CHAPTER 4 – FACTORS AFFECTING AGE AT FIRST MARRIAGE

Age at marriage is affected by numerous factors, which are in turn inter-related in complex manner. Age at marriage varies across birth cohorts and the educational level of women. As such, marriage postponement among younger women can to a large extent be attributed to the improvement in education over time. Women's education and pre-marital work have significant effects on the timing of marriage. Parts of the educational effects on age at marriage are mediated through pre-marital work, as better-educated women are more likely to work and to marry later. In this chapter, we will assess the independent effects and combined effects of socio-demographic variables. There is a need for multivariate analysis to disentangle the effect of the inter-correlated variables on age at first marriage and to evaluate the net effect of each of these variables to determine which one of these is most important in explaining the variance in the timing of marriage. Models with the correct specifications using the available background and socio-economic variables also can be built to predict the age at first marriage.

First, the analysis of variance is performed to assess the effects of the independent variables on age at first marriage. Post-hoc analysis using Scheffe's test is performed for pair-wise comparisons to determine the significant group differences. This will be followed by multiple classification analyses (MCA) to examine the gross and net effects of each explanatory variable net of the effects of other variables in the model. Multiple regressions using dummy variables will also be used to estimate the effects of the predictor variables that were found to be significant in the analysis of variance, as well as

building models to predict age at first marriage. Finally, results from logistic regressions are used to ascertain factors associated with early marriage (i.e. by age 21).

4.1 ANALYSIS OF VARIANCE

An analysis of variance on age at first marriage was performed on a number of independent variables: ethnicity, educational attainment, current place of residence, pre-marital work status, husband's educational attainment and the age difference between spouses. Religion has to be assessed separately from the respondent's ethnic group because the inclusion of both will result in problems of multicollinearity. The model that includes ethnicity explains 35.8 percent of the variance in age at first marriage, as compared to 36.8 percent for the model that includes religion (See Table 4.1 and 4.2 respectively). Other variables such as the respondent's age, childhood residence, birth cohorts, marriage cohorts, current work status, and husband's income as well as work status were omitted because they did not have statistically significant relationships with the age at first marriage. For instance, the effects of including birth cohorts and childhood place of residence with the rest of the significant variables can be seen in Table 4.3. It can be clearly observed that both these variables are not significant. Two-way interactions were generally insignificant, with the exception of education and ethnicity.

e 4.1: Analysis of variance of age at first marriage for women aged 30 years and over who married before age 30 years on selected variables

ce of variation	Sum of squares	Degrees of freedom	Mean squares	F-test	Significance of F-test
ors					
ucation level	1169.415	3	389.805	41.899	0.000
sband's education	126.849	3	42.283	4.545	0.000
rrent residence	180.665	1	180.665	19.419	0.000
-marital work	1829.625	1	1829.625	196.662	0.000
e difference	3082.156	3	1027.385	110.431	0.000
nic group	448.044	2	224.022	24.080	0.000
ucation level * hnic group	219.156	6	36.526	3.926	0.001
plained	7055.91	19	371.364	39.919	0.000
sidual	2704.647	2744	9.303		
tal	39760.557	2763			

squared = 0.358

ble 4.2: Analysis of variance of age at first marriage for women aged 30 years and over who married before age 30 years with selected variables

ource of variation	Sum of squares	Degrees of freedom	Mean Squares	F-test	Significance of F-test
actors					
Education level	1474.084	3	491.361	52.788	0.000
Husband's education	90.386	3	30.129	3.237	0.021
Current residence	157.716	1	157.716	16.944	0.000
Pre-marital work	1856.500	1	1856.5	199.448	0.000
Age difference	3063.137	3	1021.046	109.693	0.000
Religion	549.830	3	183.277	19.690	0.000
Explained	7191.653	14	513.690	55.188	0.000
Residual	30285.369	2543	9.308		
Total	37477.022	2557			

R-squared= 0.368

4.3: Analysis of variance of age at first marriage for women aged 30 years and over who married before age 30 years with selected variables

e of variation	Sum of squares	Degrees of freedom	Mean Squares	F-test	Significance of F-test
ırs					
cation level	1118.305	3	372.768	31.139	0.000
band's education	123.240	3	41.080	3.430	0.010
rent residence	168.866	1	168.866	14.106	0.000
marital work	1795.574	1	1795.574	14.992	0.000
difference	3074.739	3	1024.913	85.616	0.000
nic group	440.427	2	220.213	18.395	0.000
h cohort	7.649	3	2.550	0.213	0.844
ldhood residence	0.128	1	0.128	0.011	0.907
ıcation level*	219.999	6	36.666	3.062	0.035
ınic group					
lained	6948.927	23	302.127		
idual	32812.655	2741	11.970		
al	39761.582	2764			

quared = 0.358

Post-hoc analysis using Scheffe's test showed that all pair-wise differences in age first marriage are significant for most variables, except for the following pairs:

Husband with no schooling and husband with primary education

Age difference between 6-10 years and age difference of more that 10 years

Muslim and Hindu; Christian and Buddhist

MULTIPLE CLASSIFICATION ANALYSIS OF AGE AT FIRST MARRIAGE

The ANOVA of age at first marriage in Table 4.1 shows a significant interaction
:en education and ethnicity in explaining age at first marriage. The mean age at first
age by educational level and ethnic groups is plotted in Figure 4.1 to provide a
l display of the interaction term. The interaction term between education and
city is only significant between the Indians and the Chinese, and since the F value
!6) for the interaction term is relatively small, both the variables are entered into
\, which is an additive model.

Results in Table 4.4 show that the model explains 27.5 percent of the variance in
at first marriage. Overall, uneducated, rural Malay who did not work prior to
riage tend to have the lowest mean age at first marriage. Women's pre-marital work
education attainment are the two most important predictors of age at first marriage at
bivariate level (with eta value of 0.37 and 0.36 respectively). They remain the two
ıst important predictors (with beta value of 0.27 and 0.25 respectively) within the
ıltivariate context, after controlling for the effects of all other variables in the model.
ıble 4.4 also shows that after adjusting for all other variables in the model, the
lucational effects on age at first marriage would be reduced, as part of the differentials
:e mediated through pre-marital work and other variables. However, a differential of
ıore than 3 years can still be observed between women with no schooling and those with
ertiary education.

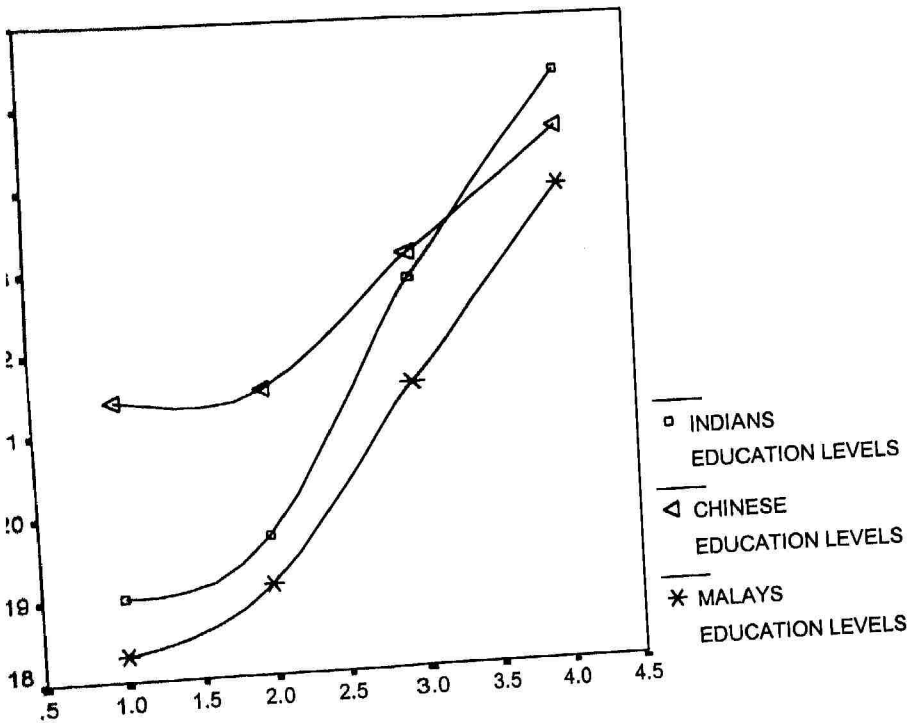
The fact that Malay women marry at the youngest age as compared to their and Indian counterparts is well documented. In this sample, the mean age at first e among Malay women is about 1.9 years and 0.6 year earlier than their Chinese lian counterparts respectively. Part of the differentials, however, could be due to mpositional differences in education, work status and other background variables. holding other variables constant would have reduced the ethnic differentials, as in Table 4.4-- the Malays would marry 1.3 years earlier than the Chinese and 0.7 arlier than the Indians. The difference in the age at first marriage between the s and the Indians remains practically unchanged after controlling for other les, indicating that these two groups are not much difference with respect to tion, premarital work and other background variables.

Women's pre-marital work status produces the most pronounced effect on age at marriage, as shown by the relative size of the beta value. At the bivariate level, those worked before marriage were married some 3 years later than their non-working terparts. However, the difference is reduced to about 2.2 years after adjusting for r variables.

Current place of residence has the least effect on the age at first marriage, as wn by the small beta value. At the bivariate level, urban women married some 1.6 ars later than their rural counterparts. However, most of this difference is mediated ough other variables in the model, as shown by the modest net effect of 0.45 year only.

Women's age at marriage is strongly and positively correlated with husband's ion. Those who marry men with tertiary education were married some 4.4 years nan those whose husband had not been to school. However, after controlling for variables, the effect of husband's education is fairly moderate with a beta value of (see Table 4.4). This indicates that most of the effects of husband's education been mediated through women's education and their pre-marital work status, as as other background variables.

re 4.1: Mean age at first marriage among Malaysian women aged 30 years and over who married before age 30 years by ethnic groups by educational levels



lucational levels

1 No formal education
2 Primary
3 Secondary
4 Tertiary

e 4.4: Multiple Classification Analysis of age at first marriage of ever-married women aged 30 years and over who married before age 30 years

teristics	Number of women	Deviations from the grand mean of 21.0 years	
		Unadjusted (Gross)	Adjusted for factors (Net)
tion level			
61, β=0.251)			
rmal education	246	-1.6951	-1.141
ıry	1283	-1.0538	-0.741
ıdary	1104	1.0553	0.734
ıry	190	3.1789	2.217
c group			
261, β=0.149)			
y	1710	-0.5988	-0.427
ese	800	1.2688	0.851
ın	313	0.0287	0.157
narital work status			
.372, β=0.272)			
working	874	-2.1064	-1.540
king	1949	0.9446	0.690
ent place of residence			
.228, β=0.059)			
an	1531	0.7956	0.205
al	1292	-0.9427	-0.243
band's education level			
).328, β=0.117)			
formal education	99	-2.0606	-0.975
mary	1210	-1.1686	-0.417
condary	1226	0.7708	0.356
rtiary	288	2.3368	0.573

ınd mean = 21.0 years; Multiple R = 0.524; R-squared = 0.275

'NET" EFFECTS OF SOCIO-DEMOGRAPHIC DETERMINANTS OF AGE AT FIRST MARRIAGE

Ordinary Least Squares regressions using both dummy and quantitative variables formed to estimate the net effects of the predictor variables on age at first ge. The predictors that are entered into three regression models include dent's and husband's years of schooling, age difference between spouses, ty, religion, current place of residence, pre-marital work status and marriage . Other variables such as childhood place of residence, birth cohort, age of dent and current work status are not included as they do not have statistically icant relationship with age at first marriage, or would pose problems of collinearity.

Table 4.5 shows the regression model of age at first marriage on respondent's of schooling, age difference between husband and wife, ethnicity, pre-marital work s, current place of residence and husband's years of schooling. These predictor bles explained some 32 percent of the variance in age at first marriage. Premarital k status, spousal age difference and women's education are the three most important ors affecting age at marriage, in that order. Controlling for other variables, age at riage would increase by 0.127 year for every additional year of schooling of the men, while an increase of one year in spousal age difference would result in a luction of age at marriage by 0.172 year. Women's age at marriage also varies by sband's educational level, and it is almost as important as that of the women. The nic effects "net" of other variables show that a Chinese and Indian woman would

me 1.13 years and 0.54 year later than a Malay woman respectively. Women ked before marriage would marry some two years later than those who did not steris paribus. Urban women would marry half a year later than their rural parts, once the other factors are taken into account.

.5: Model 1 of the ordinary least squares regression on the age at first marriage of women who are aged 30 years and over who married before age 30 years

25 ations) ables	Unstandardized coefficients	Standard error	Standardized coefficients	T-statistics	Significance of T-test
nt	17.632	0.190		92.814	0.000
ndent's f ing	0.127	0.015	0.159	8.436	0.000
nce en es	-0.172	0.011	-0.244	-15.170	0.000
* ese ns	1.128 0.536	0.143 0.198	0.133 0.044	7.894 2.706	0.000 0.007
arital s** rking	2.091	0.133	0.255	15.686	0.000
ent place dence*** an	0.543	0.130	0.071	4.188	0.000
band's rs of ooling	0.134	0.019	0.136	6.928	0.000

quared = 0.322; Reference categories: *) Malay **) Not working ***) Rural

Table 4.6 presents the second regression model of age at first marriage on ent's years of schooling, spousal age difference, and religion. The educational are about the same as seen in Model 1. Controlling for other variables, Muslim marry significantly earlier than those from all other religions in this study. The st women marry the latest, followed by Christian women and Hindu women. This explains only 21.5 percent of the variance in age at marriage.

4.6: Model 2 of the ordinary least squares regression on the age at first marriage of women who are aged 30 years and over who married before age 30 years

025 vations) iables	Unstandardized coefficients	Standard error	Standardized coefficients	T-statistics	Significance of T-test
nstant	20.126	0.148		135.862	0.000
ondent's of ling	0.208	0.014	0.260	15.368	0.000
rence een ses	-0.212	0.012	-0.392	-17.879	0.000
ondent's ion* istians du ddha	1.343 0.390 1.465	0.370 0.223 0.172	0.061 0.029 0.144	3.633 1.746 8.522	0.000 0.081 0.000

quare = 0.215; Reference category: *) Islam

the third model, age at first marriage is regressed on women's years of current residence, pre-marital work status, spousal age difference, husband's and marriage cohorts. Other variables that are not significantly related to age at age are excluded. This model (shown in Table 4.7) explains 45.7 percent of the in age at first marriage, much more than the first two models. The effects of ge difference and premarital work status remain very strong, as in the case of the del. However, the educational effects of both the women and husbands are ially reduced with the inclusion of marriage cohorts. This suggests that women re recently married are better educated than those who were married much earlier. ling for all other variables, women who were married in 1971-75, 1976-80, 1981-6-95 had entered marriage some 1.6 years, 2.5 years, 3.6 years and 5.7 years later ively as compared to women who were married before 1971.

Model 3 of the ordinary least squares regression on the age at first marriage of

omen who are aged 30 years and over who married before age 30 years

;5 tions) bles	Unstandardized coefficients	Standard error	Standardized coefficients	T-statistics	Significance of T-test
	17.246	0.184		93.508	0.000
;nt's g	0.032	0.014	0.040	2.308	0.021
)lace of ;*	0.780	0.112	0.102	6.939	0.000
tal work g	1.502	0.120	0.183	12.526	0.000
;erence . spouses	-0.148	0.010	-0.210	-14.546	0.000
d's years)ling	0.0375	0.018	0.038	2.135	0.033
;e ***					
975	1.623	0.167	0.173	9.730	0.000
980	2.465	0.163	0.281	15.080	0.000
985	3.627	0.179	0.396	20.305	0.000
995	5.720	0.216	0.485	26.536	0.000

ıred= 0.457; Reference categories: *) Rural **) Not working
***) Married before 1971

)GISTIC REGRESSION ANALYSIS OF MARRYING BEFORE AGE 21 ND AGE 21-25 YEARS

able 4.8 and Table 4.9 present the logistic regression estimates of the effects of pendent variables on the likelihood of marrying before age of 21 years and the ages of 21-25 years respectively. The odds of marrying before age 21 years tio of marrying before 21 years old to those who are marrying at 21 years and Correspondingly, the odds of marrying between the ages of 21-25 years old are) of marrying between those ages to those who marry outside the range. A positive ient indicates an increase in the log odds and consequently an increase in the ility of marrying by the respective ages. Likewise, a negative coefficient indicates ease in the log odds of marrying for the first time before the age of 21 years and en the ages of 21-25 years.

By comparing Table 4.8 and Table 4.9, it can be observed some contrasts in the bility of marrying by the age of 21 years and between 21-25 years old. It is evident Table 4.8 that the probabilities of marrying by age 21 years is the lowest for the ese followed by the Indians compared to the Malays. On the contrary, as can be seen able 4.9, the probability of marrying between the ages of 21-25 years is the highest he Chinese followed by the Malays while the Indians have the lowest probability of rying between those ages.

With regard to education, as expected, the more highly educated the woman is the s likely she is to marry early, in this case, before age 21 years old. The probability of

ɛfore age 21 years increases, as the education level of the woman gets lower. he probability of marrying between the ages of 21-25 years is the highest for th tertiary education, and the probability decreases for the lesser-educated

.e likelihood of marrying before age 21 years is lower for those who live in the as as compared to those who live in the rural areas. In contrast, the probability ing between the ages of 21-25 years old is higher for the women who are living in the urban areas as compared to those who are living in the rural areas.

Vomen who worked before getting married are less likely to marry before the age ars old. On the other hand, the likelihood of marrying between the ages of 21-25 higher for those who worked before they are married as compared to those who work.

As for the age difference between spouses, the wider the age gap, the more likely nen to marry before age 21 years, especially so when compared to women who are han their husbands. However, the probability of marrying between the ages of 21- ırs decreases for women who are younger than their husbands by more than 6 years ared to the women who are older than their husbands. Interestingly, the women who etween 0 to 5 years younger than their husband are slightly more likely to marry een the ages of 21-25 years as compared to women who are older than their ands.

ıband's education has a significant effect on women's age at first marriage. bility of a woman marrying before age 21 years is lower for those whose ıre highly educated. Conversely, women are more likely to marry between the -25 years if their husbands are highly educated.

Table 4.8: Logistic regression analysis on the likelihood of marrying before age 21 years for women who are aged 30 years and over who married before age 30 years

Variables	Coefficients β	Standard error	Significance level	Exp (β)
1.Ethnic group				
-Chinese	-0.7520	0.1050	0.0000	0.4714
-Indians	-0.1595	0.1365	0.2424	0.8526
2.Education level				
-Primary	-0.2942	0.1538	0.0559	0.7452
-Secondary	-1.1726	0.1682	0.0000	0.3096
-Tertiary	-2.4700	0.3314	0.0000	0.0846
3.Pre-marital work status				
-Working	-1.1911	0.0952	0.0000	0.3039
4.Current place of residence				
-Urban	-0.2763	0.0914	0.0025	0.7586
5.Age difference between spouses (Husband's age – wife's age)				
-0 to 5 years	0.8425	0.1534	0.0000	2.3222
-6 to 10 years	1.6303	0.1654	0.0000	5.1056
-More than 10 years	1.7009	0.1981	0.0000	5.4790
6.Husband's education level				
-Primary	-0.4539	0.1847	0.0140	0.6351
-Secondary	-0.7874	0.1915	0.0000	0.4550
-Tertiary	-1.0672	0.2652	0.0001	0.3440

R-squared=0.349

Reference categories: 1) Malay 2) No formal education 3) Not working 4) Rural 5) Less than zero years 6) No formal education

Table 4.9: Logistic regression analysis on the likelihood of marrying between the ages of 21-25 years for women who are aged 30 years and over who married before age 30 years

Variables	Coefficients β	Standard error	Significance level	Exp (β)
1.Ethnic group				
-Chinese	0.3158	0.0953	0.0009	1.3714
-Indians	-0.0282	0.1325	0.8313	0.9722
2.Education level				
-Primary	0.3157	0.1590	0.0470	1.3713
-Secondary	0.8895	0.1693	0.0000	2.4339
-Tertiary	0.9305	0.2409	0.0001	2.5357
3.Pre-marital work status				
-Working	0.7634	0.0946	0.0000	2.1456
4.Current place of residence				
-Urban	0.0370	0.0872	0.6715	1.0377
5.Age difference between spouses				
-0 to 5 years	0.0102	0.1293	0.9369	1.0103
-6 to 10 years	-0.4603	0.1443	0.0014	0.6311
-more than 10 years	-0.6937	0.1862	0.0002	0.4997
6.Husband's education level				
-Primary	0.0017	0.1790	0.9925	1.0017
-Secondary	0.3218	0.1835	0.0795	1.3796
-Tertiary	0.6069	0.2328	0.0091	1.8347

R-squared= 0.153

Reference categories: 1) Malay 2) No formal education 3) Not working 4) Rural 5) Less than zero years 6) No formal education