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Teenage Marriage and Educational Continuation in Thailand

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Introduction

In the 21st century, female teenagers of developing countries are increasingly delaying their marriage. It happens mainly due to social and structural changes that provides wide opportunities and raises their aspirations. The rate of school enrollment of girls is increasing and the gender gap in secondary schooling is reducing throughout the developing world (Population Reference Bureau (PRB), 2006). Thus, it is manifested that an increasing proportion of young women continues their education and delays their marriage. In spite of this trend, marriage among adolescents aged 15-19 years is widespread in developing countries. It is evident that in developing countries excluding China, 23 percent of females aged 15 to 19 years are married compared to three percent in developed countries (PRB, 2006).

In Thailand, the total fertility rate (TFR) is below the replacement level. Now it stands at 1.5 children per woman (National Statistical Office (NSO), 2007). In addition, the great majority of Thai females is delaying their marriage. In 2000, the female singulate mean age at marriage (SMAM) becomes 24.1 years (NSO, 2000). It is noticeable that the prevalence of never married women is increasing in the Thai society (Xenos and Gultiano, 1992) and attitude towards universal and arranged marriage among the Thai population has been changing rapidly. However, a considerable proportion of teenage marriage persists in the Thai society.

The proportion of Thai ever married women aged 15-19 years is higher. It was 15 percent in 1990, while female SMAM was 23.5 years (United Nations, 2000). During the same period, the proportion of ever married women aged 15-19 years of the neighboring countries was lower than that of Thailand (See Appendix 1). Even in 2006, 14 percent of Thai women aged 15-19 were ever-married (NSO, 2006). Apart from that, Thai teenage fertility is also relatively higher. Age specific fertility rates (ASFR) among Thai women aged 15–19 reduced from 58 per 1000 in 2004 to 42 per 1000 in 2007. Yet, this level is higher than the Southeast Asian regional level (34 per 1000). It is also higher than that of many neighboring countries (See Appendix 2, United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), 2004 and 2007).

Since childbearing out of wedlock is not acceptable in the Thai society, age at first marriage is generally considered as a marker of the onset of sexual experience. Early marriage causes less educational attainment and fewer economic opportunities for young women. Thus, it acts as a barrier to improve women's autonomy and often lowers their status in society. The Thai female gross secondary enrolment rate has increased substantially over recent years. Although, the overall gross secondary enrolment rate has increased from 30 percent in 1991 to 72 percent in 2005 (United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics (UIS), 2007); but it was 86 percent at the lower secondary level whereas it was 63 percent at the upper secondary level (UNESCO, 2007).

This indicates substantial proportions of attrition during the transition from lower secondary to upper secondary educational level. So, it is clear that many Thai females who enroll in secondary education do not complete their basic education of 12 years, which becomes compulsory in the National Education Act of Thailand in 1999 (Office of the National Education Commission (ONEC), 1999). In the Kanchanaburi province, the average years of educational attainment of population aged 15 years and over were only 6.2 years, and 40.8 percent of the population aged 6-24 years did not attend school (NSO, 2000).

The female SMAM of the Kanchanaburi province was also similar to the national level (NSO, 2000) but it was three years lower for the Kanchanaburi Project (Guest and Jampaklay, 2003: 81). In the Kanchanaburi province, eighteen percent of mothers were younger than 20 years (Bureau of Health Policy and Strategy, Ministry of Public Health, 2004). The higher teenage fertility was also evident in the Kanchanaburi Project, where ASFR for the age group of 15-19 maintained a fluctuating trend (See Appendix 3). Due to lack of direct information, these fertility statistics are considered as a proxy to reflect the situation of teenage marriage in Kanchanaburi.

Hence, this study examines the relationship between the timing of first marriage and educational continuation among Thai women aged 15-19 in the Kanchanaburi Project, where levels of teenage marriage still remain high. The study findings are expected to contribute to policy formulation to reduce teenage marriage and to ensure the completion of their basic education.

Conceptual Framework

The study is supported by rational choice theory and social control theory. Timing of first marriage can be explained by the rational choice theory (Turner, 1998) in terms of decisions made about the cost and benefits of marriage within the existing social structure and opportunities. Adolescents, who can overcome social and economic barriers and value education, are less likely to marry than those who place less value on education. On the other hand, adolescents, who are socially disadvantaged, strategically consider the early marriage as their protective shield to have a secure life.

Social control theory (Hirschi, 1969) focuses on the structural factors that influence decision making processes. Family attributes such as sex of head of the household and family structure are argued to influence the socialization of young people and affect their decision making about major life events such as the timing of marriage. The adolescents of female headed families will be socialized in a different way than those of male headed families. Besides, this situation is also related to economic conditions of the family.

In the conceptual framework of this study, respondents' completed education and work status are the key independent variables. The timing of first marriage is the dependent variable. The relationship between these key independent variables and the dependent variable is examined after controlling for other socio-economic factors.

Methodology

Data collected under the Kanchanaburi Project was used in this study. The Kanchanaburi Demographic Surveillance System (KDSS) consisted of five rounds of cross sectional censuses. These were carried out annually during the period of 2000 to 2004. Thus, a longitudinal database was established with information on demographic, economic and social status of the study population which was collected at regular intervals. The data was used to record the exact time and ordering of events. The independent variables are measured before marriage occurred.

The study population consisted of all female adolescents aged 15 to 19 years and unmarried at the time of enrollment into the KDSS. Female adolescents are considered at risk of experiencing the event "first marriage" from the beginning of their reproductive age, i.e. 15 years. They were followed from the round they first entered the

KDSS to the round they exited the KDSS. The total number of respondents was 1,450. Each individual had at least two years of observation periods in order that the temporal ordering[1] of each variable could be established. In KDSS, repeated interviews with the same individual at different points of time assist in creating the temporal ordering of events.

Method of Analysis

Event history method is the main approach used in the analysis. The duration from the onset of exposure to the time that the respondent was married is modeled as a function of a set of covariates (Singer and Willett, 2003; Ruspini, 2002). The information from the KDSS makes it possible to study the transition from an unmarried state to a married state at the individual level. Life tables and discrete time[2] logistic regression are the specific methods used in the analysis.

The life table method, a non-parametric method, is used to examine the distributions of individuals across the occurrence of events, i.e. the distributions of time until an event occurs. Thus, it compares respondents at the time when the event occurs. Life table analysis estimates the probability of survival past a certain point in time and compares the survival experiences among sub-categories of respondents (Blossfeld and Rohwer, 2002). This method is used in this study to describe the timing of marriage and how this risk varies by their characteristics. The main statistic used is survival time to the occurrence of first marriage.

As a probability in discrete time, hazard and survival rates are bounded by 0 and 1. The hazard function or rate is one of the main functions described in the analysis. This discrete time hazard function assesses the conditional risk of event occurrence among those individuals who are still “at risk” of having an event at that particular time. The median survival time[3] could not be estimated in this study because of the high proportion of censored data. Thus survival time at the 25^{th} percentile is used to summarize differences in survival between different groups.

Discrete time logistic regression is used to model the timing of marriage. This method regress a set of covariates on survival time. The covariates act on the underlying hazard probability. This method addresses the question about “why events occur at different times for different people” (Singer, and Willett, 2003). Maximum likelihood methods are used to estimate the parameters (Agresti, 1996). Unlike ordinary regression analysis, discrete time logistic model is able to handle right censored data.

Study Findings

Descriptive Analysis

The descriptive analysis summarizes the socio-economic and demographic characteristics of the study population by their marital status (see Table 1). Individuals are the unit of analysis. Eighteen percent of the sample had experienced a first marriage. Thirty nine percent of the respondents have completed their lower secondary education before they married; whereas 54 percent of the respondents who have completed upper secondary or higher education remained unmarried. Two thirds of the unmarried respondents were in school until the end of observation period; whereas 19 percent of the respondents were in school before they married. Almost one third of the respondents were working in the agricultural sector and 23 percent of the respondents were working in the non-agricultural sector before marriage. Forty percent of the respondents were living in households with poor economic status before they married. Around 60 percents of the respondents were living in extended families before they married. The majority of the married respondents were living in households where household head had either no education or a primary education and was working in the agricultural sector.

Table 1: Percentage Distribution of First Marriage by Background Characteristics

Background Characteristics	Married	Unmarried	Total Number of cases
Completed Education			
No education or less than primary education	11.6	1.6	49
Primary education	32.4	12.6	234
Lower secondary education	38.6	31.1	470
Upper secondary or higher education	15.4	53.6	678
Other	1.9	1.2	19
Work Status			
Out of school and not involved in any work	28.2	4.6	128
In school as a student and not working at all	18.5	75.2	944
Out of school and working in agricultural sector	30.1	11.7	217
Out of school and working in non-agricultural sector	23.2	8.5	161

Table 1: (Continued)

Background Characteristics	Married	Unmarried	Total Number of cases
Strata of Residence			
Urban/ Semi urban	15.8	25.4	343
Rice field	15.1	20.2	280
Plantation	20.1	17.2	257
Uplands	23.9	14.8	238
Mixed economy	25.1	22.4	332
Household Wealth Index[1]			
Poor	39.8	20.2	344
Average	50.2	51.0	738
Rich	10.1	28.7	368
Family Structure[2]			
Nuclear	41.3	53.8	748
Extended	58.7	46.2	702
Sex of Head of Household			
Male	73.4	70.3	1027
Female	26.6	29.7	423
Education of Head of Household			
No education or less than primary education	27.0	12.2	215
Primary education	61.0	64.7	928
Lower secondary education	6.9	8.1	115
Upper secondary or higher education	4.2	13.4	170
Others	0.8	1.7	22
Occupation of Head of Household			
Not working	9.7	12.9	179
Working in agricultural sector	63.3	54.5	813
Working in non-agricultural sector	27.0	32.6	458
Total in percentage	100	100	
Total number	259	1,191	1,450

Notes: [1] Household wealth index is used to describe household economic status. It is constructed by using the Principal Component Methods from the 16 selected household assets. These are: Color TV, radio, VCD/VDO, satellite disk, mobile phone, home telephone, computer, air condition, washing machine, sewing machine, microwave, refrigerator, bicycle, motor cycle, car and pick up van.

[2] Family structure has two categories: nuclear and extended family. Nuclear family consists of only three types of family members: household head, spouse and their children. In contrast, when the family also consists of other family members such as parents in law, brother/sister, son/daughter in law, nephew/niece, friend etc; it is considered as an extended family.

Findings of Life Table Analysis

Females who had either no education or less than primary education were more likely to marry than those with higher levels of education (see Table 2). For respondents of this group, the probability of getting married was highest at the age of 17 years, with a hazard rate of 0.45. Around 25 percent of these female adolescents were married by the age of 16.34 years. In contrast, the hazard of getting married was lowest among respondents who had completed upper secondary or higher education. Only 10 percent of these women were married by the age of 19 years. There was a statistically significant difference among educational groups in the timing of first marriage.

The highest hazard of first marriage was found among adolescents who were out of school and were not involved in any occupation. At the age of 16.45 years, 25 percent of this group had married. In contrast, the lowest hazard of marriage was found for those adolescents who were in school and were not involved in any work. Only nine percent of this group was married by the age of 19 years. These differences among groups were statistically significant. The highest marriage hazard among strata was found for female adolescents who were living in the upland stratum. By the age of 17.89 years, 25 percent had married. The lowest hazard was found among female adolescents who were living in the urban/semi urban stratum. Only 17 percent of them were married by the age of 19 years. These differences were statistically significant.

The hazard of marriage was highest among female adolescents who belonged to households with a poor economic status. At the age of 17.57 years, 25 percent of female adolescents living in households with poor economic conditions had married. In contrast, only 11 percent of the female adolescents living in households with a rich economic status were married by the age of 19 years. The difference among groups is statistically significant. These findings reflect that the poverty is one the factors driving early marriage. Poor adolescents, who do not have ability to fund their education, are more likely to marry at an early age.

No statistically significant difference in timing of first marriage was found between female adolescents who were living in a male headed household and those who were living in a female headed household. At the age of 18 years, 22 percent of female adolescents of both groups were married. A statistically significant difference in timing of first marriage was observed by family structure. Female adolescents living in a nuclear family had a lower hazard of first marriage compared to those who had been

living in an extended family. By the age of 18.6 years, 25 percent of young females who had been living in an extended family had married; whereas, by the age of 19 years, only 21 percent of the female adolescents of the nuclear family had married.

The education of household head also had a statistically significant relationship with the timing of first marriage. The hazard was highest among those who were living in a household where the household head did not have any education, or had less than a primary education. By the age of 17.56 years, 25 percent of female teenagers of these households had married. The lowest hazard was found among the females living in a household where household head had upper secondary or higher education. Only nine percent of the female adolescents living in these households were married at the age of 19 years. These differences among groups were statistically significant.

If the respondents lived in a household where the household head worked in the agricultural sector, the hazard of first marriage was slightly higher than other two groups. This overall comparison was statistically significant at the 0.01 level. By the age of 19 years, 28 percent of the respondents in households where the household head was working in the agricultural sector had married. In comparison, 19 percent of those in households where the head was not working, and 21 percent living in households where the head was involved in the non-agricultural sector, had married. These findings suggest that education and occupation of the household head, which indicates the socio-economic situation of households, are related to delayed marriage. If the household heads have no education or less than a primary level of education, they are more likely to work in the agricultural sector, which in turn means that they are less likely to support the education of their children and possibly more likely not to oppose early marriage.

Table 2: Life Table Estimates of Proportion Experiencing First Marriage by Background Characteristics[3]

Background Characteristics	Proportion Experiencing of Marriage at Age at First Marriage					Hazard Rate at Age at First Marriage					Survival time at 25th percentile	Number of case
	15	16	17	18	19	15	16	17	18	19		
Education ***												
No Education or less than Primary Education	14.29	46.03	57.51	65.74	65.74	0	0.153	0.454	0.238	0.214	16.34	49
Primary Education	7.69	22.93	37.18	41.54	41.54	0	0.080	0.179	0.203	0.071	17.15	234
Lower Secondary Education	5.32	12.9	24.85	32.50	35.64	0	0.054	0.083	0.147	0.107	18.02	470
Upper Secondary or Higher Education	0.15	0.59	4.0	8.08	10.34	0	0.001	0.004	0.034	0.043	20.00+	678
Other Education	5.26	16.75	16.75	34.27	34.27	0	0.054	0.129	0.0	0.235	18.47	19
Work Status ***												
Out of school and not involved in any work	13.28	39.10	59.24	63.53	63.53	0	0.142	0.349	0.396	0.111	16.45	128
In school as a student and not working at all	0.74	1.86	4.45	7.80	8.97	0	0.007	0.011	0.026	0.035	20.00+	944
Out of school and working in agricultural sector	8.76	18.76	33.34	41.09	43.31	0	0.091	0.116	0.197	0.123	17.43	217
Out of school and working in non-agricultural sector	5.59	20.41	34.16	43.24	47.61	0	0.057	0.170	0.189	0.148	17.33	161
Strata of Residence ***												
Urban/Semi Urban	1.46	4.81	11.36	16.97	16.97	0	0.014	0.034	0.071	0.065	20.00+	343
Rice Field	1.79	7.38	12.59	18.17	26.15	0	0.018	0.059	0.058	0.066	19.86	280
Plantation	7.00	14.41	20.07	23.62	26.67	0	0.072	0.082	0.068	0.045	19.45	257
Uplands	5.04	15.52	26.21	32.04	32.04	0	0.052	0.117	0.135	0.082	17.89	238
Mixed Economy	3.61	9.30	19.15	24.83	24.83	0	0.036	0.060	0.114	0.072	20.00+	332

Note: [3] Characteristics of those who experience marriage are measured before the event occurred and for censored cases, characteristics are measured at the time of censoring.

Table 2: (Continued)

Background Characteristics	Proportion Experiencing of Marriage at Age at First Marriage					Hazard Rate at Age at First Marriage					Survival time at 25th percentile	Number of case
	15	16	17	18	19	15	16	17	18	19		
Household Wealth Index ***												
Poor	5.52	18.20	30.16	37.34	39.58	0	0.056	0.143	0.157	0.108	17.57	344
Average	3.66	9.15	17.43	21.80	24.21	0	0.037	0.058	0.095	0.054	20.00+	738
Rich	1.63	3.34	5.50	10.79	10.79	0	0.016	0.017	0.022	0.057	20.00+	368
Sex of Head of Household												
Male	3.89	10.60	17.97	22.84	25.29	0	0.039	0.072	0.086	0.061	19.88	1027
Female	2.84	7.83	16.07	22.48	22.48	0	0.028	0.052	0.093	0.079	20.00+	423
Family Structure ***												
Nuclear Family	2.54	8.29	13.57	18.26	20.50	0	0.025	0.060	0.059	0.056	20.00+	748
Extended Family	4.70	11.40	21.44	27.39	28.69	0	0.048	0.072	0.120	0.078	18.60	702
Education of Head of Household ***												
No Education or less than Primary Education	5.58	18.76	29.86	39.82	42.62	0	0.057	0.150	0.146	0.152	17.56	215
Primary Education	3.23	9.09	16.60	21.56	23.42	0	0.032	0.062	0.086	0.061	20.00+	928
Lower Secondary Education	6.09	8.82	16.90	19.09	19.09	0	0.062	0.029	0.092	0.026	20.00+	115
Upper Secondary or Higher Education	0.59	3.05	7.04	8.66	8.66	0	0.005	0.025	0.042	0.017	20.00+	170
Other Education	9.09	9.09	9.09	9.09	9.09	0	0.095	0	0	0	20.00+	22
Occupation of Head of Household **												
Not working	1.12	5.24	14.75	18.72	18.72	0	0.011	0.042	0.105	0.047	20.00+	179
Working in agricultural sector	5.17	12.11	19.87	24.43	27.64	0	0.053	0.075	0.092	0.058	19.18	813
Working in non-agricultural sector	1.75	7.47	14.07	21.21	21.21	0	0.017	0.060	0.074	0.087	20.00+	458
Total number of cases												1450

* P<0.05 ** P<0.01 *** P<0.001

Findings of Discrete Time Logistic Regression

The findings of the discrete time logistic regression are presented in three models (see Table 3). Model 1 includes education, work status and age at the time of the survey. Models 2 and 3 include socio economic status and the characteristics of the household head respectively. In model 2, a statistically significant relationship between the respondent's education and the odds of the timing of marriage is observed after controlling the socio-economic status. The odds of marriage were almost three times higher among those who had either no education or less than a primary level of education compared to those who had upper secondary or higher level of education. This relationship remained in model 3 after controlling for the characteristics of the household head. Other educational categories were not significantly different from the reference category of upper secondary or higher level of education.

Work status was strongly related to the odds of marriage. In all three models, the odds of marriage was 96 percent less likely among those who were in school as a student and were not working at all compared to those who were out of school and were working in the non-agricultural sector. The odds of marriage was two times higher among those who were out of school and were not involved in any work compared to those out of school and working in the non-agricultural sector. Age of the respondent had statistically significant relationship with the odds of marriage only in model 1. The odds of marriage were 32 percent lower among those who were within the age group of 15-16 years than those who were within 17-19 years. But this relationship was not significant after controlling for socio-economic status and characteristics of the household head.

Models 2 and 3 found no statistically significant relationship between socio-economic variables of strata of residence, household wealth index and characteristics of the household head with the odds of marriage. A statistically significant relationship was found between the odds of marriage and family structure. In model 2, the odds of marriage were almost 70 percent lower for respondents living in nuclear families compared to those living in extended families. This significant relationship remained after controlling for the characteristics of the household head. All three models were statistically significant, with the significantly increasing value of the model chi square and the significantly decreasing value of the log likelihood over each successive model.

Summary of Study Findings

In this study, the findings of the life table analysis and discrete time logistic regression support each other. In the final model of discrete time logistic regression, a statistically significant relationship was found between the odds of marriage and education, work status and family structure. These significant relationships were also found in the life table analysis. In addition, life table analysis found statistically significant relationships in the timing of first marriage by strata of residence, household wealth index, education and occupation of household head. Thus, this study found that risk of teenage marriage was lower among those female adolescents who were able to overcome the socio-economic barrier to continue their education.

Table 3: Odds Ratios of First Marriage by Socio-Economic and Demographic Predictors

Socio-Economic and Demographic Variables	Odds Ratio (S.E)	Odds Ratio (S.E)	Odds Ratio (S.E)
	Model 1	Model 2	Model 3
Education			
No Education or less than Primary Education	1.8 (0.304)	2.6**(0.335)	2.9**(0.345)
Primary Education	0.98 (0.218)	0.91 (0.225)	0.93(0.228)
Lower Secondary Education	1.33 (0.211)	1.22 (0.216)	1.20(0.218)
Others Education	0.39 (0.626)	0.48 (0.638)	0.49(0.647)
Upper Secondary or higher education ®			
Work Status			
Out of school and not involved in any work	2.18*** (0.186)	2.04*** (0.194)	2.07 ** (0.198)
In school as a student and not working at all	0.04*** (0.341)	0.04*** (0.344)	0.04*** (0.346)
Out of school and working in agricultural sector	1.18 (0.188)	1.21 (0.201)	1.27(0.213)
Out of school and working in non-agricultural sector ®)			
Age at the time of survey			
15-16 years	0.68*(0.147)	0.791 (0.152)	0.77 (0.153)
17-19 years ®			
Strata of Residence			
Urban/ Semi Urban		0.712 (0.242)	0.642 (0.250)
Rice Field		0.983 (0.231)	0.997 (0.232)
Plantation		0.867 (0.211)	0.893 (0.213)
Uplands		0.892 (0.222)	0.935 (0.229)
Mixed Economy ®			
Household Wealth Index			
Poor		1.24 (0.260)	1.23 (0.270)
Average		1.28 (0.226)	1.26 (0.232)
Rich ®			

Table 3: (Continued)

Socio-Economic and Demographic Variables	Odds Ratio (S.E)	Odds Ratio (S.E)	Odds Ratio (S.E)
	Model 1	Model 2	Model 3
Family Structure			
Nuclear Family		0.28*** (0.172)	0.28 *** (0.186)
Extended Family ®			
Sex of Head of Household			
Male			0.92 (0.164)
Female ®			
Education of Head of Household			
No Education or less than Primary Education			1.13 (0.388)
Primary Education			1.29 (0.360)
Lower Secondary Education			2.46 (0.427)
Others Education			0.76 (0.852)
Upper Secondary or higher education ®			
Occupation of Head of household			
Not working			0.72 (0.253)
Working in agricultural sector			0.80 (.192)
Working in non-agricultural sector ®			
Constant	0.165***(0.215)	0.222***(0.301)	2.17 (0.428)
Model Chi square	478.728***	543.202***	553.372***
-2 Log likelihood	1408.091	1343.618	1333.447

Notes: ® means Reference Category
Number within brackets refers to standard error.
* P<0.05 ** P<0.01 *** P<0.001

Discussion and Conclusion

Teenage marriage has major consequences on the lives of young women. It can reduce their social and economic opportunities. This study found that female teenagers, who were in school and who could successfully continue their education beyond lower secondary level, tended to remain unmarried. Their successful transition from lower to upper secondary education is a commitment to continue their education. They realize the benefit of education for their future and are therefore likely to postpone marriage. Early marriage is more likely among those who were socially disadvantaged and who were unable to complete their education. Not only this study, other studies also found similar findings (Singh and Samara, 1996; Ikamari, 2005). It was found that marriage among adolescent was uncommon in those societies where there was universal achievement of secondary school education.

The timing of marriage significantly varies by residential difference, which is also related to socio-economic development. Strata of residence, which is linked to availability of opportunities and quality of services, also influences the decision making process related to marriage. Level of early marriage was highest in the upland stratum and was lowest in the urban/semi-urban stratum. Urban/semi urban residents have better educational opportunities compared to uplands inhabitants. The more developed educational services probably contributed to delayed marriage among the urban/semi-urban inhabitants. It is also possible that urban/semi urban residents are more able to resist the social pressure regarding teenage marriage. In contrast, the uplands inhabitants are not only underprivileged because of limited educational opportunities; but also they face social pressure towards early marriage.

Delayed marriage is also related to household economic status. Those adolescents, who belonged to more affluent families, have more opportunities to pursue education and careers and are hence likely to delay their marriage. Adolescents from poorer households often do not have the financial resources to continue their education and therefore enter into a status (non-student) where marriage is more acceptable. This study finding also matched with that of the other studies, which also identify poverty as one of the factors behind early marriage (Faizunnisa, 2005; Kabir, 1998). It is praiseworthy that Thai government has attempted to solve some of the financial barriers by arranging education loans and reducing taxes for their parents (ONEC, 1999: 28). Still, many young girls remain out of school. There is a need for special attention to these underprivileged groups, who not only are deprived of their basic right to education but are also putting themselves at risk of early marriage.

Most other household characteristics were not related to the timing of marriage, suggesting that in the Thai context, it is mainly economic factors at the household level that drive the related events of early exit from education and early entry into marriage. Family structure, however, is related to the timing of marriage. Female adolescents living in nuclear families were more likely to delay their marriage compared to young women in extended families. It is likely that this is related to some extent to financial factors, as nuclear families are better off than extended families. Often, the head of nuclear households have non-agricultural job and a higher economic status than those head of households that are extended. This possibly contributes to more support from nuclear households of continued education of their female household members, which in turn contributes to delayed marriage. In contrast, heads of extended

households are more likely to work in agriculture and more likely to support early marriage of young females in their households (Cashion, 1982).

However, as this relationship remained even after controlling the economic status of the household, it may reflect an underlying preference that links early marriage and extended family structure. In Thailand, family structure is more towards a higher proportion of persons living in nuclear families, due to improved socio-economic development (Richter and Podhisita, 1992; Mithranon and Prachuabmoh, 2003). So, it could be hope that in near future, this factor will play an important role to reduce teenage marriage in Thailand.

The main finding of this study is that delayed marriage is strongly related to educational continuation. Adolescents, who delayed their marriage, were more urbanized and had higher levels of education. Early marriage is most common among those living in rural areas and among the poor. Impoverished parents may consider marriage as a protective shield for their destitute children. Thus, despite the increasing trends of age at marriage in Thailand, teenage marriage persists due to limited life options. Low educational attainment and few schooling opportunities still put some Thai female adolescents under pressure to accept early marriage.

Recommendations

This study has identified some specific areas where Thai policy makers need to pay special attention. Although the Thai government has attempted to implement the National Educational Act of 1999 for extension of basic education until 12 years; but, progress is slow. Thus, more political will is required and resources should be allocated to bring secondary schooling within the reach of all young women. The findings of this study provide insight to policy makers to enhance the speed of the implementation process of this education policy, so that Thai teenagers can continue their education until the end of upper secondary level and can delay their marriage.

The Thai government should give more attention to ensure educational opportunities of all young women. This requires offering services, resources and options to both families and adolescents so that they can delay their marriage. Policy makers need to design a supportive environment for parents, especially in rural areas, so that traditional attitudes towards early marriage can change. Awareness raising

programs are needed for parents so that they can understand the disadvantages of teenage marriage and the importance of educational continuation for their children.

This study has provided new insights and makes a significant contribution to providing information that may be used for the prevention and reduction of teenage marriage. The findings contribute not only to the growing literature but also enables policymakers to understand some of the relationships between the timing of marriage and education achievement. Efforts should continue to reduce teenage marriage and to meet the current and future educational needs of Thai female adolescents.

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Notes

1 Temporal ordering means arrangement of events in time.
2 Discrete time period means when time is measured in discrete units, which is a fixed interval, such as month or year.
3 Median survival time is defined as the 50^{th} percentile of the survival time distribution; Q=0.5

References

Agresti, A. 1996. *An Introduction to Categorical Data Analysis.* New York: John Wiley and Sons, Inc.

Blossfeld, H.P. and Rohwer, G. 2002. *Techniques of Event History Modeling: New Approaches to Causal Analysis.* London: Lawrence Erlbaum Associates.

Bureau of Health Policy and Strategy, Ministry of Public Health. 2004. Public Health Statistics A.D. 2004. Nonthaburi, Thailand.

Cashion, B. 1982. Female-Headed Families. *Journal of Marital and Family Therapy*. 8: 77-85.

Faizunnisa, A. 2005. The Poverty Trap: Leveling the Playing Field for Young People. Population Council. [Online]. Available from: www.popcouncil.org [Accessed 2007 July 12].

Gage, A. 1995. "The Social Implications of Adolescent Fertility". Paper presented at the International Union for the Scientific Study of Population-United Nations Children's Fund Seminar on Demography and Poverty, Florence, Italy.

Guest, P. and Jampaklay, A. (ed.). 2003. *Report of Round 4 Census*. Nakhon Pathom: Kanchanaburi Project, Institute for Population and Social Research, Mahidol University.

Guest, P., Punpuing, S. and Jampaklay, A. (ed.). 2004. *Report of Round 5 Census*. Nakhon Pathom: Kanchanaburi Project, Institute for Population and Social Research, Mahidol University.

Hirschi, T.1969. *Causes of Delinquency*. Berkeley: Univ. of Ca Press.

Ikamari, L.D.E. 2005. The Effect of Education on the Timing of Marriage in Kenya. *Demographic Research*. 12(1):1-28.

Kabir, R. 1998. *Adolescent Girls in Bangladesh.* Dhaka: United Nations Children Fund.

Mithranon, P. and Prachuabmoh, V. 2003. Below Replacement Fertility in Thailand and Its Policy Implications. *Journal of Population Research*. 20(1): 35-50.

National Statistical Office. 2000. *Population and Housing Census 2000*. Bangkok.

_____. 2006. *Report of 2006 Reproductive Health Survey*. Bangkok: Ministry of Information and Communication Technology.

_____. 2007. *Report on the 2005-2006 Survey of Population Change*. Bangkok: Ministry of Information and Communication Technology.

Office of the National Education Commission. 1999. *National Education Act of B.E. 2542 (1999)*. Bangkok.

Population Reference Bureau. 2006. The World's Youth 2006 Data Sheet. Washington, D.C.

Richter, K. and Podhisita, C. 1992. Thai Family Demography: A Review and Research Prospects. *Journal of Population and Social Studies*. 3 (2): 1-19.

Ruspini, E. 2002. *Introduction to Longitudinal Research*. London: Routledg.

Singer, J.D. and Willett, J.B. 2003. *Applied Longitudinal Data Analysis*. New York: Oxford University Press.

Singh, S. and Samara, R. 1996. Early Marriage among Women in Developing Countries. *International Family Planning Perspectives*. 22 (4): 148-157.

Turner, J. (ed.). 1998. *Assumptions of Rational Choice Theory*. The Structure of Sociological Theory. Belmont, CA: Wadsworth Publishing Company.

United Nations. 2000. World Marriage Patterns 2000 (Wall Chart). (United Nations publications, Sales No. E.00.XIII.7). [Online]. Available from: www.un.org/esa/population/publications/worldmarriage.worldmariage.htm [Accessed 2007 July 23].

United Nations Economic and Social Commission for Asia and the Pacific. 2004. The Population Data Sheet 2004. Bangkok. [Online]. Available from: http://unescap.org/esid/psis/population/database/datasheet [Accessed 2007 July 14].

United Nations Economic and Social Commission for Asia and the Pacific. 2007. The Population Data Sheet 2007. Bangkok. [Online]. Available from: http://unescap.org/esid/psis/population/database/datasheet [Accessed 2007 July 14].

United Nations Educational, Scientific and Cultural Organization, Institute for Statistics. 2007. Statistics in Brief: Education in Thailand. May 2007. Montreal, Quebec, Canada. [Online]. Available from: www.uis.unesco.org/profiles/en/edu/countryprofile_en.aspx [Accessed 2007 July 21].

United Nations Educational, Scientific and Cultural Organization. 2007. *Education for All Global Monitoring Report.* France: Strong Foundations.

United Nations Population Fund. 2003. *State of World Population 2003. Making 1 Billion Count: Investing in Adolescents' Health and Rights.* New York.

Xenos, P. and Gultiano, S.A. 1992. "Trends in Female and Male Age at Marriage and Celibacy in Asia". Working Papers of the East-West Population Institutes, No 120. Honolulu: East-West Center.

Appendix 1

Singulate Mean Age at Marriage (SMAM) and Percentage of Ever Married Women Aged 15-19 Years in the Southeast Asian Region

Country	Year of Census or Survey	SMAM	Percentage of Ever Married (15-19)
Thailand	1990	23.5	15.2
Vietnam	1989	23.2	11.1
Philippines	1990	23.8	10.5
Brunei Darussalam	1991	25.1	8.0
Malaysia	1991	24.6	7.6
Myanmar	1997	26.4	6.6
Singapore	1990	27.0	1.2

Source: United Nations, 2000.

Appendix 2

Total Fertility Rate and Age Specific Fertility Rates of Women Aged 15-19 Years in the Southeast Asian Region: 2004-2007

Region and Countries	Year							
	2004		2005		2006		2007	
	TFR	ASFR (15-19)	TFR	ASFR (15-19)	TFR	ASFR (15-19)	TFR	ASFR (15-19)
Southeast Asian region	2.4	43	2.4	42	2.3	40	2.3	34
Brunei Darussalam	2.4	25	2.4	29	2.4	28	2.3	28
Cambodia	4.6	58	3.6	45	3.6	45	3.4	43
Indonesia	2.3	54	2.3	53	2.2	53	2.2	41
Lao People's Democratic Republic	4.6	89	4.6	88	4.4	87	3.3	74
Malaysia	3.0	18	2.8	18	2.7	18	2.6	13
Myanmar	2.8	23	2.3	19	2.2	18	2.1	17
Philippines	3.1	36	3.3	38	3.2	37	3.2	37
Singapore	1.4	5	1.3	5	1.2	5	1.3	7
Thailand	1.7	58	1.7	56	1.6	43	1.6	42
Timor-Leste	3.7	24	7.5	175	7.4	172	6.6	55
Viet Nam	1.9	25	1.9	25	1.9	25	2.1	23

Source: UNESCAP, 2004 and 2007.

Appendix 3

Age Specific Fertility Rates (ASFR) of Women Aged 15-19 Years in the Kanchanaburi Project: 2000- 2004

Round	Year	Age Specific Fertility Rate (15-19)
Round 1	2000	78.21
Round 2	2001	69.29
Round 3	2002	64.66
Round 4	2003	68.73
Round 5	2004	77.24

Source: Guest and Jampaklay, 2003: 228; Guest, Punpuing and Jampaklay, 2004:143.