women.\textsuperscript{66} In the presence of a shrinking labor market and government incentives for marriage and child bearing, leaving the active labor force may have been a matter of choice and coincided with increasing fertility.\textsuperscript{67}

Box 1 | Gains and Losses for Women’s Rights in Iran, 1910–1982

Iran’s Islamic revolution reversed most of Iran’s previous gains in women’s rights. Within months of the revolution, women’s mobility came under severe scrutiny by the Islamic regime. Women were required to cover themselves from head to toe when in public and were discouraged from work outside the home. Women were barred from practicing law, and secular courts were replaced by religious courts. By late 1982, women’s rights and status had been systematically changed. Their main role in society was to be wives and mothers, in keeping with the pronatalist strategies of the government. Islam was used to justify this more traditional role for women—and to validate various laws under the new regime that subordinated women to men, also eroding their decision making power about fertility and family size.

Policy Timeline: Rights and Reversal

1910 Access to education
1936 Abolition of the veil
1962 Right to vote
1965 Legislation requiring nurseries/childcare at all work places
1967 Family protection law (women gain the right to initiate divorce)
1973 Right to contest for the custody of children
1974 Free abortion on demand
1976 Ban on polygamy and the right to maintenance after divorce
1979 Female students barred from law school (later reversed)
1979 Female judges removed from their posts and secular courts replaced with religious courts (1967 Family protection law repealed)
1982 Diyat laws enacted (women’s evidence unless corroborated by a man is inadmissible; blood money for a woman is half that for a man)
1982 Qissas law enacted (a man who murders a woman can only be punished if his descendants receive blood money from the murdered woman’s relatives)

Source: Afshar 1985; Mahdavi 1983.
Iran’s current fertility decline began in the late 1980s and continued throughout the 1990s and 2000s. During this period, the government reversed its policies on family planning. This was in response to limited resources and the prospect of high unemployment when the large cohort born during the 1980s entered the workforce. As the country recovered from war—and access to primary health care services and basic education improved—fertility began to decline sharply. By 2000, 14 out of 28 provinces in Iran had below replacement fertility levels. At the most recent census (2006), the total fertility rate was below replacement levels nationally (1.9), only 1.8 for urban centers and 2.1 for rural. (See annex 4 for 2006 fertility data.) The main causes of Iran’s declining fertility since 1990 have been: lower adolescent fertility, emphasis on family planning, better primary health care services, access to education, and employment.

Decline in Adolescent Fertility
With free access to basic education in the postwar era, age at marriage began to increase, leading to a decline in adolescent fertility from 1997 to 2006 more rapid than in the Middle East and North Africa region or in other lower middle-income countries (figure 4).

Figure 4  Adolescent Fertility in Iran, the Region, and Lower Middle-Income Countries, 1997–2006

Source: World Development Indicators Online.
Although a significantly higher proportion of young (ages 15–19) girls were married compared to boys during 1956–2006, since 1986 this trend has been declining steadily (figure 5). By 2006, only 17.7 percent of adolescent girls aged 15–19 were reported ever married compared with 3 percent of boys.\footnote{71}

Better birth spacing and timing of births also helped reduce fertility as age at marriage rose. For girls who marry at younger ages, fecundity plays a role in the timing of first birth, which may be more delayed than for women marrying at older ages.\footnote{72} Differences in education, empowerment and employment also affect the timing of their second and higher order births.\footnote{73, 74} These socioeconomic changes in women’s lives, along with greater access to family planning services, helped reduce the risk of higher order births in Iran.\footnote{75}

**Family Planning Programs — the Right Mix**

By 1988, it had become apparent that the country would not be able to sustain its wartime rate of population growth (3.9 percent). Within a year, the government of Iran had reintroduced the family planning program, with three objectives:

\begin{itemize}
  \item Delay first pregnancy.
  \item Discourage pregnancy for women under 18 and over 35 years of age.
  \item Limit family size to three children.\footnote{76}
\end{itemize}

The Ministry of Health and Medical Education was given the mandate and resources to provide free family planning services.\footnote{77} And the 1993 Family Planning Law removed previous incentives for high fertility (see annex 5).

**Family planning classes for young couples**

Under the 1993 Family Planning Law, completion of family planning counseling classes is a prerequisite for obtaining a marriage certificate. The classes inform couple of their choices, encourage birth spacing, and provide samples of accepted contraceptives.\footnote{78}

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**Figure 5 | Decline in Adolescent Marriage (Ages 15–19), by Gender, 1956–2006**

![Graph showing decline in adolescent marriage rates, with data points for men and women from 1956 to 2006.](image)

*Source: Adapted from Mehryar 2008.*

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**Iran text 6-29-10.indd   10**

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**Education in sexual and reproductive health**

In addition to family planning classes, compulsory population education is included in secondary school and university curricula. Though no thorough impact evaluation of this program exists, available evidence suggests that only some topics are covered and that girls have more knowledge about the subject than boys.

**Contraceptive use**

Highlighting a significant unmet need, contraceptive prevalence rates increased rapidly between 1989 and 1992, from 49 percent to 65 percent for all married women ages 15–49 (74 percent for urban women and 52 percent for rural). By 2000 the overall contraceptive prevalence rate was estimated at 74 percent, 77 percent urban and 67 percent rural.

Contraceptive use is perhaps one of the most important reasons behind the current fertility decline (box 2)—responsible for 61 percent of the decline according to data from the 2000 Demographic Health Survey of Iran. The kinds of contraceptive behavior most responsible for the decline are birth spacing and delayed first birth among younger women and stopping childbearing among older women. These data suggest that the knowledge gained from family planning classes was important in changing childbearing behavior.

**Role of the private sector**

By 1995, 55 percent of women received their contraceptive supplies from public health centers, the remaining from private sector sources—highlighting the growing role of the private sector in Iranian family planning. According to the Third Five-Year Development Plan for Iran, the government is committed to improving public–private partnerships for health care, such as transferring management to private health care providers and engaging their services for support functions (from laboratory services to facilities maintenance).

But little concrete information is available on the extent of the private sector’s role in family planning and maternal health services.

**Regional variations**

Despite an overall convergence in contraceptive prevalence rates (figure 6), there are still wide provincial differences (annex 2). For example, data from the 2000 demographic health survey show that border provinces have higher fertility than others.

A number of factors could account for regional variation in contraceptive prevalence rates. One possibility is that socio-cultural differences may be responsible for the differences—but current data tend to contradict this explanation. Sistan-Baluchistan and Hormozgan both have sizeable Sunni Muslim populations that may have been less receptive to the Shiite leadership’s stance on family planning. But Kurdistan, with a majority Sunni population, has the highest rate of modern contraceptive use (69.7 percent) of all 29 provinces covered by the demographic health survey. It is also one of the 13 provinces where rural women use modern contraceptives at a higher rate (71.4 percent) than their urban counterparts (68.7 percent). Indeed, Kurdistan province had one of the lowest total fertility rates in Iran by 2006. In Qom province, predominantly Shiite and with Iran’s highest urbanization and literacy rates, use of modern contraceptives has been considerably lower (45.6 percent) and fertility higher than in Kurdistan.
Another possible explanation is that variations in the level of provincial development are responsible for variations in the contraceptive prevalence and total fertility rates. For example, in Sistan-Baluchestan (Iran’s least-developed province bordering Pakistan and Afghanistan) the contraceptive prevalence rate is below 50 percent and in Hormozgan (an underdeveloped southeastern province bordering Sistan-Baluchestan) it is below 60 percent. A third possibility is that differences in the quality of family planning services may account for at least part of regional variation. Further analysis is required for complete understanding of the causes of regional variations in fertility and contraceptive use.

Investment in Primary Health Care: Expanded Access to Maternal and Child Services

Iran’s good primary health care network has facilitated the spread of family planning services. After the revolution, the government focused on three policy areas: education, provision of basic foodstuffs, and access to basic health care. Several early-1970s pilot projects to provide health care to rural areas later became the basis of an extensive primary health care network centered on “health houses” serving a central and several surrounding villages in rural areas and “health centers” in urban areas.

By 1991 Iran had nearly 12,000 health houses and 4,000 health centers. For a majority of the rural population, the health house is the only available health care facility. Access to primary health care services has improved dramatically since the 1980s, reaching 95 percent of the rural population by 2002. And a majority of the country’s population has health insurance, which includes antenatal and postnatal care. When family planning was reintroduced in 1989, it was integrated into the existing primary health care network as part of the package of services for maternal and child health, enabling a rapid increase in family planning services for both rural and urban populations.

In rural areas all health houses are staffed by two “behvarzan,” or health workers: local people, generally a man and a woman, who have undergone two years of training. Female behvarzan are responsible for maternal and child care, and male behvarzan are trained in environmental health. These basic health services are provided free of charge, including immunizations and family planning services. The behvarzan also conduct a yearly census.

**Box 2 | Contraceptive Use in Iran: A Mix of Methods**

Modern methods were introduced in Iran in the 1960s, when the government allowed imports of oral contraceptives. Early efforts focused mainly on providing oral contraceptives, which may have slowed the program’s growth by limiting options available. Traditional contraceptive methods had been used in Iran for centuries and may also have contributed to fertility decline in the 1970s, especially in urban areas. However, as early as 1989, data show a growing preference for modern contraceptive methods, which have steadily replaced traditional methods (see figures).

By 1992, traditional methods accounted for only one-third of the contraceptive prevalence rate. Despite their initial popularity, these methods have been steadily replaced by modern methods of contraception (see table).

While oral contraceptives remain the most popular contraceptive method, female sterilization has gained steady acceptance and popularity, especially among women ages 33–34 from more religiously conservative provinces and with an average of five children. These women appear to use sterilization as a last resort when they have achieved their desired family size. They also may be responding to the family planning program, which encourages women to stop childbearing after the age of 35. Still unclear is whether these women had used any other form of contraceptive before sterilization.

*Source: Aghajanian 1998; Mehryar 2001; World Bank 2007.*
of the villages under their charge—a system that has improved collection and updating of vital statistics in Iran, including data on maternal mortality (box 3).

**Health care for women**

Because of these efforts, primary health care has significantly improved in rural areas. Child immunization has remained high throughout the past two decades—currently 99 percent for measles, DPT, and Hepatitis B. And a majority of births (89.6 percent) are attended by skilled birth personnel, with some rural–urban differences.

The presence of female behvarzan at the health houses ensures that women have access to health care, including family planning services. Yet gaps remain in the delivery of reproductive health care. Health houses, the first point of contact, are not equipped to provide obstetrics and gynecological services. Nor can they perform pap smears or place IUDs. Women must be referred to rural health centers for these services. Moreover, the female behvarz is not trained as a midwife, and pregnant women are referred to health centers for checkups.

In urban areas, however, health posts can perform these functions. The main problem in urban areas seems to be that residents often choose higher cost private health care providers because of perceived differences in the quality of public and private sector care. While there have been no large-scale studies on the quality of care, one study of 25 urban health care clinics in western Iran found large variations in the performance of health care workers. The study found that health workers with a bachelor’s degree or higher performed worse on recording med-

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**Box 3 | Registration of Vital Statistics**

Iran has one of the better vital registry systems in the developing world, first established in 1920. The rationing system during the Iran-Iraq war that awarded extra adult rations for each infant further helped to improve the timely registration of births because an identity card was needed to prove the birth of a child. Today, health houses collect annual census information for all villages under their charge, facilitating registration of vital statistics for rural areas. The behvarzan at each health house are responsible for collecting data on demographic, health, and education indicators such as age, sex, literacy level, and health status of each individual within a household. Information on pregnancies and major illnesses is also recorded, along with the type of treatment provided. Though detailed logbooks are kept, this information is also summarized in an easy-to-read “vital horoscope” for future reference.

Over the past few decades the Ministry of Health and the Civil Registration Organization (CRO) have developed dual registration systems to ensure accurate recording, resulting in detailed information on cause-specific mortality rates for most of the provinces. These data suggest that Iran has reached an advanced stage of health transition, with the majority of deaths being due to accidents, heart diseases, and cancers.

Yet the World Bank’s 2007 Health Sector Review of Iran points to important gaps in information about urban centers, where better coordination with private health providers could improve the flow of information into the health management information system. Moreover, the system would benefit from more data on the quality of health services provided.

tical histories and counseling thoroughly on family planning services. But the authors concede that their study has limitations. A better understanding of this phenomenon requires more in-depth analysis of both demand and supply issues. Continuity of care is also a problem in urban health posts, as individual patients do not have named physicians, often leading to duplication of work and investigation. There is no guarantee that pregnant women will see the same health care provider, obstetrician, or gynecologist for each antenatal visit, or that the same provider or doctor will be available at birth or follow up.

Though data suggest that 97 percent of births are attended by skilled birth attendants, wide variations exist across provinces in the maternal mortality ratios (0 to 174 per 100,000 women), suggesting that quality of care may be a problem. The increasing incidence of low birth weight may also indicate poor-quality perinatal care.

One thing is certain: Iran has moved beyond first generation health care issues to second generation problems that must be addressed to maintain the country’s advances in health care. The World Bank’s 2007 health sector review for Iran calls for improvements in the quality of services and monitoring. In addition, ensuring that the continuum of care for maternal and reproductive health is strengthened at each level and across the country would be important to ensure survival of both mother and child.

**HIV/AIDS**

Current (2007) HIV prevalence is only 0.2 percent, suggesting that it does not influence fertility trends in Iran. But a recent study underscores the potential spread of sexually transmitted infections—including HIV—because of poor knowledge on the subject among young men.

**Investment in Education – A Key Factor in Declining Fertility**

The constitution of Iran guarantees every citizen the right to an education. After the revolution of 1979, the education system went through a period of change, resulting in segregated schools for girls and boys, and an “Islamized” curricula. In practice these changes eased restrictions on girls’ basic education, especially in rural and conservative communities. Enrolment levels at the primary and secondary schools are now high, but tertiary enrolment is lagging.

**The literacy movement**

As part of its efforts to educate the entire nation, the post-revolution government also reintroduced adult literacy programs. The main beneficiaries were rural women who had not been able to access formal education. Although it is not clear how improved education affected daily life on a large scale, some qualitative evidence suggests that women felt more empowered. According to one study, “increased literacy has contributed to women’s confidence and has increased women’s perceptions that they have options in many aspects of their lives, particularly women in rural areas who have been much more constrained by traditional social norms.” These women stated interest in becoming teachers and nurses or in joining politics—options that such women had not considered viable prior to their education.
Levels of education

Higher education is generally associated with lower levels of fertility because it affects the age at marriage and age at first birth. The longer girls stay in school, the higher their age at marriage and consequently age at first birth. Fertility is further affected by women’s access to job markets—for which access to secondary education is critical. In Iran the husband’s education is perhaps equally important—if not more so—as a determinant of women’s fertility. A 1993 study revealed that women whose husbands had secondary or higher levels of education were more likely to have fewer children than women whose husbands had primary or lesser education.\(^{115}\) Data from the 2000 demographic health survey also indicates the importance of husband’s education on fertility: among rural women, those with more educated husbands are less likely to have third and higher order births.\(^{116}\)

Education for both men and women—at least up to the secondary level—may in part be responsible for the sharp decline in adolescent fertility rates from 1997 to 2005—and consequently the decline in overall fertility. But in the absence of reliable data on dropout and completion rates at the secondary level, or on

Table 1 | Education Indicators for Iran, 2000–06

<table>
<thead>
<tr>
<th>Indicator/year</th>
<th>2000</th>
<th>2003</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expected years of schooling</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>11</td>
<td>11</td>
<td>13</td>
<td>–</td>
</tr>
<tr>
<td>Male</td>
<td>12</td>
<td>12</td>
<td>13</td>
<td>–</td>
</tr>
<tr>
<td><strong>Primary education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School enrollment (% gross)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>92</td>
<td>91</td>
<td>123</td>
<td>132</td>
</tr>
<tr>
<td>Male</td>
<td>96</td>
<td>94</td>
<td>101</td>
<td>104</td>
</tr>
<tr>
<td>Persistence to grade 5 (% of cohort)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>97</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Male</td>
<td>98</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td><strong>Secondary education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Progression to secondary school (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>90</td>
<td>100</td>
<td>83</td>
<td>–</td>
</tr>
<tr>
<td>Male</td>
<td>90</td>
<td>98</td>
<td>93</td>
<td>–</td>
</tr>
<tr>
<td>School enrollment (% gross)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>76</td>
<td>77</td>
<td>78</td>
<td>–</td>
</tr>
<tr>
<td>Male</td>
<td>81</td>
<td>81</td>
<td>83</td>
<td>–</td>
</tr>
<tr>
<td><strong>Tertiary education</strong></td>
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<tr>
<td>School enrollment (% gross)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>18</td>
<td>21</td>
<td>25</td>
<td>28</td>
</tr>
<tr>
<td>Male</td>
<td>20</td>
<td>20</td>
<td>23</td>
<td>25</td>
</tr>
</tbody>
</table>

*Source: World Development Indicators Online.*
adolescent fertility before 1997, it is difficult to assess the true impact of education on Iran’s declining total fertility rate. By 2007 both male and female enrollments—especially at the primary and secondary levels—were high, with an average of 13 years of schooling (table 1).

Enrollment falls sharply at the tertiary level for both women and men, with levels of university enrolment marginally higher for girls than boys. Given the limited opportunities for white collar jobs in Iran and the high grade requirements for university admission, most secondary school male students are tracked into technical and vocational education. How this will affect future fertility remains to be seen. In recent years, gender-based quotas have been imposed in some regions to encourage greater male participation in university education.

**Economic and Political Conditions – A Paradigm Shift**

According to some analysts, economic and social development during the 1950s and 1960s helped set the stage for the first fertility decline in Iran, which lasted till the late 1970s. This decline in fertility coincided with rising incomes and improvements in primary education, with women with more educated husbands experiencing a greater fertility decline.

At the macro level, the second fertility decline in Iran, which began after the end of the Iran-Iraq war, was prompted by two main factors: unemployment and constrained economic growth. Immediately after the war, the government of Iran embarked on a massive infrastructure improvement program that may have absorbed some of the labor force. But by 1992 unemployment was beginning to increase. Economic conditions played a key role in convincing government of the need for family planning. During the war years, Iran’s economy contracted at a rate of 1.3 percent per year, while population growth rate was 3.9 percent per annum. By the end of the war in 1988, majority of the population was under 14 years of age. Figure 7 shows that prior to 1993, youth age dependency ratio remained at 90 percent. Of concern was the potential of further increase in unemployment as this age group would move into the working age group over the next decade. Without rapid economic growth, levels of unemployment were likely to rise leading to poverty. These considerations encouraged the government to ease restrictions on family planning and begin a proactive population control campaign with passage of the 1993 Family Planning Law.

**Age structure of the population**

One of the key population dynamics of interest to economists is the population dependency ratio. A lower dependency ratio allows for greater productivity and savings and is achieved when fertility declines from higher levels to replacement or near replacement level. However, when there are limited resources, poor-quality institutions, or macro-economic instability, the benefits of increased savings and productivity—the demographic dividend—cannot be realized. Since Iran had a high dependency ratio at the end of the war in 1988, one option available to the government to encourage economic growth, was to bring the fertility rate down, which would lower the dependency ratio over the long term. With lower dependency ratios, households would in theory be able to save more, leading to greater investment and productivity and consequently spur economic growth.
Age dependency ratios in Iran began declining rapidly in 1992 (figure 7). By 2006 the child dependency ratio was 36 percent, the old age dependency ratio 7.4 percent. As old age dependency has remained under 10 percent for the past four decades, the main driving force in the changing population dependency ratio was the youth dependency ratio.

Coming out of the Iran-Iraq war, Iran had a large population of youth under 15 years old. By 2006 this group had joined—and expanded—the working-age population (figure 8; see annex 3 for age distributions 1966–2006). Though Iran is now undergoing a transition to lower fertility, its population size will keep increasing over the next few decades because of population momentum. Whether the country can realize demographic dividends will depend on its economic policies and the level of access to labor markets for women.

**Employment**

Unemployment levels have been very high in Iran—an indicator of a significant dependency burden. By 1996 only 32 percent of the working-age population (ages 10 and above) was gainfully employed and (b) only 35 percent of the total population was economically active (table 2). Between 1986 and 1996 female employment increased, reaching 13.7 percent by 2000. Though low by international standards, this represents a significant increase in female labor force participation since the 1980s. Some data indicate that female labor force participation dropped between 2000 and 2006 for reasons unclear. But World Bank
data shows a rising trend in female employment. In 2007 the employment-to-population ratio was 47.8 percent, with a youth employment ratio of 34.8—of which the female share was only 23.7 percent (figure 9). Overall female employment was 26.9 percent, compared with 68 percent for males. Most of the gains in female employment have been driven by the increasing number of female youth (ages 15–24) gaining employment.

High unemployment—though stable—continues to be a problem for the Iranian economy. Unemployment is higher among white collar jobseekers, especially women: 50 percent of female university graduates and 10 percent of male university graduates in 2004 were unable to find jobs. By 2006 the overall unemployment rate was 11.3 percent, with majority of the unemployed in the 15–24 age group. Women form the bulk of

Table 2 | Labor Force Participation by Gender, Ages 10 and Over (1976–2006)

<table>
<thead>
<tr>
<th>Year</th>
<th>Economically active population (%)</th>
<th>Employed population (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>1976</td>
<td>70.8</td>
<td>12.9</td>
</tr>
<tr>
<td>1986</td>
<td>68.4</td>
<td>8.2</td>
</tr>
<tr>
<td>1996</td>
<td>60.8</td>
<td>9.1</td>
</tr>
<tr>
<td>2000</td>
<td>67.8</td>
<td>17.3</td>
</tr>
<tr>
<td>2006</td>
<td>65.6</td>
<td>12.39</td>
</tr>
</tbody>
</table>

Source: Adapted from Mehryar and Aghajanian 2002; Mehryar 2008.
the unemployed, with nearly half of the economically active women being unemployed.\textsuperscript{130} According to one estimate (assuming that the labor force growth rate remains stable at 3 percent), the government would have to create 800,000 additional jobs per year to absorb the unemployed labor force—unlikely in slow economic times.\textsuperscript{131}

Attitudes about women's work continue to be key in determining the roles of men and women in the workplace. For example, in one survey of Iranian men and women,\textsuperscript{132} 69 percent of the respondents stated that in times of job scarcity, men have a greater right to jobs than women. And over 70 percent of men and women respondents agreed with the statement that men make better executives than women.\textsuperscript{133}

How the high levels of unemployed women will affect future fertility in Iran is unclear. Will the fertility decline stall or reverse again? Also unclear is the distribution of unemployment across provinces. Does high female unemployment coincide with higher fertility provinces? Likewise unclear is the extent to which women participate in Iran's significant informal economy, or how that affects fertility. And other socio-cultural aspects of Iran's polity need to be taken into consideration, such as the establishment of quotas on female tertiary education enrollment in some regions\textsuperscript{134} or the work environment for women, which could act as deterrents to the fertility decline.
Conclusion

Did the basic roadmap to lower fertility already exist before the 1979 Islamic revolution? Ideological factors after the revolution may have caused a spike in fertility but also contributed to fertility-lowering factors such as better health and education. The war with Iraq initially encouraged more childbearing but also destroyed resources needed to absorb significant population growth. Once the government removed fertility incentives and actively promoted family planning, fertility declined drastically. Regional disparities in fertility do exist, but further analysis is needed to understand and address these disparities. Iran is an example of good public policy interventions in health (including family planning) and education that have significantly brought down the country’s fertility rate.

Iran’s experience offers lessons for other developing countries seeking to reduce fertility:

**Key stakeholder buy-in**
The Islamic clergy’s acceptance of family planning was essential in getting people to use family planning services. Approximately 90 percent of Iranians are Shiite Muslim, perhaps making it easier for local clergy to adhere to national edicts by the Ayatollah. For family planning policies to succeed in countries with major religious or ethnic divisions, obtaining buy-in from most—if not all—groups will be critical.

**Family planning services**
Scholars and development practitioners agree that, while family planning programs by themselves are not sufficient to bring down the total fertility rate, allowing access to such programs is essential to accelerate a fertility decline.

**Education**
Investment in education—especially higher female education—is linked to lower fertility. Women who are more educated have a higher age at marriage and lower fertility even when they do not actively participate in the labor market. Iran’s experience illustrates that investing in male education is also important in bringing down fertility rates.

**Invest in health care**
Iran’s initial investment in primary health care has led to a decline in infant and child mortality. The extensive network of health houses and centers has successfully reached highly dispersed populations and provided necessary immunizations and health education on topics such as hygiene and sanitation. These efforts have helped to reduce mortality rates—and reduce the desire for higher fertility. The primary health care system in Iran is also an example of a good service delivery system, with both urban and rural outreach. It was the obvious choice as a delivery mechanism for family planning programs that have been successful in achieving overall fertility reduction targets.
References


Dejong J., B. Shepard, F. Roudi-Fahimi, and L. Ashford. 2005. The sexual and repro-


Hashemi, A. 2009. “Family Planning Program Effects in Iran.” Virginia Polytechnic and State University, Blacksburg, VA.


Mehryar, A.H. 2008. “Fifty Years of Demographic Change in Iran: A Graphic Sum-


## Annex 1: Iran at a Glance

<table>
<thead>
<tr>
<th>Series Name</th>
<th>Earliest available between 1980 and 2006</th>
<th>Latest available between 1980 and 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographics</td>
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</tr>
<tr>
<td>Population, total (millions)</td>
<td>39.1 1980</td>
<td>70.1 2006</td>
</tr>
<tr>
<td>Population growth (annual %)</td>
<td>3.5 1980</td>
<td>1.5 2006</td>
</tr>
<tr>
<td>Population ages 0–14 (% of total)</td>
<td>44.7 1980</td>
<td>27.8 2006</td>
</tr>
<tr>
<td>Urban population (% of total)</td>
<td>49.7 1980</td>
<td>67.4 2006</td>
</tr>
<tr>
<td>Fertility rate, total (births per woman)</td>
<td>6.58 1980</td>
<td>1.90 2006</td>
</tr>
<tr>
<td>Adolescent fertility rate (births per 1,000 women ages 15–19)</td>
<td>46.07 1987</td>
<td>21.20 2006</td>
</tr>
<tr>
<td>Life expectancy at birth, female (years)</td>
<td>59.7 1980</td>
<td>72.3 2006</td>
</tr>
<tr>
<td>Mortality rate, infant (per 1,000 live births)</td>
<td>92 1980</td>
<td>30 2006</td>
</tr>
<tr>
<td>Mortality rate, under-5 (per 1,000)</td>
<td>130 1980</td>
<td>34.4 2006</td>
</tr>
<tr>
<td>Maternal mortality ratio (modeled estimate, per 100,000 live births)</td>
<td>140 2005</td>
<td>140 2005</td>
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<tr>
<td>Maternal mortality ratio (national estimate, per 100,000 live births)</td>
<td>37 1996</td>
<td>37 1996</td>
</tr>
<tr>
<td>Economy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GNI per capita, Atlas method (current US$)</td>
<td>2,190 1980</td>
<td>2,960 2006</td>
</tr>
<tr>
<td>GNI per capita, PPP (current international $)</td>
<td>3,410 1980</td>
<td>9,870 2006</td>
</tr>
<tr>
<td>Health</td>
<td></td>
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</tr>
<tr>
<td>Health expenditure, total (% of GDP)</td>
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<td>7.8 2005</td>
</tr>
<tr>
<td>Health expenditure, public (% of GDP)</td>
<td>2.5 2001</td>
<td>4.4 2005</td>
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<tr>
<td>Health expenditure per capita (current US$)</td>
<td>78.0 2001</td>
<td>212.0 2005</td>
</tr>
<tr>
<td>Prevalence of HIV, total (% of population ages 15–49)</td>
<td>0.1 2001</td>
<td>0.2 2007</td>
</tr>
<tr>
<td>Contraceptive prevalence (% of women ages 15–49)</td>
<td>49.0 1989</td>
<td>73.8 2000</td>
</tr>
<tr>
<td>Births attended by skilled health staff (% of total)</td>
<td>86.1 1997</td>
<td>97 2005</td>
</tr>
<tr>
<td>Nurses and midwives (per 1,000 people)</td>
<td>1.60 2005</td>
<td>1.60 2005</td>
</tr>
<tr>
<td>Physicians (per 1,000 people)</td>
<td>0.34 1981</td>
<td>0.89 2005</td>
</tr>
</tbody>
</table>

(continued on next page)
Education

<table>
<thead>
<tr>
<th>Series Name</th>
<th>Earliest available between 1980 and 2006</th>
<th>Latest available between 1980 and 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Literacy rate, adult female (% of females ages 15 and above)</td>
<td>41.0 1986</td>
<td>76.8 2005</td>
</tr>
<tr>
<td>Literacy rate, youth female (% of females ages 15–24)</td>
<td>65.6 1986</td>
<td>96.7 2005</td>
</tr>
<tr>
<td>School enrollment, secondary, female (% gross)</td>
<td>49.0 1991</td>
<td>78.4 2005</td>
</tr>
<tr>
<td>School enrollment, secondary, female (% net)</td>
<td>76.1 2004</td>
<td>75.0 2005</td>
</tr>
<tr>
<td>School enrollment, primary, female (% gross)</td>
<td>103.6 1991</td>
<td>132.2 2006</td>
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<td>School enrollment, primary, female (% net)</td>
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<td>99.9 2005</td>
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<tr>
<td>Primary completion rate, female (% of relevant age group)</td>
<td>76.6 1989</td>
<td>107.8 2006</td>
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Source: World Development Indicators Online database; National Census of Population and Housing 2006
# Annex 2: Contraceptive Use in Iran

## Table A2.1
Proportion of Women Ages 15–49 Years Using a Modern Method of Contraception, by Age Group, Urban-Rural Status, and Province

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**Source:** Demographic and Health Survey for Iran, 2000.
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</table>

Source: Demographic and Health Survey for Iran, 2000.

Figure A3.1 | Age Structure of Iran’s Population, 1966

![Graph showing age structure in 1966]


Figure A3.2 | Age Structure of Iran’s Population, 1976

![Graph showing age structure in 1976]

Figure A3.3 | Age Structure of Iran's Population, 1986


Figure A3.4 | Age Structure of Iran's Population, 1996

Figure A3.5 | Age Structure of Iran’s Population, 2006

Source: National Census of Population and Housing, 2006
Annex 4: Age-Specific Fertility Rates for Iran

Figure A4.1 | Number of Births Registered Annually by the Civil Registration Organization (Left Scale) and Percent Urban (Right Scale)


Figure A4.2 | Total Fertility Rates in Iran, 1956–2006


Note: Total fertility rates are derived from child-woman ratios of the total, urban, and rural population.
Figure A4.3 | Age-Specific Fertility Rates of All Women Ages 10 Years and Over in Iran, 2006


Figure A4.4 | Age-Specific Fertility Rates of Ever-Married Women Ages 10 Years and Over in Iran, 2006

Annex 5: Iran’s Family Planning Law of 1993*

**Article 1.** All privileges envisaged in the law according to the number of children are no more valid regarding the fourth child and more, born one year after enactment of this law. The children born prior to this date would be enjoying the privileges as envisaged by the law.

Note 1. The procedure of using the privileges envisaged in the labor law and approved on November 19th, 1990 by the Council to Identify the Expediencies of the System as well as the social security law approved in 1965 is as follows:
A. Maternity leave for female workers (article 75 of labor law, and approved by the Council to Identify the Expediencies of the System on Nov. 19th, 1990) for the fourth child and more born one year after the approval of this law, will be decided separately and will be paid by the insured according to the tariffs set by social security organization.

**Article 2.** The Ministries of Education; Culture and Higher Education; Health and Medical Education and Islamic Culture and Guidance are entrusted with the task to implement following programs:
A. The Ministry of Education is assigned with the task of effectively incorporating the educational materials regarding population and mother and child health care in the curriculum texts.
B. The Ministry of Culture and Higher Education and the Ministry of Health and Medical Education are entrusted with the task [of including] the subject of population and family planning in all educational curriculums.
C. The Ministry of Islamic Culture and Guidance is called to prepare grounds for active and effective participation of journalists, film makers and other artists related in a way to the Ministry in order to increase the general awareness of people regarding the population and family planning programs.

**Article 3.** The Islamic Republic of Iran Broadcasting (IRIB) is entrusted with the task of producing and broadcasting of direct and indirect programs to increase the general awareness about mother and child health care and population.

**Article 4.** The cost for realization of articles 2 and 3 will be compensated for by reduction in government expenditure through implementation of article one of this law.

End Notes

1 LeBaron and Schultz 2005.
2 For more on the primary health care system see World Bank 2007b; Couper 2004; Abbasi-Shavazi and others 2004; LeBaron and Schultz 2005.
3 World Health Organization Statistical Information System.
4 Movahedi and others 2009.
5 Movahedi and others 2009.
6 World Health Organization Statistical Information System.
7 World Development Indicators database.
8 World Health Organization Statistical Information System; Movahedi and others 2009.
9 Marandi 1996.
10 Movahedi and others 2009.
11 Mehryar and others 2008.
14 Azadarmaki 2005.
15 Abbasi-Shivazi, McDonald, and Hosseini-Chavoshi 2008.
16 Mut’a refers to a fixed term marriage contract. A pre-determined sum of money is given to the wife at the end of the contract. Children born to the couple are considered legitimate offspring and given same status as children born from traditional marriages.
18 Article 1041 of the Iranian Civil Code.
19 Momeni 1972.
20 Momeni 1972.
23 Abbasi-Shavazi, Hosseini-Chavoshi, and McDonald 2007; Tremayne 2006; Aghajanian and Mehryar 1998; Momeni 1972.
24 Abbasi-Shavazi and others 2007.
25 Mehryar and others 2008.
26 Aghajanian 1991; Mansoorian and Rajulton 1993; Mansoorian 1993.
27 The survey was conducted during 1988. Sample size was 2,511 married women ages 15 and above.
28 Mansoorian and Rajulton 1993.
30 Mehryar and others 2001.
31 Mehryar and others 2001.
33 Abbasi-Shavazi and others 2004.
34 Mehryar and others 2001.
36 Mansoorian 1993; Mehryar and others 2001.
37 Mehryar and others 2001.
38 Mehryar and others 2001.
39 Abbasi-Shavazi and others 2002.
40 Mehryar, Amir. 2009. Email correspondence on fertility decline in Iran. Professor
Primary infertility refers to instances where couples have never been able to become pregnant after at least 1 year of unprotected intercourse. Inborn 2003). Ghanei and others 2004. See, for example, Musallam 1986 DONEn for contraceptive use in medieval Islamic societies and Omran 1992DONEn for Islamic teachings on the practice of “azl,” or withdrawal, as a means of family planning.

52 Mehryar, Amir. 2009. Email correspondence on fertility decline in Iran. Professor of Behavioural Sciences & Head, Department of Population and Social Studies (retd.), Institute for Research on Planning and Development, Tehran, Iran, June 6.

53 The Guardians of the Revolution, also known as the Iranian Revolutionary Guards, are a branch of the Iranian military parallel to the regular forces of the army and responsible for national security.

54 According to Tremayne (2006), marriage did not prevent the boys from being drafted.

55 Abbasi-Shavazi and others 2002.

56 Abbasi-Shavazi and others 2002.

57 Mehryar, Amir. 2009. Email correspondence on fertility decline in Iran. Professor of Behavioural Sciences & Head, Department of Population and Social Studies (retd.), Institute for Research on Planning and Development, Tehran, Iran, June 6.

58 Mehryar, Amir. 2009. Email correspondence on fertility decline in Iran. Professor of Behavioural Sciences & Head, Department of Population and Social Studies (retd.), Institute for Research on Planning and Development, Tehran, Iran, June 6.


60 Hoodfar 1996.


63 Mehryar and others 2002.

64 Salehi-Isfahani 2005.


66 Ebadi 2002.

67 Another explanation for at least part of the decline in rural labor force participation provided by Tabatabai and Salehi-Isfahani (2001) is the change in definition of “active” labor force participation between the 1976 and 1986 censuses. It is also likely that younger girls were absorbed into the school system. Before the Islamic revolution, rural girls aged 10–19 years participated in the labor force much more than urban women. This may have accounted for decline in at least the female labor force participation for girls under the age of 14 (primary and lower secondary level of education).

68 Mehryar and Aghajanian 2006.

69 Mehryar and Aghajanian 2006.

70 Earlier data on adolescent fertility is not available.

71 Marriages have been reported in youth ages 10–14 as well, but this constitutes a small proportion of the population. Further study
would be required to understand the nature of these early marriages. According to the 2006 census, 3.4 percent of boys and 5.2 percent of girls ages 10–14 years were currently married.

72 Salehi-Isfahani and Tandon 1999; Erfani and McQuillan 2009.
73 Erfani and McQuillan 2009.
74 Roudi-Fahimi 2002; Abbasi-Shavazi and others 2002.
75 Hashemi 2009; Erfani and McQuillan 2009.
76 Roudi-Fahimi 2002.
77 Abbasi-Shavazi and others 2002.
79 Roudi-Fahimi 2002.
80 Mohammadi and others 2006; Dejong 2005; Moslehuddin and others 2002.
81 Mehryar and others 2001.
82 Erfani and McQuillan (2008a) use Bongards’ age-specific fertility model.
83 Erfani and McQuillan 2008a.
84 Aghajanian 1998.
85 World Bank 2007b.
88 Mehryar and others 2008.
89 The World Bank (2007b) provides a detailed examination of the health sector, including primary health care.
90 Hoodfar and Assadpour 2000.
91 World Bank 2007b; Roudi-Fahimi 2002.
93 Abbasi-Shavazi and others 2004.
94 Roudi-Fahimi 2002.
95 World Bank 2007b.
96 Ebadi 2002.
97 Ebadi 2002.
98 World Health Organization Statistical Information System.
99 LeBaron and Schultz 2005.
100 Couper 2004.
101 World Bank 2007b.
102 Shahidzadeh-Mahani and others 2008.
103 World Bank 2007b.
104 Mehryar and others 2008.
105 Movahedi and others 2009.
106 World Bank 2007b.
107 World Bank 2007b.
108 World Development Indicators, 2007 data.
109 Mohammadi and others 2006.
111 Adult literacy classes were first introduced in Iran during the 1960s.
112 Mehryar and others 2002.
113 Hoodfar 1996, p. 35.
114 Hoodfar 1996.
115 Raferty, Lewis, and Aghajanian 1995.
116 Hashemi 2009.
118 Shavarini 2009.
119 Raferty, Lewis, and Aghajanian 1995.
120 World Bank 2007a.
121 World Bank 2007c.
122 Abbasi-Shavazi and others 2002.
123 The total age dependency ratio is the ratio of the population ages birth to 14 years and ages 65 and over to the working-age population (15–64 years). The old age dependency ratio is the ratio of the population ages 65 years and over to the working-age population. The child or youth dependency ratio is the ratio of the
population ages birth to 14 years to the working-age population.

124 For more on the relationship between economic development and population growth see Coale and Hoover 1958; Bloom and Canning 2006.

125 The Statistical Center of Iran defines “economically active population” as all individuals ages 10 years and over who report having been “employed” or “unemployed but looking for a job” during the week preceding the date of the census or survey.

126 World Development Indicators, 2007 data.

127 World Bank 2007b.
128 World Bank 2007b.
129 World Bank 2007b.
130 World Bank 2007b.
132 World Values Survey. www.worldvalues-survey.com (accessed [April 28, 2009]). Iran’s survey was conducted in 2005 (n=2,652).
133 World Values Survey. www.worldvalues-survey.com (accessed [April 28, 2009]).
134 Shavarini 2009.
135 World Bank 2007b