

Marriage Squeeze and the Changing Pattern of Marriage in Iran*

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Abstract

We investigate the link between the imbalance in the number of men and women of marriage age and recent changes in marriage in Iran. In the last decade there has been an increase in the number of women of marriage age compared to men, while at the same time there has been an increase in the age of first marriage and differences in the age and education of married couples has widened. We use data from multiple national surveys from 1984-2007 to show that the age and education gaps of married couples have declined over time. The average Iranian family is more balanced in terms of age and education now than it has been in the past, favoring a greater bargaining position for women and possibly more oriented toward investment in children. We also regress changes in the age and education gaps to the sex ratio (defined as the number of men 25-29 divided by women 20-24), controlling for individual characteristics. We conjecture that a higher sex ratio reduces the bargaining power of men at the time of marriage and thereby reduces their ability to marry younger and more educated women. This means that a higher ratio of men to women of marriage age should cause the age gap to shrink and the education gap to widen. We find evidence in support of both conjectures: when there is a surplus of men, they tend to marry women with less education than themselves resulting in a wider education gap.

JEL classification: D10, J12, J13, J16

Keywords: Iran, marriage market, sex ratio, age gap, education gap, marriage age

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1 Introduction

Iranian families have gone through fundamental change in the last two decades. Men and women are more educated, marry later, have fewer children, and form more balanced families in terms of the age difference between husband and wives. These changes are widely known as part and parcel of social and economic progress, and for development economists they are signs that Iranian families have changed their historic roles from producers of children to producers of human capital (Becker 1992; Lucas 2002). There is little agreement as to why families change their behavior in this way, but generally they are associated with an exogenous technological shock that increases returns to investment in children relative to large families. But some or all of these changes can be driven by purely demographic phenomena, such as a baby boom that affects the marriage market by affecting the balance of the number of marriage-age men and women (sex ratio) many years later, which can then change the nature of the new families that form. Changing sex ratios affect the bargaining power of men and women in the marriage market and through that affect the balance of power within the family. In particular, the sex ratio can affect the age and education differences of married couples, which can in turn affect the bargaining power of spouses within the household.

In Iran, for the last decade, the number of women of marriage age has been rising relative to men, causing a classic marriage squeeze. The consequences of marriage squeeze for the marriage market have been studied for developing countries. An adverse marriage market for women can increase the dowry, the amount transferred from the bride's family to the groom's (Rao 1993). But, more importantly, it may affect age at marriage and the age and education composition of marital unions (Anderson 2007). In this paper we examine the relationship between the sex ratio and changes in the age and education gaps of married couples. The data we use do not allow us to study changes in dowry or age at marriage. We do know that age at marriage has increased, but it has not done so out of proportion

to related changes in fertility and education.

2 The age imbalance in Iran's marriage market

Because of rapid population growth, for most of the last century marriage squeeze on women has been part of Iranian life. Table 1 shows the changes in a simple measure of the age imbalance in Iran, the ratio of men 25-29 to women 20-24 years old. Assuming a fixed age difference of five years is arbitrary, though it is in line with previous research (Angrist 2002; Browning, Bourguignon, Chiappori, and Lechene 1994; Chiappori and Lacroix 2002; Grossbard-Shechtman 1993; Rao 1993). Neelakantan and Tertilt (2007) show that the conclusions from studies of the sex ratio are sensitive to how sex ratios are calculated. Porter () adopts a sophisticated method of measuring the sex ratio that takes into account the degree of substitutability of marrying a spouse of different age.

Our assumption of a five-years difference is based on the experience of married couples born before the 1950s and may not accurately reflect more marriage marriages today. In reality, the age difference is endogenous, as it is likely to respond to the exogenous demographic trends. However, in order to obtain a description of the exogenous demographic trends that affect the age imbalance in the marriage market at any particular time, we need to fix the age difference at some level. We do not believe that changing the age difference in calculating the sex ratio would make a significant change to our results.

The earliest national census in 1956 revealed a sex ratio of 0.92, falling sharply to 0.70 in 1976, before rising again to 0.89 in 1996 (Table 1). The ratio fell again in 2006, to 0.81, as a result of the baby boom of the 1979-85 whose births had reached marriage age by 2006. Fertility increased from an already high level, in part because of the lower cost of child bearing during the early revolution years (Abbasi-Shavazi, McDonald, and Hosseini-Chavoshi 2009; Salehi-Isfahani and Tandon 2002). Since 1985 fertility has been on rapid decline, which will force a reversal of the sex ratio in coming years when the smaller cohorts

Table 1: Sex ratios in Iran, 1956-2006

Year	Women 20-24	Men 25-29	Sex ratio
1956	797,809	737,411	0.92
1966	889,265	801,665	0.90
1976	1451,357	1,010,195	0.70
1986	2,081,741	1,833,079	0.88
1996	2,645,751	2,358,982	0.89
2006	4,499,571	3,660,167	0.81

Notes: Sex ratio is the ratio of men 25-29 to women 20-24 years old.

Source: Statistical Center of Iran, National Census of Population, various years.

of women reach marriage age (see Figure 1).

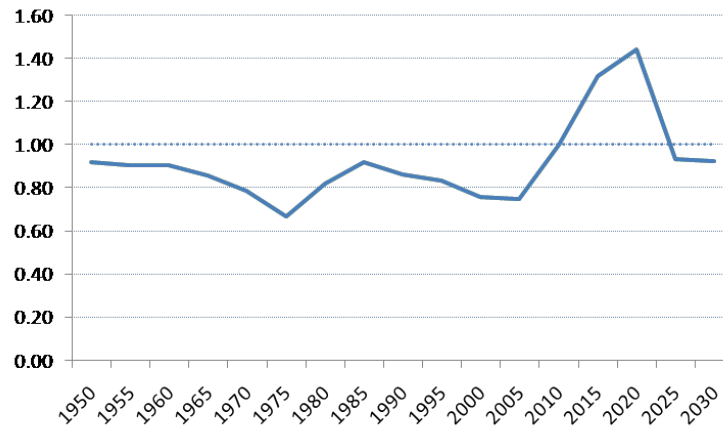
The ratio has been lower in urban areas, indicating a greater shortage of men, perhaps because of the male selectivity of rural-urban migration. In analyzing the changes in marriage pattern, however, we prefer to work with the national rather than regional sex ratio because rural men who have migrated in urban areas often return to their village to marry. So, important indicator of the imbalance in the marriage market.

For a longer series of sex ratios that describe the conditions of the marriage market for cohorts born over a longer period of time, we use the United Nations World Population Prospects, 1950-2005. Figure 1 shows the wide fluctuations in the sex ratio in the past and still in the future. The interesting part of this graph is its prediction for the future behavior of the sex ratio, which is on its way up and will reach a historic high of 1.4 by 2020. In the next decade or so Iran will be grappling with an entirely new problem—a shortage of women!

3 Survey Data

Our survey data are from 24 Household Expenditure and Income Surveys, 1984-2007. These surveys include basic demographic information, such as age and education, but not age at first marriage. In the descriptive part of the paper, the repeated surveys allow us to

Figure 1: Sex ratios in Iran, 1950-2025



Note: The sex ratio is the ratio of men 25-29 to women 20-24.

follow cohorts of married couples over time. The surveys range in size from 5000 to 36,000 households. We use appropriate survey weights to obtain our estimates.

We rely on reported age of the head of the household and the spouse, as in (Casterline, Williams, and McDonald 1986), to measure the age gap at marriage. We do the same to measure the education gap, though education differences in later ages may not be the same as those when the couple were married. We believe that later education differences are still good indicators of the relative status of the couple at the time of marriage because information about schooling potential of individuals often exists at younger ages, for example based on where they are enrolled at the time of marriage or record of school performance.

We work with two samples constructed from the repeated surveys. First, we use all adults in the household irrespective of their relation to the head. We use this sample to determine the incidence of marriage for different cohorts and over time. Second, we restrict the sample to married couples only, composed of husband and wife. We drop households that report more than one female spouse (presumably polygamous households) and those headed by a single man or woman. We use this sample to analyze the trend in differences

in age and education and the effect of the sex ratio on these differences. The observations in our married sample are men, with own and their wives' characteristics.

One potentially serious problem with our data is that we have no way of determining if these are first or second marriages. When we look at the age difference of couples by age, we notice that in the data men belonging to the same cohort have younger wives as they get older. For example, men born in 1945-49, whom we observe from age 35 to 59, show up with an age difference of 6.26 years when they are 35 (in 1984-89 surveys) and with an age difference of 7.70 years when they are 59 years old. Clearly, some selection is going on so that the age difference for the same cohort increases as it ages. Either there are more second marriages in the sample as the cohort ages, or marriages with lower age differences dissolve sooner, due to divorce or death of a spouse. To reduce selection, we further confine the sample to men aged 20-59.

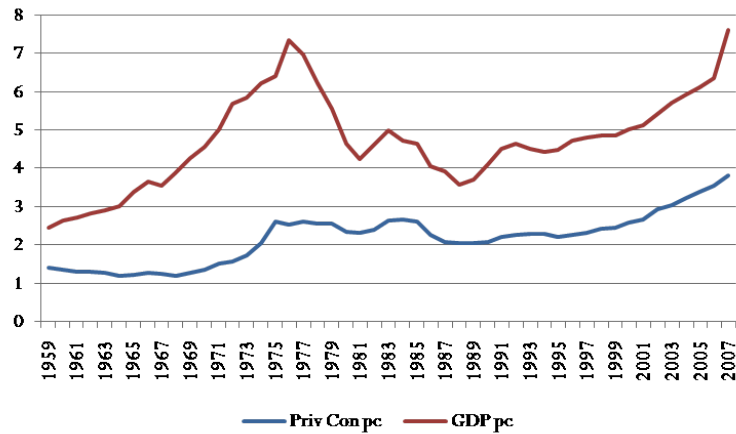
Data on the sex ratio are based on the United Nations World Population Prospects, 2005 edition. These data are by five year intervals. We extrapolate the age structures of individual years and merge it into our married couples sample based on year of birth. Sex ratios measure the age imbalance (ratio of men 25-29 to women 20-24) in the national marriage market when men of a given birth year reach age 25.

4 The Context

In this section we briefly provide the basic information on Iran's economy and demography that is relevant to the operation of the marriage market. Figure 2 shows the path of GDP per capita, which indicates the overall level of economic activity, and private consumption per capita, which is a better indicator of individual welfare than GDP per capita. The 1980s were very bad economic years as the disruptions caused by the revolution of 1979 and the war with Iraq (1980-1988) lowered GDP and private consumption per capita substantially. Since 1990s, the economy has been on a growth path, growing on average about 5 percent

per year.

Figure 2: Iran's macroeconomic indicators, 1955-2005

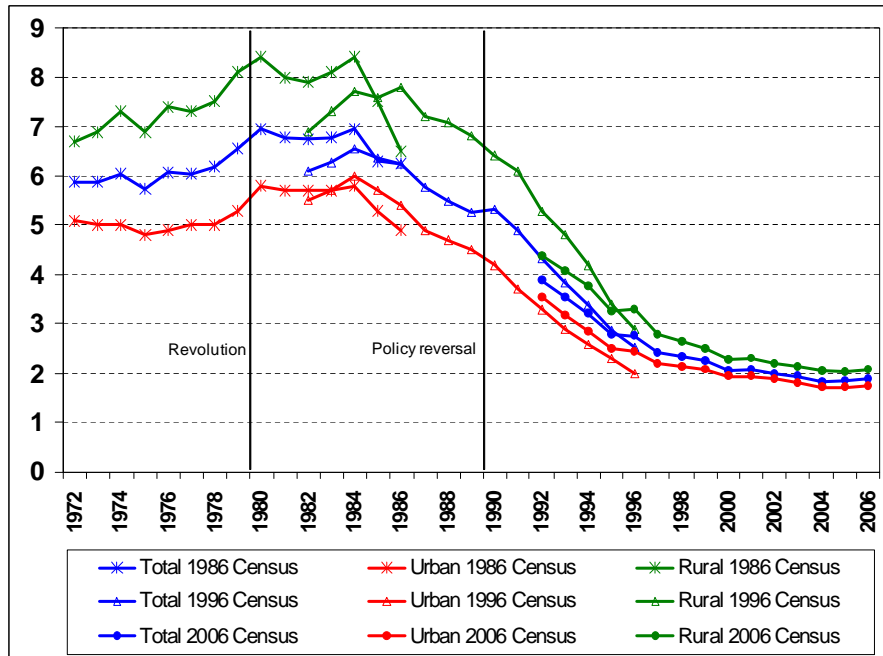


Source: The Central Bank of Iran.

The course of fertility decline is shown in Figure 3 using estimates of the total fertility rate obtained from census data by Abbasi-Shavazi and McDonald (2006, Abbasi-Shavazi, McDonald, and Hosseini-Chavoshi (2009). The rise in fertility which is responsible for the latest increase in the sex ratio is clearly observable in this figure, as is the rapid decline in fertility starting in the mid 1980s.

Women's education, which is the main indicator of women's social and economic status, influences the composition of the marriage. Figure 4 shows the impressive gains in education of men and women, and the relative gain of women, which is an important determinant of outcomes in the marriage market. The most noticeable gain is for rural women who have closed their education gap both with rural men and with other groups. The changes in fertility and education of women are probably the most important influences on the marriage market in Iran.

Figure 3: Fertility decline in Iran

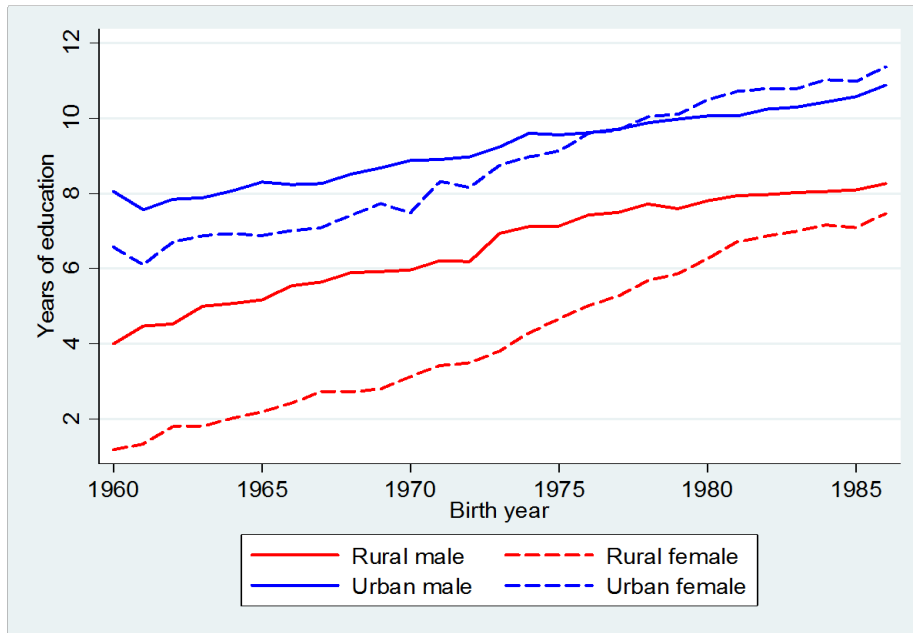


Source: Abbasi-Shavazi, McDonald, and Hosseini-Chavoshi (2009).

5 Rising age at marriage

In accordance with changes in fertility and women’s education, age at marriage has increased. In this section we simply show the extent that marriage has been delayed in Iran without answering questions about why it has increase. Figure 5 shows the marriage rates for selected cohorts. There is a clear downward shift in the curves that show the proportion of men and women married at each age. About three quarters of women born in 1965 (observed in our surveys beginning with age 19) were married by age 20, while for the 1980 cohort this proportion had dropped to less one-third. Men born in 1960 (observed since age 24) had a marriage rate of 60 percent, compared to less than 40 percent for the 1980 cohort. From our data, there is no way of knowing the extent to which various factors, including the sex ratio factors, have contributed to delayed marriage. The surveys we use

Figure 4: Education by birth year



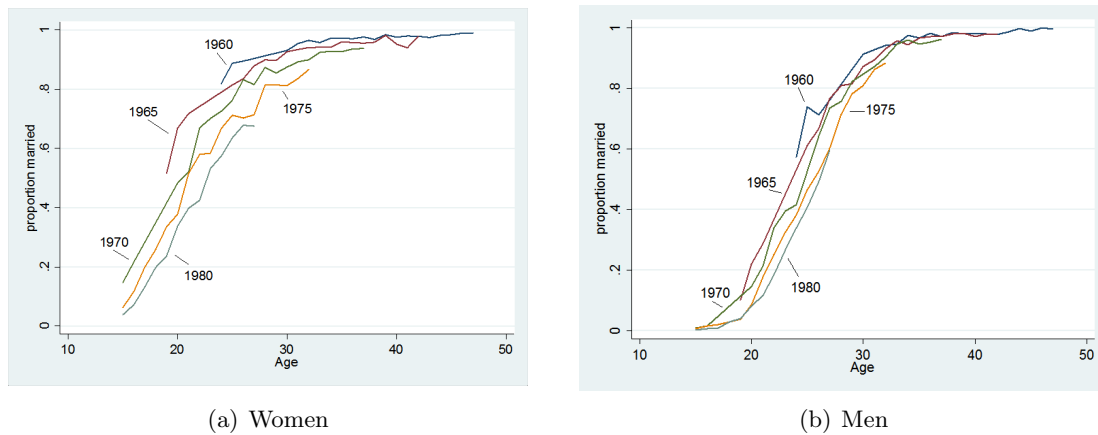
Source: Abbasi-Shavazi, McDonald, and Hosseini-Chavoshi (2009).

in this study do not include information about age at marriage.

6 Trends in the age and education composition of marriages in Iran

In this section we use survey data to depict the trends in the age and education gaps of married couples over time. Casterline, Williams, and McDonald (1986) analyze cross-country data on age difference of spouses and observe that both demographic and social factors, such as the status of women, affect the age difference of spouses. In Iran, rapid decline in fertility and rising women's education have likely contributed to the narrowing of the age gap. The main problem we face in obtaining an accurate depiction of the age differences of Iranian couples from our sample is, as noted earlier, lack of information on

Figure 5: Marriage rates by birth cohort



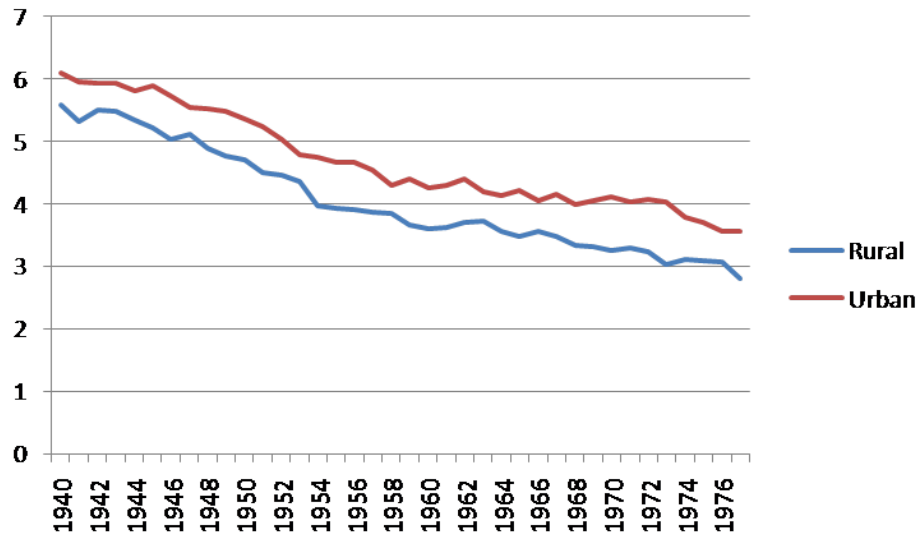
remarriage. So, to reduce the bias resulting in from older men marrying for a second time much younger wives, in this section we restrict the sample to couples with age differences between minus and plus 10. The resulting trend in age difference is shown in Figure 6.

Two interesting observations emerge from this graph. First, age differences are smaller, by about a year, in the more traditional rural areas. This is a surprising finding in view of two other differences between rural and urban areas: Rural women are less educated, and the sex ratio is more balanced in rural areas. So, clearly other factors, such as income may affect the marriage market outcomes.

Second, in both rural and urban areas there is a clear downward trend in marriage age differences. Age differences decline from about 5-6 years for cohorts of men born in the 1940s (reaching marriage age in the 1960s) to less than 4 for those born in 1970s (reaching marriage age in the 1990s). There seems to be an acceleration in the rate of decline for urban cohorts who married in the 1990s when fertility had begun its precipitous decline. The age difference was fairly constant for the 1960's cohorts.

Education data in Figure 7 also reveal large differences between rural and urban areas. For urban couples we observe a fairly constant difference of about 1.5 years for cohorts of men born in the 1940s up until mid 1960s, after which a sharp decline sets in. These are

Figure 6: Age differences of married couples by birth year of the husband

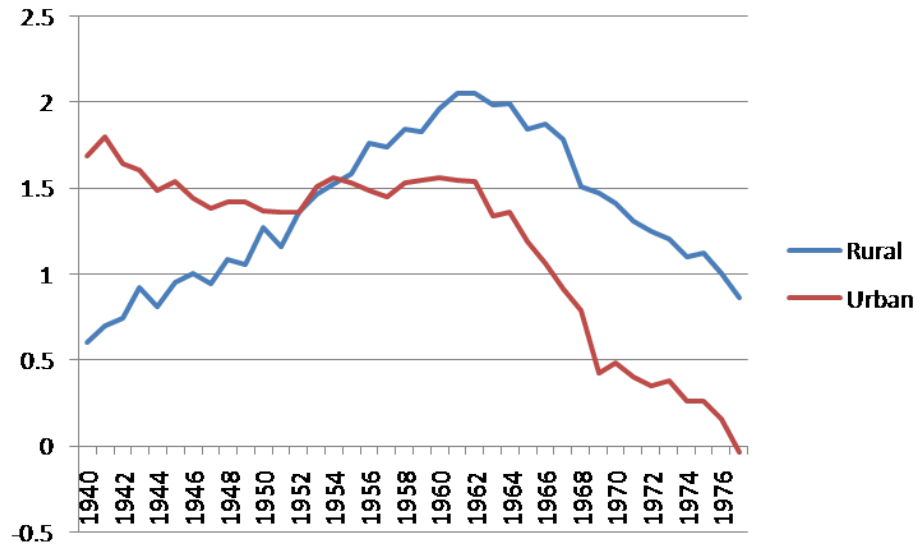


Note: Sample limited to couples with age differences between minus and plus 10 years.

unions that were most likely formed in the late 1980s and later when fertility had started its decline and women’s education was increasing (see section 4). The schooling gap of rural couples increased from 0.5 years for cohorts of men born in the 1940 to more than 2 years for those born in the early 1960s. Subsequent rural cohorts have experienced a steady decline in the education gap, down to less than a year for the 1977 cohort. The differences between rural and urban areas that we observe here suggests that in our multivariate regression results we should consider running separate regressions.

The evidence presented in this section indicates that the Iranian marriage market has been relatively flexible in term of age and education differences of married couples. On both account of age and education Iranian families have become more balanced, which bodes well for the future of the family as a unit which is more responsive to women’s needs and aspirations. Since the education of girls depends more strongly on mother’s education, these changes imply increased opportunity for girls to benefit from family resources.

Figure 7: Education differences of couples by birth year of the husband



Note: Sample limited to couples with age differences between minus and plus 10 years.

7 Multivariate analysis

In this section we attempt to determine the factors that affect the age and education differences of married couples. In doing so we hope to increase our understanding of the factors that have contributed to the greater balance in age and education composition of the Iranian household. Our main focus is on the effect of the sex ratio, which is exogenous to household decisions. We also include individual characteristics and a variable measuring the general economic conditions.

The summary statistics for the regressions are provided in Table 2 and the main regression results are in Table 3. We report province coefficients separately in Table 4. In interpreting these results it is important to bear in mind that the sample is composed of about 300,000 married men whose spouses are alive and have been observed in a survey during 1984-2007. The unit of observation is the husband and we use his own characteristics

Table 2: Summary statistics

Variable	Observations	Mean	Standard Dev.	Min	Max
Husband age	279,923	38.62	8.55	20	59
Wife age	279,923	6.36	4.94	0	25
Husband birth year	279,923	1959	8.93	1940	1977
Husband education	279,923	34.24	8.69	14	68
Wife education	279,923	5.06	4.82	0	25
Age difference	279,923	4.38	3.47	-10	10
Education difference	279,923	1.32	3.56	-20	21
Sex ratio	279,923	0.84	0.08	0.67	0.93
Proportion urban	279,923	0.68	0.47	0	1

(age and education) as well as those of his wife as regressors. In addition we control for place of residence (rural and urban as well as province). The sex ratio and the macroeconomic indicator (GDP per capita) refer to when the husband was 25 years old.

The dependent variable in the first three columns of Table 3 is the age gap and in the last three columns the education gap. We report regression for the sample as a whole with an urban dummy (columns 3 and 6) and for rural and urban samples separately (columns 1-2 and 4-5). In regressions of the age gap we note a consistent decrease in the cohort effect. Controlling for other variables, the age gap of rural cohorts born during 1975-79 is on average 3.9 years lower than the reference cohort of 1940-44, for urban cohorts 2.9 years.

The youngest birth cohorts are censored because many men in these cohorts had not yet married by the year of the last survey in 2007 but could later on. If older men tend to marry women with larger age differences, then the actual age difference may be greater than we observe. But this bias could go either way.

The urban dummy in the regression for all men (rural and urban, in column 3) is positive, indicating that on average, and controlling for individual characteristics, urban men marry younger women. This is consistent with what we observed in Figure 6.

The sex ratio is negative coefficient and significant at 1%, in both rural and urban areas,

Table 3: Regression results for age and education differences

	(1)	(2)	(3)	(4)	(5)	(6)
	Age difference			Education difference		
	Rural	Urban	Iran	Rural	Urban	Iran
cohort=1945	-0.602 (6.92)**	-0.478 (6.23)**	-0.521 (8.87)**	0.006 (0.13)	-0.384 (5.15)**	-0.204 (3.85)**
cohort=1950	-1.29 (12.58)**	-1.066 (11.90)**	-1.133 (16.41)**	-0.091 (1.44)	-0.643 (7.20)**	-0.377 (5.88)**
cohort=1955	-1.874 (25.18)**	-1.472 (22.40)**	-1.579 (31.34)**	-0.34 (7.65)**	-0.988 (15.30)**	-0.671 (14.56)**
cohort=1960	-2.194 (27.65)**	-1.728 (24.32)**	-1.838 (33.83)**	-0.615 (12.43)**	-1.279 (18.17)**	-0.926 (18.40)**
cohort=1965	-2.668 (30.00)**	-1.959 (24.59)**	-2.115 (34.68)**	-1.303 (22.56)**	-1.905 (24.08)**	-1.531 (26.89)**
cohort=1970	-3.283 (42.55)**	-2.294 (32.37)**	-2.51 (46.55)**	-1.909 (37.93)**	-2.358 (34.29)**	-2.005 (40.53)**
cohort=1975	-3.858 (41.82)**	-2.924 (34.94)**	-3.088 (47.73)**	-2.464 (37.21)**	-2.578 (31.27)**	-2.297 (37.76)**
Sex ratio	-1.907 (3.72)**	-2.622 (5.79)**	-2.417 (6.90)**	1.244 (3.54)**	1.119 (2.43)*	1.189 (3.53)**
Husband education	0.026 (6.62)**	0.015 (4.84)**	0.016 (6.35)**	0.572 (174.37)**	0.347 (152.13)**	0.394 (202.74)**
Wife education	0.202 (40.59)**	0.058 (17.91)**	0.08 (29.20)**			
Survey year	0.016 (7.41)**	0.026 (13.42)**	0.023 (15.66)**	-0.035 (23.73)**	-0.03 (14.64)**	-0.032 (21.83)**
Log GDP per capita	-0.358 (1.94)	-0.557 (3.50)**	-0.506 (4.10)**	0.196 (1.57)	-0.015 (0.09)	0.041 (0.35)
Urban			0.102 (5.56)**			-1.498 (97.19)**
Constant	-24.241 (5.61)**	-43.598 (11.11)**	-38.677 (12.81)**	69.111 (23.15)**	58.787 (14.31)**	64.418 (21.61)**
Observations	125,413	143,098	268,511	125,413	143,098	268,511
R-squared	0.09	0.05	0.07	0.43	0.22	0.26

Note: Robust t-statistics in parentheses. * significant at 5%; ** significant at 1%.

Table 4: Regression results for age and education differences, province coefficients

	(1)	(2)	(3)	(4)	(5)	(6)
	Age difference			Education difference		
	Rural	Urban	Iran	Rural	Urban	Iran
Gilan	-0.885 (11.23)**	-0.777 (9.94)**	-0.798 (14.01)**	-0.492 (9.09)**	-0.65 (8.62)**	-0.534 (10.35)**
Mazandaran	-1.151 (15.82)**	-0.674 (9.10)**	-0.874 (16.38)**	-0.342 (6.89)**	-0.219 (2.98)**	-0.192 (3.92)**
E.Azarbaijan	0.357 (4.59)**	0.269 (3.59)**	0.275 (4.91)**	0.387 (8.19)**	0.338 (4.67)**	0.336 (6.59)**
W.Azarbaijan	-0.335 (3.90)**	-0.366 (4.37)**	-0.393 (6.34)**	0.502 (9.69)**	0.653 (7.93)**	0.55 (9.79)**
Kermanshah	0.512 (5.64)**	0.121 -1.46	0.233 (3.67)**	0.321 (5.79)**	0.294 (3.68)**	0.314 (5.47)**
Khuzestan	0.15 (1.81)	-0.011 (0.14)	0.019 (0.33)	0.089 (1.64)	-0.258 (3.34)**	-0.16 (2.87)**
Fars	0.578 (7.77)**	0.417 (5.58)**	0.472 (8.58)**	-0.16 (3.11)**	-0.549 (7.37)**	-0.366 (7.06)**
Kerman	-0.126 -1.48	-0.349 (4.22)**	-0.259 (4.25)**	-0.535 (9.08)**	-0.971 (12.04)**	-0.782 (13.97)**
R.Khorasan	-0.192 (2.66)**	-0.097 -1.4	-0.161 (3.10)**	0.175 (3.85)**	-0.153 (2.31)*	-0.066 -1.41
Isfahan	0.379 (5.06)**	0.616 (9.06)**	0.59 (11.21)**	-0.587 (11.33)**	-0.506 (7.55)**	-0.468 (9.38)**
Sistan	0.97 (11.01)**	0.196 (2.24)*	0.471 (7.42)**	0.878 (16.28)**	1.065 (12.17)**	0.892 (15.61)**
Kurdestan	0.063 -0.62	-0.076 -0.76	-0.079 -1.07	0.953 (18.33)**	1.429 (15.50)**	1.173 (18.99)**
Hamadan	0.521 (6.82)**	0.397 (5.13)**	0.411 (7.35)**	0.338 (7.02)**	0.026 (0.33)	0.146 (2.79)**
Bakhtiari	0.685 (7.52)**	0.195 (2.03)*	0.405 (5.98)**	0.233 (3.99)**	0.398 (3.96)**	0.327 (5.19)**
Lorestan	0.717 (8.12)**	0.25 (2.80)**	0.399 (6.13)**	0.206 (3.61)**	0.113 (1.31)	0.12 (2.03)*
Ilam	0.883 (6.80)**	0.447 (3.56)**	0.607 (6.59)**	0.233 (3.16)**	0.776 (6.25)**	0.537 (6.52)**
Kohkiluyeh	0.696 (6.35)**	0.097 -0.79	0.348 (4.19)**	0.654 (10.29)**	1.326 (10.75)**	0.932 (12.78)**
Bushehr	-0.578 (5.53)**	-0.416 (4.37)**	-0.475 (6.64)**	0.007 (0.10)	0.051 (0.57)	0.089 (1.41)
Zanjan	0.408 (4.81)**	0.229 (2.43)*	0.255 (3.67)**	0.35 (6.70)**	0.032 (0.35)	0.123 (1.91)
Semnan	0.029 -0.25	0.158 -1.74	0.146 (2.00)*	-1.06 (13.12)**	-0.749 (8.76)**	-0.812 (12.26)**
Yazd	-0.278 (2.28)*	0.167 (1.97)*	0.097 (1.40)	-0.48 (6.36)**	-0.02 (0.23)	-0.066 (1.00)
Hormozgan	0.477 (5.46)**	0.11 -1.22	0.245 (3.83)**	0.281 (5.13)**	0.132 -1.44	0.178 (3.09)**
Tehran	0.299 (3.82)**	0.207 (3.35)**	0.23 (4.78)**	-1.407 (23.07)**	-1.028 (17.21)**	-1.057 (23.65)**
Ardebil	-0.018 -0.19	-0.079 -0.8	-0.099 -1.39	0.913 (15.87)**	1.385 (15.41)**	1.18 (19.28)**
Qom	0.769 (4.65)**	0.41 (4.50)**	0.478 (5.97)**	0.078 -0.79	0.241 (2.55)*	0.274 (3.33)**
Qazvin	-0.077 (0.79)	-0.219 (2.38)**	-0.174 (2.47)*	-0.18 (2.72)**	-0.293 (3.25)**	-0.247 (3.75)**
Golestan	-0.596 (6.31)**	-0.468 (5.09)**	-0.577 (8.58)**	0.623 (9.69)**	0.339 (3.52)**	0.515 (8.13)**
N. Khorasan	0.452 (2.57)*	-0.081 (0.50)	0.092 (0.77)	0.139 (1.09)	-0.6 (3.92)**	-0.309 (2.85)**
S. Khorasan	-0.161 (0.83)	-0.701 (4.20)**	-0.543 (4.27)**	0.435 (3.03)**	-0.009 (0.03)	0.146 (1.22)

Note: Robust t statistics in parentheses. * significant at 5%; ** significant at 1%.

indicating that when there is an excess supply of men (a higher sex ratio), the age difference is smaller. This is consistent with our earlier conjecture that men prefer younger women and when the marriage market conditions allow, as when there are more women relative to men, they marry younger women. The coefficient of the sex ratio for urban men is larger, indicating that an increase in the sex ratio from 0.5 to 1 (a huge change) reduces the age difference by about 1.12 years. We interpret this result as evidence of limited marriage market flexibility.

The coefficient of the years of schooling of the husband is positive and significant. Evidently, all else the same, more educated men marry younger women, though the effect is very small. Among rural men, for every year of extra schooling the mean age difference increases by only 0.025 years. The result is, however, consistent with our conjecture that age difference is a normal good and therefore men with greater endowment (education) are able to marry younger women.

We include a control for survey year in order to allow for variation in the age difference between men of the same cohort but observed in different years (as they age). The effect of year of observation, or age, is very small but significant. Given birth cohort, married men observed later (in more recent surveys) have a larger age difference with their wives, perhaps because older men are more likely to have remarried. This suggests that if there is any selection on this account, the effect is very small.

The regressions on education gap present a similar picture of change over time and evidence of limited marriage market flexibility. The cohort effects for rural men are negative indicating a declining education gap for men born later. The rural gap is lower by 2.5 years for cohorts born during 1975-79 compared to the reference category. This is interesting in light of the inverted U-shape of the education gap we noted in Figure 7. The difference is most likely in that in the regressions we control for individual characteristics. So, it is quite possible that once we control for education, the trend is, like the age gap, monotonic.

The urban education gap does not seem much affected by the birth cohort. Recall that in Figure 7 until the 1960s cohorts the education gap had remained constant and only started declining for later cohorts. The regression results, which control of other changes, do not show any decline in the education gap for later cohorts.

The urban dummy in the education regression is negative, indicating that, as we observed in Figure 7, urban men have a smaller schooling differences with their spouses, by about 1.5 years. There had no particular expectation for the coefficient of log GDP per capita, which turns out to be negative and significant, signifying that men who marry in better economic times are more likely to have a smaller age difference with their wives.

The coefficient of the sex ratio is this time positive (and significant). This means that when the sex ratio is higher (there is a surplus of men), men tend to marry less educated women. This is consistent with the conjecture about men prefer to marry more educated women. This relationship is more clear when, instead of the education gap, we use wife's education as the dependent variable and keep the husband's education on the right hand side. This regression (not reported here) clearly shows that, all else the same, a higher sex ratio results in a less educated wife. (For the age gap the two regressions are nearly equivalent because in the regression on the age the coefficient of the age of the husband was nearly one.)

The positive coefficient of husband's education in columns 4-6 is interesting in that it indicates that more educated men have *larger* education differences with their spouses. This is consistent with a positive income effect in demand for a younger spouse assuming that education is standing for income. This finding is not inconsistent with assortative mating. In our data the education of spouses are highly correlated: the correlation coefficient for age is about 0.9 and for education about 0.7. Incidentally, for both rural and urban couples the correlation in age has increased, but there is no clear trend for education. Finally, as with the age difference regressions, the age at which men were observed has a very small

negative effect on the education gap.

There is a large and interesting variation in the province effect on age and education gaps of married couples (Table 4). In these regressions the Central province (Markazi), which is relatively developed, is the reference category. Generally speaking, the age and education gaps are larger in tribal and less developed regions (Lorestan, Sistan, Ilam, and Kohkiluyeh). The northern Caspian provinces of Gilan and Mazandaran, which are also more developed, have lower age and education gaps. These results are interesting in light of the fact that in these regressions we have already accounted for differences in education between provinces, so what remains could be related to differences in the sex ratios which we have not controlled for, as we have used a national variable. Or, this may be due to other regional characteristics, such as cultural factors, some of which are very difficult to observe.

8 Concluding remarks

In this paper we have used survey data to show that marriage in Iran has changed in two important respects, namely that the age and education differences between spouses is now lower than it has ever been. These changes are important for two reasons. First, they portend well for the future of the family in Iran. With greater equality in age and education, women's bargaining power inside the family increases and will help shift family resources in the direction of investments in child education, especially for girls. These changes are important from a welfare point of view in and of themselves, and they are good for economic growth. Second, the narrowing of these gaps shows flexibility in the social norms that govern behavior in the marriage market. Flexibility is important if age imbalances in the marriage market which will continue to occur in the future are to be self-correcting. The recent increase in the sex ratio in Iran, which is in part responsible for the delay in the marriage age of women may benefit from adjustments in the age differences at marriage.

We used the survey data to estimate the relationship between age and education gaps and the sex ratio controlling for individual characteristics. The results show that, in conformity with the findings from simple tabulations, after controlling for these variables, successive cohorts of men still appear to have smaller age and education differences with their wives. The results also show that the effect of the sex ratio on these gaps is broadly consistent with the idea that men in Iran prefer younger and more educated spouses. If these effects are to be believed, the recent surplus of women may have contributed to a wider age gap but a narrower education gap, with an overall ambiguous effect on the bargaining position of women.

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