Statistical Modelling of First Marriage Age in Afghanistan

Usman Ali[1]

Abstract

This research attempted to determine the impacts of the socio-demographic, geographic, economic and husband's characteristics on first marriage age of women belonging to Afghanistan. The study uses data from the 2015 Afghanistan Demographic and Health Survey (AfDHS). This study focused on 28,848 ever married women aged 15-49 years. Along with the dependent variable "first marriage age", 12 independent variables are used in this study. Univariate, bivariate, and multivariate regression analyses are used to find how significantly factors are associated with first marriage age. The bivariate and multivariate results show a decrease of about 3 years in women's first marriage age during past 5 decades. The outcome regarding the highest education level shows that highly educated women marry 2 years later than uneducated women. Other socio-demographic, geographical and husband's characteristics also show a significant relationship with first marriage age. The wives of highly educated men have higher mean first marriage age than those of the uneducated husbands. Though economic status of women is an important determinant of first marriage age but in case of Afghanistan it did not show any significant association with first marriage age.

Keywords

First marriage age, Determinants, Marriage, Women, Afghanistan, Demography.

1. Introduction

The analysis of first marriage age (FMA) as well as of marriage has been considered as a component of demographic study since it includes analyzing a population characteristic which is directly associated to the population distribution and population size (Savitridina, 1997). Social demographers are very interested in women's first marriage age as entry into sexual relationship is certainly among the major significant factors of fertility (Davis and Blake, 1956) and (Bongaarts, 1982). In the previous half century, the concept of marriage has altered dramatically in the United States. Now Americans marry less and later than ever in the last 100 years (Ruggles, 2015). The educational level and employment status of Korean and American men has had a continuously beneficial impact on marriage, whereas among the recent cohorts, economic characteristics of women showed positive impact on marriage (Kim, 2017).

There exists an enormous literature around the world for modelling the age at first marriage, but the issue is not well explored in the case of Afghanistan. This research project will address this gap found in literature. The other reason to focus on this project is to understand the pattern of first marriage age among women of Afghanistan as people

---
[1] Government Shalimar Graduate College, Lahore, Pakistan.
  Email: usman.16ali@gmail.com

of Afghanistan are greatly involved in the conflict of war over the past three decades and they are lacking educational and economic opportunities. Also, the living standards in Afghanistan are not so high like other countries of the world and a large proportion of Afghan population use to marry in early age. These are the issues that motivate us for present research hoping this research will contribute the literature.

The coming section discuss factors of first marriage age, providing a brief rationale for their inclusion and explaining the hypothesized effect on women's first marriage age.

Hypothesis 1. *Highly educated women of recent birth cohorts having higher employment status are more probable to postpone marriage.*

First marriage age has negative association with birth cohort. Women in older cohort have lower first marriage age than women of younger cohort in Sri Lanka, showing that first marriage age has an increasing tendency (De Silva, 1997). Birth cohort significantly affects the female age at first marriage (p-value < 0.05). Having worked before marriage is associated with a statistically significant one-year rise in the AFM. Uneducated females have a mean AFM 4 to 5 years lower than highly educated women. (Rasul et al., 2022). From the current birth cohorts, women are highly educated leading to delay in marriage. Also, an increasing trend of marital breakups and a rising percentage of single divorced mothers in more recent birth cohorts might be the reason of fearfulness of younger women about married life and put them to choose work as a substitute of traditional marriage role, leading to postponement of marriage (Oppenheimer, 1988).

Women having higher educational level are more probable to postpone marriage (Ikamari, 2005). There is an increase of 0.69 of a year in the women's first marriage age due to one-year increase in education (Carmichael, 2011). Increasing levels of education may explain the trend in non-marriage and delayed marriage for women in East Asian countries as admittance to higher education has contributed to increasing women's participation in the labour market resulted in delayed marriage (Jones and Gubhaju, 2009).

Women engaged in jobs have a delay in marriage timing (Kamal, 2011). Women who are the only or sometimes the main income earner in the family have a lesser chance of entering marriage (Wong, 2005). A larger part of women in Asia are increasingly entering in the paid employment. This development is greatly influencing the women's and their mate's ability and desire to delay marriage (De Silva, 1998).

Hypothesis 2. *Women's ethnicity, religion, and type of place of residence are likely to affect first marriage age.*

Studies proved that people belonging to different religions have on the average different values of first marriage age. For example, in Nigeria, non-Catholic Christians have average marriage age equals to 22 years and Catholic Christians have mean marriage age of 22.5 years as compared to Muslims having mean marriage age of 21.5 years (Adedokun, 1999). Many studies in Asia on first marriage age point out that average first marriage age for women is lowest for Muslim women and highest for Buddhist women (Saardchom and Lemaire, 2005). Ethnicity also significantly affects the timing of marriage and entry into motherhood (Thapa, 1996) and (Yabiku, 2005).

Region of residence is also a significant determinant of marriage age. As different regions have different cultural and social backgrounds and levels of development in different regions are not same, so region may significantly affect marriage timing. Studies on first marriage age in Vietnam and Thailand support this opinion (Nguyen, 1997).

Hypothesis 3. *Husband's highest education level and status of employment are likely to influence women's first marriage age.*

Education level of husbands appears to have effect on women's first marriage age. Educated men marry older women as compared to uneducated men. Education of females and even males in Pakistan could lead to a rise in the female AFM (Rasul et al., 2022). Age at first marriage was significantly positively associated with women's and men's educational levels and with husband's employment status as laborers ($p = 0.017$) and negatively associated with husbands being employees (compared to being unemployed) ($p < 0.001$) (Mahdaviazad et al., 2019). The husband's educational attainment in Indonesia is higher than their wife's educational attainment and an early married woman marries a husband more probably who is highly educated (Savitridina, 1997). On the other hand, a continuously increasing trend of low educated men and strongly educated women is the problem to find the suitable spouse and it is the reason of increasing trend of delay in timing of marriage in East Asian countries with low fertility especially in South Korea and Taiwan (Jones and Gubhaju, 2009). Occupation of husband also appears to have some impact on women's first marriage age. Women who have husbands with lower occupational status as agriculture, services and sales sectors are more probable to marry in early age as these types of occupations do not require high educational status. In Bangladesh, women having technical and professional husbands marry later than women having non-professional husbands (Savitridina, 1997).

2. Theories of marriage

There are different theories of marriages discussed below.

2.1 Economic modernization theory

This theory provides enough evidence for the impact of economic modernization on first marriage age. Education level also has significant effect on the first marriage age. These two determinants jointly, significantly delay women's marriages and decrease the gender age gap at marriage. This theory states that increase in the level of education results in increase in the first marriage age. Women having higher education use to marry later than women with lower education. Women having higher employment status have a higher first marriage age as compared to those who have lower employment status. People living in urban areas also delay marriage as they are more involve in career building, getting higher education and searching for better employment opportunities. In result of this, marriage is postponed (Torabi and Abbasi-Shavazi, 2016).

2.2 Economic theory of family

This theory states that men prefer those women to become their life partner who can maintain their household and look after children and do not involve in labour market activities and men with high education and superior employment status have not to wait

longer for marriage. Women prefer highly educated and highly employed men or men with high economic status to become their life partner (Becker and Becker, 2009).

2.3   Supply and demand theory of marriage

This theory states that both men and women must wait for long time for suitable life partner which causes delay in marriage. In the countries, where number of females is larger than number of males, there women have to face a big competition to get married (Saardchom and Lemaire, 2005).

2.4   Marriage market theory

This supports the supply and demand theory by arguing that if there are not much suitable mates with desirable qualities available in the marriage market, then women would preferably postpone marriage until they find a suitable husband, or they forgo marriage. In support of economic theory of family, marriage market theory states that human capital characteristics of men play important role in women's timing of marriage (Lewis and Oppenheimer, 2000). The men who have high economic status in society and can provide better financial and socio-economic status to their wives are more desirable for marriage. Marriage market theory also suggests that current decline in marriage is due to the men's decreasing socio-economic and employment prospects (Oppenheimer *et al*., 1997).

2.5   Women's economic independence theory

This theory also states that women who have roles in labour market are less prone to marry. Highly educated and employed women are supposed to have less gain from marriage. Women's high levels of education and employment cause delay in marriage (Lichter, LeClere, and McLaughlin, 1991) and (McLanahan and Casper, 1995).

2.6   Human capital theory

In favor of women's economic independence theory, human capital theory argues that women who involve in getting higher education and attainment of high employment status usually postpone marriage and have a higher first marriage age.

3.   Data and methodology

This study uses secondary data from the 2015 Afghanistan Demographic and Health Survey (AfDHS). The survey followed a two-stage stratified sample design and was aimed to collect information in rural and urban regions for the 34 provinces of Afghanistan. A total of 29,461 ever-married women of age 15 to 49 from the interviewed families were interviewed. 7,025 women were belonged to urban areas and 22,436 women were belonged to rural areas. In our sample of 29,461 ever married women, 613 women did not completely provide required information. In the presence of incomplete responses, we are unable to perform the analysis of the data, that's why, we must filter out those respondents from our sample who did not provide all the required information. After eliminating them from the sample, our sample size remains of **28,848** ever married women for the analysis.

3.1 Defining variables

The outcome variable of the study is women's first marriage age (FMA) which is observed by the help of questionnaire designed for ever-married women of age of 15 to 49 years at the interview time. In this study, twelve independent variables are used to examine the association of women's background characteristics with first marriage age. The independent variables are named as: age in 5 years groups, highest education level, ethnicity, literacy, respondent smokes cigarettes, province of residence, region of residence, type of place of residence, respondent's occupation, respondent currently working, husband's education level, husband's occupation.

3.2 Methodology

To determine the dependence of first marriage age on different determinants such as socio demographic, geographic, economic and husband's characteristics, we perform univariate, bivariate and multivariate regression analysis. One-way ANOVA test and student's t test are used in bivariate analysis to find how significantly first marriage age depends upon different determinants. Lastly, multivariate linear regression model technique is used to investigate the impact of several determinants on first marriage age in Afghanistan.

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} \cdots + \beta_k X_{ki} \qquad \text{for} \quad i = 1,2,\cdots,n$$

where Y_i is a random variable representing the kth value of the dependent variable Y and $\beta_0, \beta_1, \beta_2, \cdots, \beta_k$ are unknown population coefficients.

4. Results

We have the followings results.

4.1 Univariate and bivariate results

Results for the univariate and bivariate analyses are given in Table 1 to Table 5. These tables show the distribution of study sample according to different characteristics as obtained in AfDHS 2015 and provides mean first marriage age of women having respective characteristics. The p-values of association of first marriage age with different determinants and the degrees of freedom are provided within parenthesis against each variable in the Tables 1 to 5.

Table 2 reveals that women who are of the age of 15-19 years have the minimum mean first marriage age i.e., 15.9 years and women who are of 45-49 years of the age have the maximum mean first marriage age i.e., 19.4 years which shows a decreasing trend of first marriage age in the recent birth cohorts. So, age in 5-year groups shows a significant relationship with women's FMA. Women having primary education have the minimum mean age at the time of first marriage i.e., 17.5 years and women with higher education tend to marry later with 19.4 years as the mean age at the time of first marriage. This result supports the theory that highly educated women use to marry later. Highest education level shows a significant relationship with FMA. Baloch women who are the only 1.2 % of ever-married women of 15-49 years of age have the minimum mean age at the time of first marriage i.e., 16.4 years while women belonging to Turkmen have the maximum average

Table 1: Impact of different factors on women's marriage age in view of theories of marriage.

Factors → Theories	Birth Cohort	Education	Region	Employment status	Husband's educational	Husband's occupation
Economic Modernization Theory	↑	↑	↑	↑	↑	
Economic theory of family				↑	↓	↓
Supply and demand theory of marriage	↑			↑	↓	↓
Marriage market theory of marriage	↑			↑	↑	↓
Women's economic independence theory of marriage	↑			↑		
Human capital theory of marriage	↑			↑		

KEY: ↑ shows that the factor is positively associated with first marriage age.
↓ shows that the factor is negatively associated with first marriage age.

first marriage age i.e., 19.6 years. Regarding the literacy, women who have no card with required language have the minimum mean first marriage age i.e., 17.40 years. Women who are blind/visually impaired have the maximum mean first marriage age of 20.00 years. Women who smoke cigarettes marry at the age of 18.3 years on the average while women who do not smoke cigarettes have a mean age at the time of first marriage of 17.9 years.

Table 3 demonstrates that women living in Nimroz have the minimum mean first marriage age i.e., 15.9 years with more than 50 percent of the women living in Nimroz are married by the age of 15 while women living in Paktika have the maximum mean first marriage age i.e., 20.1 years. In the province of Paktika only 1.3 % women marry before 15 years of age. Province is significantly associated with first marriage age of women. Region also shows a significant relationship with age at first marriage. Women living in Urban areas have a tendency of early marriage as compared to Rural areas in Afghanistan. Type of place of residence also shows a significant relationship with FMA with women living in urban areas have a mean first marriage age equals to 17.5 years and in rural areas as 18.0 years.

It is provided in Table 4 that women who do not ever work at all have minimum mean first marriage age i.e., 17.9 years. Women who relate to services have a maximum mean first marriage age which is equal to 19.1 years. Women, who do not currently work have mean first marriage age of 17.9 years whereas women who currently work have mean first marriage age equal to 18.1 years. The variable "respondent is currently working or not" is not significantly associated with FMA while the "respondent's occupation" is significantly associated with FMA.

Table 5 proves that women who have highly educated husbands have maximum mean age at first marriage i.e., 18.3 years. Women who are married to husbands having services or sales professions have a minimum mean first marriage age i.e., 17.8 years. Women who are married to husbands having clerical professions have maximum mean first marriage age i.e., 18.1 years. Husband's education level and occupation of husband both are significantly associated with first marriage age of women.

Table 2: Percentage distribution of ever married women aged 15-49 by socio demographic characteristics with first marriage age (2015, AfDHS, n = 28848).

Characteristics	Cumulative %age married by exact age				No. of Women	MFMA
	≤ 15	≤ 20	≤ 25	≤ 30		
Age in 5-year						
15-19	34.8	100	100	100	1791	15.9
20-24	23.1	90.1	100	100	5954	17.4
25-29	24.6	80.7	98.7	100	6294	17.8
30-34	26.2	79.4	96.6	99.8	4381	17.9
35-39	22.9	76.3	95.3	99.2	4219	18.3
40-44	23.8	76.2	95.2	99.0	3131	18.4
45-49	17.8	65.6	91.5	97.9	3078	19.4
(F-statistic using ANOVA test = 242.24; p-value = 0.00; df = 28847)						
Highest education level						
No education	24.3	80.7	97.1	99.5	24678	17.9
Primary	27.3	84.3	97.6	99.7	1935	17.5
Secondary	20.6	83.2	98.1	99.9	1753	17.9
Higher	12.2	67.8	92.9	98.3	482	19.4
(F-statistic using ANOVA test = 38.43; p-value = 0.00; df = 28847)						
Ethnicity						
Pashtun	21.8	79.8	97.3	99.7	12231	18.1
Tajik	27.7	82.3	97.1	99.5	8837	17.7
Hazara	31.3	83.3	96.9	99.3	2647	17.4
Uzbek	24.2	78.7	96.5	99.2	2018	18.1
Turkmen	12.5	64.4	92.3	99.2	624	19.6
Nuristani	8.2	87.4	98.8	99.8	1216	18.1
Baloch	45.6	87.4	98.5	99.7	340	16.4
Pashai	17.3	80.5	96.3	99.0	513	18.3
Other	21.6	82.5	97.2	99.8	422	17.9
(F-statistic using ANOVA test = 43.84; p-value = 0.00; df = 28847)						
Literacy						
Cannot read at all	24.4	80.8	97.0	99.5	24982	17.9
Able to read only parts of sentence	25.5	83.7	97.5	99.6	1183	17.7
Able to read whole sentence	20.3	80.9	97.2	99.6	2673	18.1
No card with required language	20.0	100.0	100.0	100.0	5	17.4
Blind/visually impaired	0.0	60.0	100.0	100.0	5	20.0
(F-statistic using ANOVA test = 3.12; p-value = 0.01; df = 28847)						
Smoking						
No	24.1	81.0	97.1	99.5	28581	17.9
Yes	21.0	76.0	95.5	98.1	267	18.3
(t-statistic = -2.07; p-value = 0.04; df = 28846)						

Table 3: Percentage distribution of ever married women aged 15-49 by geographical characteristics with first marriage age (2015, AfDHS, n = 28,848).

Characteristics	Cumulative %age married by exact age				No. of Women	MFMA
	≤ 15	≤ 20	≤ 25	≤ 30		
Provinces						
Kabul	26.4	76.7	94.8	98.4	731	18.2
Kapisa	25.9	84.1	97.0	99.7	869	17.7
Parwan	25.4	77.1	96.7	99.7	706	18.1
Wardak	14.3	69.3	94.6	99.6	854	19.1
Logar	6.2	61.1	96.3	99.7	893	19.8
Nangarhar	25.7	83.3	97.7	99.7	1003	17.7
Laghman	22.3	78.9	96.1	99.6	788	18.2
Panjsher	23.9	75.5	95.8	99.3	673	18.1
Baghlan	33.4	80.4	94.6	99.5	721	17.5
Bamyan	31.7	83.5	97.5	99.9	643	17.5
Ghazni	21.1	68.7	96.0	99.6	1114	18.7
Paktika	1.3	65.7	98.6	100.0	1079	20.1
Paktya	16.6	71.3	95.5	99.6	1144	18.8
Khost	20.8	86.0	98.0	99.9	1324	17.8
Kunarha	28.0	83.1	97.2	99.4	681	17.6
Nooristan	7.7	87.1	99.0	99.9	1346	18.2
Badakhshan	29.6	86.6	97.5	99.3	828	17.4
Takhar	32.7	85.2	98.0	99.6	810	17.3
Kunduz	22.1	81.1	97.2	99.8	811	18.0
Samangan	25.5	79.6	96.1	99.4	675	17.9
Balkh	23.7	78.7	95.4	98.8	900	18.2
Sar-E-Pul	19.6	78.3	96.3	99.6	803	18.3
Ghor	39.8	90.6	98.5	99.5	882	16.5
Daykundi	38.5	90.4	97.4	99.2	626	16.7
Urozgan	17.3	86.1	99.4	100.0	792	17.9
Zabul	16.6	79.1	96.9	100.0	163	18.3
Kandahar	27.1	86.3	97.7	99.9	944	17.4
Jawzjan	15.1	71.6	96.2	99.3	862	18.9
Faryab	23.9	75.0	93.7	99.4	731	18.5
Helmand	32.3	83.6	97.1	99.6	827	17.4
Badghis	45.5	89.7	98.1	99.3	861	16.4
Heart	25.7	91.5	98.6	99.8	980	17.3
Farah	28.8	94.3	99.3	100.0	1114	16.7
Nimroz	52.4	91.0	99.0	99.9	670	15.9
(F-statistic using ANOVA test = 61.64; p-value = 0.00; df = 28847)						
Region						
Central	19.8	73.7	95.9	99.4	4726	18.5
Central highland	35.1	86.9	97.5	99.1	1269	17.1
East	19.1	83.7	97.7	99.7	3818	17.9
Northeast	29.3	83.4	96.9	99.3	3170	17.5
North	21.3	76.5	95.6	99.1	3971	18.4
Southeast	15.3	73.6	97.0	99.8	4661	18.8
South	30.6	86.2	98.1	99.9	3396	17.3
West	34.3	91.7	98.7	99.7	3837	16.8
(F-statistic using ANOVA test = 170.09; P-value = 0.00; df = 28847)						
Type of place						
Urban	30.2	82.8	96.8	99.4	6880	17.5
Rural	22.2	80.3	97.2	99.6	21968	18.0
(t-statistic = -10.08; p-value = 0.00; degrees of freedom = 28846)						

Table 4: Percentage distribution of ever married women aged 15-49 by economic characteristics with first marriage age (2015, AfDHS, n = 28848).

Characteristics	Cumulative %age married by exact age				No. of Women	MFMA
	≤ 15	≤ 20	≤ 25	≤ 30		
Respondent currently working						
No	24.5	81.0	97.2	99.6	25840	17.9
Yes	21.1	79.9	96.5	99.2	3008	18.1
(t-statistic = -3.70; p-value = 0.97; df = 28846)						
Respondent's Occupation						
Not working	24.8	80.9	97.1	99.5	25087	17.9
Professional/ technical/ managerial	22.8	81.1	96.6	99.4	1362	18.0
Clerical	31.8	63.6	95.5	100.0	22	18.6
Agricultural - self employed	16.5	83.3	98.4	99.8	1345	17.9
Services	6.7	73.3	96.7	96.7	30	19.1
Skilled manual	21.3	74.7	93.9	98.4	558	18.6
Unskilled manual	16.4	85.4	97.1	99.3	444	18.2
(F-statistic using ANOVA test = 5.01; p-value = 0.00; df = 28847)						

Table 5: Percentage distribution of ever married women aged 15-49 by husband's characteristics with first marriage age (2015, AfDHS, n = 28848).

Characteristics	Cumulative %age married by exact age				No. of Women	MFMA
	≤ 15	≤ 20	≤ 25	≤ 30		
Husband's education level						
No Education	24.9	81.1	97.0	99.5	16595	17.9
Primary	26.5	81.8	97.4	99.5	3853	17.7
Secondary	21.4	81.0	97.4	99.7	6379	18.0
Higher	21.4	77.6	96.2	99.3	2021	18.3
(F-statistic using ANOVA test = 11.57; p-value = 0.00; df = 28847)						
Husband's Occupation						
Professional/ technical/ managerial	24.3	80.4	96.8	99.3	6629	18.0
Clerical	21.5	78.3	96.8	99.8	875	18.1
Agricultural - self employed	23.9	80.9	97.1	99.6	8216	17.9
Services	26.0	81.7	97.4	99.7	4418	17.8
Skilled manual	22.6	79.7	97.2	99.6	4015	18.0
Unskilled manual	24.2	82.4	97.0	99.5	4695	17.9
(F-statistic using ANOVA test = 3.30; P-value = 0.006; df = 28847)						

4.2   Multivariate results

To determine the comparative importance of the determinants of first marriage age, and to find which of the determinants affect independently, we estimate five linear regression models. In Model 1, socio demographic variables are included as explanatory variables. In Model 2, economic characteristics are included to determine their effects on first marriage age. In Model 3, we add husband's characteristics such as education level and occupation of husband. By using this model, it became possible to find how women's economic status and husband's characteristics both are influencing the first marriage age. To study the effects of geographical characteristics on first marriage age, 'region', 'province' and 'type of place of residence' are included in Model 4 and Model 5.

The results of multivariate analysis given in Table 6 reveal that women who were born during 1966-1970, have the mean first marriage age about 3.5 years more than the women who were born during 1996-2000. This result is statistically significant in all five regression models. This shows a continuous significant decrease in the women's first marriage age in Afghanistan during the last five decades. This result shows a strong agreement with modernization theory of marriage (i.e. economic modernization lead to delay in marriages) as in 1950's and 1960's Afghanistan made several steps towards modernization liberalism and western lifestyle. In those days, Afghan women tend to marry later. But in 1979 Afghanistan was put into war by Soviet Union, the progress of Afghanistan was halted, and a series of civil wars, invasions and bloody coups began, reversing all the steps towards modernization. Afghan girls and women were banned from going to school and banned from working outside which made Afghan women economically more dependent on men. This seem to be the main reason of significant decrease in women's first marriage age in Afghanistan.

The outcomes associated to women's highest education level support economic modernization theory of marriage, with women get married in later age as their level of education increases. In first four regression models Tajik, Hazara, Uzbek and Baloch women have significantly younger first marriage age than the Pashtun women. In model 5, Pashai women also show significantly greater MFMA of 0.49 of a year more than Pashtun women.

The findings related to the variable 'respondents currently working' show that current working status of a women does not affect the women's first marriage age. There is not a significant difference in first marriage age of women who are currently working or not. Also, the occupation characteristics of women do not show any significant relationship with first marriage age.

Husband's education level also has a significant effect on woman's first marriage age. Women who marry husbands having secondary or higher education are more significant to get married about 0.4 of a year later than women whose husbands have no school education. One possible reason is that the highly educated men want to marry highly educated women and economic modernization theory of marriage states that women prefer to delay marriage while they study. Husband's occupation also significantly affects the women's first marriage age. The findings of model 4 show that women whose husbands are agriculturists significantly marry 0.22 year later than the women whose husbands are professionals. In model 3, the results show that women whose husbands work as skilled manual workers and unskilled manual workers have the first marriage age of 0.24 year and

Table 6: Multiple regression estimates of the factors associated with first marriage age, (2015 Afghanistan Demographic and Health Survey, n = 28848).

Characteristics	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	16.10**	16.11**	15.91**	14.66**	13.95**
Age in 5 Years group					
15-19(RC)					
20-24	1.41**	1.41**	1.40**	1.24**	1.15**
25-29	1.83**	1.84**	1.84**	1.67**	1.57**
30-34	2.03**	2.03**	2.05**	1.87**	1.77**
35-39	2.46**	2.46**	2.49**	2.28**	2.22**
40-44	2.53**	2.54**	2.57**	2.35**	2.26**
45-49	3.60**	3.60**	3.65**	3.44**	3.35**
Highest Education Level					
No education (RC)					
Primary	0.13	0.13	-0.06	0.13	0.14
Secondary	0.72**	0.74**	0.60**	0.71**	0.70**
Higher	2.00**	2.13**	1.95**	2.13**	2.14**
Ethnicity					
Pashtun (RC)					
Tajik	-0.64**	-0.65**	-0.65**	-0.47**	-0.15*
Hazara	-0.82**	-0.81**	-0.78**	-0.76**	-0.61**
Uzbek	-0.27**	-0.26**	-0.23**	-0.27**	-0.10
Turkmen	1.23**	1.27**	1.27**	1.00**	1.16**
Nuristani	0.14	0.30*	0.32*	0.55**	0.32
Baloch	-1.53**	-1.53**	-1.47**	-1.02**	-80.06
Pashai	0.08	0.14	0.17	0.18	0.49**
Other	-0.43*	-0.42*	-0.42*	-0.36*	-0.32
Respondent Currently Working					
No (RC)					
Yes		0.08	0.09	-0.07	-0.01
Respondent's Occupation					
Not working (RC)					
Professional/ technical/ managerial		-0.34*	-0.34*	-0.08	-0.17
Clerical		-1.02	-1.02	-0.78	-0.88
Agricultural - self employed		-0.27	-0.25	-0.31	-0.46*
Services		0.29	0.32	0.53	0.37
Skilled manual		-0.20	-0.19	0.01	-0.13
Unskilled manual		-0.11	-0.09	-0.02	-0.18
Husband's education level					
No education (RC)					
Primary					
Secondary			0.08	0.04	0.06
Higher			0.36**	0.26**	0.19**
Husband's occupation			0.40**	0.36**	0.31**
Professional/technical/managerial (RC)					
Clerical			-0.03	0.05	-0.05
Agricultural, self-employed, employee			0.09	0.22**	0.02

Characteristics	Model 1	Model 2	Model 3	Model 4	Model 5
Services/Sales			-0.07	0.03	-0.09
Skilled manual			0.24**	0.22**	0.07
Unskilled manual			0.17*	0.23**	0.14*
Region					
Central				1.47**	
Central highland				0.59**	
East				0.74**	
North east				0.65**	
North				1.27**	
South east				1.80**	
South				0.47**	
West (RC)					
Provinces					
Kabul					2.08**
Kapisa					1.16**
Parwan					1.89**
Wardak					3.01**
Logar					3.24**
Nangarhar					1.43**
Laghman					1.90**
Panjsher					1.61**
Baghlan					1.35**
Bamyan					1.63**
Ghazni					2.75**
Paktika					3.93**
Paktya					2.62**
Khost					1.69**
Kunarha					1.42**
Nooristan					2.02**
Badakhshan					1.15**
Takhar					1.11**
Kunduz					1.82**
Samangan					1.73**
Balkh					1.97**
Sar-E-Pul					2.11**
Ghor					0.62**
Daykundi					1.06**
Urozgan					1.88**
Zabul					2.43**
Kandahar					1.52**
Jawzjan					2.10**
Faryab					2.12**
Helmand					1.37**
Badghis					0.52**
Heart					0.97**
Farah					0.87**
Nimroz (RC)					
Type of Place of residence					
Urban (RC)					
Rural				0.47**	0.45**

($*$ $0.01 \leq P < 0.05$ $**$ $P < 0.01$ RC: reference category)

0.17 year older respectively than the first marriage age of the women whose husbands are professionals.

The findings of the variable "province" reveal that women living in the province of Nimroz have significantly younger first marriage age than the women living in all other provinces of Afghanistan. Women living in Paktika marry 3.93 years older than women living in Nimroz. Women living in Logar marry 3.24 years older on average than women living in Nimroz. Women who live in Wardak marry3.01 years older on average than women who live in Nimroz. Moreover, Women living in rural areas have significantly higher first marriage age than women living in urban areas. Women who live in urban areas marry 0.47 of a year younger on average than women who live in rural areas.

5. Discussion and conclusions

The results of the analyses show that all the explanatory variables except only one variable named as "respondent currently working" are significantly associated with women's first marriage age. The results of "highest education level" clearly suggest that women's first marriage age and education are directly associated as women marry later as their level of education increases. The difference between the marriage age of women with no or primary education and women with higher education is about two years. The differences between the first marriage age of women with no / primary education and other educational levels are significant in every model even when in model occupation of women and in Model 3 husband's characteristics are controlled, and in Models 4 and 5 regional characteristics are controlled. The variable that has the most significant association with first marriage age is possibly the "highest education level".

Findings from all five models reveal that "ethnicity" is also a significant factor to determine women's first marriage age. The economic characteristics namely "respondents currently working" and "respondent's occupation" did not show any significant relationship with women's age at first marriage. We found no significant difference in the mean first marriage age of the currently working women or currently not working women. There is a very large number of women in Afghanistan who do not relate to any occupation. Only 13 % of the women are engaged in different types of occupations. Unexpectedly, the outcomes of all multivariate models show that occupation has not a significant effect on the women's first marriage age.

Husband's education level is added in Model 3 and showed a significant relationship with the outcome variable. The output of this variable reveal that wives of highly educated husbands have higher mean marriage age in comparison to wives of uneducated husbands. Husband's occupation is also significantly associated with women's age at marriage. As we seen earlier in the bivariate analysis, multivariate analysis also show that husband's occupation has a little effect on women's marriage age.

Geographical characteristics are included in Models 4 and 5. Findings show that all the three factors "region", "province" and "type of place of residence" have a significant effect on women's marriage age. But an expected finding is that the women living in rural areas marry half year later than women of urban areas.

As it is hypothesized, the results of the study show that birth cohort, education level, ethnicity, region of residence, women's employment status and husband's education and

job status significantly affect women's first marriage age. Increase in the level of education increases the women's marriage age. Women's and husband's high status of employment and husband's higher level of education are positively associated with women's first marriage age.

Considering the above discussion, we can conclude that women who have higher marriage age, compared to those having lower age at marriage are more likely to belong to Turkmen or Pashai, live in rural areas of Southeast or Central region of Afghanistan, have higher education, be in the services sector and have higher occupational status. They also marry husbands, who got higher education and have higher status jobs.

References

1.   Adedokun, O. A. (1999). Shifting patterns of age at first marriage and implications for family size in metropolitan Lagos (Nigeria).
2.   Becker, G. S., and Becker, G. S. (2009). *A Treatise on the Family*: Harvard university press.
3.   Bongaarts, J. (1982). The fertility-inhibiting effects of the intermediate fertility variables. *Studies in Family Planning*, 179-189.
4.   Carmichael, S. (2011). Marriage and power: Age at first marriage and spousal age gap in lesser developed countries. *The History of the Family,* 16(4), 416-436.
5.   Davis, K., and Blake, J. (1956). Social structure and fertility: An analytic framework. *Economic development and cultural change,* 4(3), 211-235.
6.   De Silva, W. I. (1997). The Ireland of Asia: trends in marriage timing in Sri Lanka. *Asia-Pacific Population Journal,* 12(2), 3-24.
7.   De Silva, W. I. (1998). Emerging reproductive health issues among adolescents in Asia. *Boston, MA: Harvard School of Public Health*.
8.   Ikamari, L. (2005). The effect of education on the timing of marriage in Kenya. *Demographic Research,* 12, 1-28.
9.   Jones, G. W., and Gubhaju, B. (2009). Factors influencing changes in mean age at first marriage and proportions never marrying in the low-fertility countries of East and Southeast Asia. *Asian Population Studies,* 5(3), 237-265.
10.   Kamal, S. M. (2011). Socio-economic determinants of age at first marriage of the ethnic tribal women in Bangladesh. *Asian Population Studies,* 7(1), 69-84.
11.   Kim, K. (2017). The changing role of employment status in marriage formation among young Korean adults. *Demographic Research,* 36, 145-172.
12.   Lewis, S. K., and Oppenheimer, V. K. (2000). Educational assortative mating across marriage markets: Nonhispanic whites in the United States. *Demography,* 37(1), 29-40.
13.   Lichter, D. T., LeClere, F. B., and McLaughlin, D. K. (1991). Local marriage markets and the marital behavior of black and white women. *American journal of Sociology,* 96(4), 843-867.
14.   Mahdaviazad, H., Malekmakan, L., Sayadi, M., and Tadayon, T. (2019). Trends in age at first marriage in women and related factors: A population-based study in southwestern Iran. Women and Health. https://doi.org/10.1080/03630242.2018.1449776
15.   McLanahan, S., and Casper, L. (1995). Growing diversity and inequality in the American family. *State of the Union: America in the 1990s, 2*, 1-45.
16.   Nguyen, H. M. (1997). Age at first marriage in Viet Nam: patterns and determinants. *Asia-Pacific population journal, 12*(2), 49-74.

17. Oppenheimer, V. K. (1988). A theory of marriage timing. *American Journal of Sociology,* 94(3), 563-591.
18. Oppenheimer, V. K., Kalmijn, M., and Lim, N. (1997). Men's career development and marriage timing during a period of rising inequality. *Demography, 34*(3), 311-330.
19. Rasul, A., Nasir, J., Akhtar, S., and Hinde, A. (2022). Factors associated with female age at first marriage: An analysis using all waves of the Pakistan Demographic and Health Survey. *PLOS ONE*, 17(3), e0264505. https://doi.org/10.1371/journal.pone.0264505
20. Ruggles, S. (2015). Patriarchy, power, and pay: The transformation of American families, 1800–2015. *Demography,* 52(6), 1797-1823.
21. Saardchom, N., and Lemaire, J. (2005). Causes of increasing ages at marriage: An international regression study. *Marriage and family review,* 37(3), 73-97.
22. Savitridina, R. (1997). Determinants and consequences of early marriage in Java, Indonesia. *Asia-Pacific population journal, 12*(2), 25.
23. Thapa, S. (1996). Its Prevalence and Correlates. *Contributions to Nepalese Studies,* 23(2), 361-375.
24. Torabi, F., and Abbasi-Shavazi, M. J. (2016). Women's education, time use and marriage in Iran. *Asian Population Studies*, 12(3), 229-250.
25. Wong, O. M. (2005). The socioeconomic determinants of the age at first marriage among women in Hong Kong. *Journal of Family and Economic Issues, 26*(4), 529-550.
26. Yabiku, S. T. (2005). The effect of non-family experiences on age of marriage in a setting of rapid social change. *Population Studies,* 59(3), 339-354.