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Early Marriage and Education Transitions of Female Youth: The Case of Indonesia

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Abstract

I explore the association of early marriage of girls in Indonesia with the probability of passing education transitions using a sequential logit model; I first establish that in Indonesia, due to the socio-cultural and religious environment, marriage is the primary reason for exiting school for the majority of girls married before the age of 18 (and a minority of girls married later). I find that girls who married early are associated with extremely low odds of passing education transitions compared to boys, never married girls and girls who marry later; the estimates are even more unfavourable in the presence of unobserved heterogeneity.

JEL classification: I24, J12

Keywords: Early marriage, education transitions, sequential response model, Indonesia.

1. Introduction

Early marriage has lasting consequences on education acquisition and personal growth of children, especially young girls, in most parts of the developing world. Girls who marry young are far less likely to finish school, leaving them economically vulnerable. Marrying young is a widespread phenomenon in parts of the developing world; hotspots are most countries in sub-Saharan Africa, South Asia and parts of South-East Asia and Central America. Using the conventional definition of early marriage – marrying before the age of 18 – the incidence is as high as 40-75% in most parts of sub-Saharan Africa, 65% in Bangladesh, 45% in India, 40% in Nepal, Nicaragua and the Dominican Republic (UNFPA 2012). The incidence of early marriage is somewhat lower in South East Asia and within the region it is highest in Indonesia. Using data from the 2009 National Socioeconomic Survey (Susenas), about 25% of Indonesian girls marry between the age of 10 and 17, an incidence comparable to that of Kenya and Pakistan.

The practice and perpetuation of child marriage for girls relates not only to socio-cultural and religious practices and beliefs regarding gender roles, but also to underlying economic reasons. Poverty is the norm in communities where child marriage is prevalent, and conforming to local traditions is linked to securing an economic future for daughters and forging family economic ties. Other reasons include perceptions of protection of young girls and controlling behaviour and sexuality.

Girls who have progressed more in education are less likely to marry early and vice versa. However, the precise nature of the interaction between education and marriage is not always evident. The link between the two reflects the underlying parental decision making, which is influenced by the socio-cultural and economic environment. However, as opposed to a narrative of girls dropping out of school after getting married, leaving school generally precedes marriage and the two are interlinked; a large proportion of early marriages take

place within a short period following schooling cessation. Are girls withdrawn from school to marry, or is lack of schooling for girls part of the pattern of traditional expectations and roles? Evidence for Bangladesh suggests that a girl will be withdrawn from school if a good marriage prospect arises, while DHS data also show a clear link in countries such as Nepal, Kazakhstan and Indonesia (UNICEF 2001).

Formal studies of education transitions and outcomes which consider the effect of age at first marriage for girls are absent from the literature. I use Indonesian data (2009 Susenas) which, besides a rich set of individual and household information, contain information on age at first marriage for Indonesian females and year the youth stopped going to school, to apply a sequential logit methodology and estimate the effect of a set of control variables on education acquisition of young adults, focusing on the effect of marital status and age of first marriage on education transitions. Section 2 summarizes the (mostly descriptive) literature on the problem of child marriage; section 3 presents the methodology, while section 4 describes the data and discusses the estimation results and associated sensitivity analysis; section 5 concludes.

2. Literature Review

Most of the literature on early marriage in relation to education outcomes is focused on sub-Saharan Africa where the incidence of early marriage is the highest (along with South Asia). Lloyd and Mensch (2008) explored the hypothesis that leaving school prematurely is often claimed to be among the most negative consequences of early marriage and pregnancy for girls in less developed countries. They find that, at least in francophone Africa, the relative frequency with which these events actually occur explain only about 20 per cent of dropouts and that first marriage rather than childbirth that is more likely to have this effect. Field and Ambrus (2008) find that in Bangladesh, each additional year that marriage is delayed, is associated with 0.30 additional years of schooling and 6.5% higher probability of literacy.

Evidence on Indonesia is absent, beyond calls by advocacy groups to address the problem and the role of religion and religious leaders. In a recent National Dialogue on Government and Religious Leaders' Perspectives on Early Marriage (co-organized by the United Nations Population Fund), there were calls on policymakers and religious leaders to set and enforce marriage age minimums, and to discuss other concrete steps they might take toward ending a practice that endangers the health, education, and welfare of young women in Indonesia. There were also calls to revise the 1974 Marriage Act, which sets the minimum marriage age for girls at 16 years old¹ (which is not always enforced) and stands in conflict with the 2002 National Child Protection Act, which sets the bar at 18 years old. During the dialogue, UNICEF's Representative in Indonesia highlighted that early marriage is disruptive on girls' education, leaving them vulnerable to abuse and ill health (United Nations Population Fund 2012)².

The main motivation for using Indonesia as a case study is that, as data show, the link between school exit and first marriage is stronger in Indonesia (along with similar evidence for countries such as Bangladesh and Nepal), compared to the available evidence for sub-Saharan Africa (see section 3). This may reflect the predominance of socio-cultural and religious forces, compared to the economic forces in the case of Indonesia.

3. Data and Methodology

3.1 Data

I use the 2009 Indonesia Social and Economic Survey (Susenas 2009), a large nationwide survey conducted on an annual basis since 1963, to collect information on social and economics indices and monitor the social and economic progress in the society. The 2009 survey contains an additional social, culture and education module. The data is collected

¹ Indonesia's Marital Act sets the minimum legal age for marriage at 19 for males and 16 for females. However, it is possible and legal to marry before 16 with an official dispensation from the Religious Court or a government officer.

² There was also media coverage on the incident of an Islamist Party leader who has defended child marriages in Indonesia saying it is normal to marry children as young as 11 or 12, citing Prophet Mohammed's marriage to the seven year-old, Aisha, in the 7th century A.D. (Adnkronos International, 2008).

using a stratified multi-stage cluster sampling with two strata (urban and rural area) for each district/municipality.

Along with household, individual and labor market information, the survey contains information on when an individual stopped attending school, the primary reason given for quitting and for married females, the timing of the first marriage. Using such information one can assess the closeness of the association between first marriage and school exit.

3.2 Marriage as factor in school exit for young girls

Starting with a group of girls and young women who were in school at age 12, I construct three different estimates of subsequent school exit attributed to marriage. The first is based on the reported primary reason for leaving school. This is likely an underestimate, as alternative reasons the respondent can select in the list given include: “due to cost” and “due to work”, among others. The second is based on the timing of first marriage relative to school exit. Girls who reported that marriage occurred within 1 year of school exit were deemed to have left school due to impeding marriage. The third estimate considers girls who either stated marriage as primary reason *or* married within one year of school exit as having exited school due to marriage; this may be an overestimate of the true proportion of exit due to marriage.

[Table 1 about here]

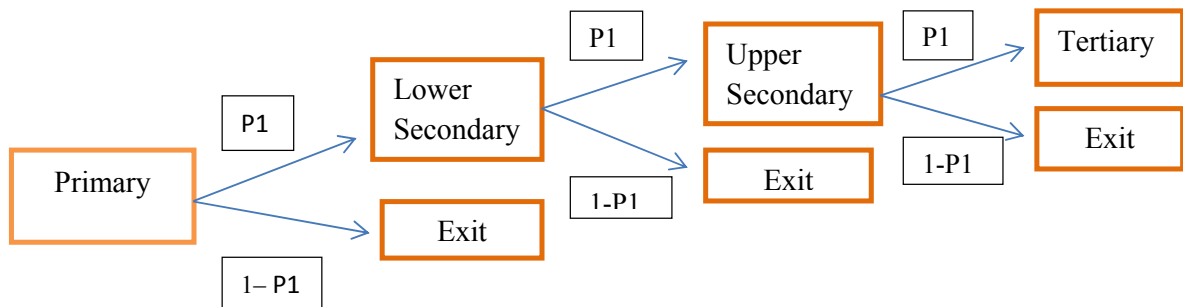
As seen in Table 1, the second estimate is higher than the first for girls under the age of 17, as girls who report a first marriage within a year of leaving school sometimes provide reasons for leaving other than marriage; the opposite is the case for young women over the age of 17. One can conclude that a majority of 15-17 year old girls quit school due to marriage while a minority of older female youth did so. These estimates are, however, 2-3 times larger than what has been reported by Lloyd and Mensch (2008) for francophone countries of sub-Saharan Africa.

3.2 Methodology

The methodological approach is to estimate a sequential logit model of education level transitions for 22-26 year-old children of a male head of household who have completed at least primary education. The purpose of the sequential logit is to model the probabilities of passing these transitions, by estimating a logistic regression for each transition on the sub-sample that is “at risk”; it also models the influence of the explanatory variables on the probability of passing a set of transitions (Buis 2011). This model has been used to study the relationship between family socioeconomic status (SES) and children’s educational attainment, which relates to “Inequality of Educational Opportunity” (IEO) (see for example Mare 1981). In the current context, we are interested in the association between individual, location, family SES and other characteristics, and the highest achieved level of education, focusing on age at first marriage for married females. After controlling for an array of such characteristics, estimates of the odds of passing education transitions for girls married before the age of 18 can be compared to the corresponding odds for males, never married females and females married at a later age.

A schematic of the model is shown in Figure 1. In this model, one has to have passed all lower transitions in order to make a decision to continue or leave. Education is the highest finished level of education; hence, progressing means finishing a subsequent level of education.³

Figure 1: Educational transitions and associated probabilities: 25-29 year-olds with at least primary education



³ For example, entering but not finishing upper secondary education qualifies as exiting after acquiring lower secondary education.

After assigning a value to each level of education in terms of pseudo-years (l_k), one can also study the effect of the socio-economic explanatory variables (such as household income, race/ethnicity, etc.) on the expected final outcome. The probability that person i passes transition k , p_{ki} , is given by:

$$p_{1i} = \frac{\exp(a_1 + \lambda_1 * SES_i + b_1 * x_i)}{1 + \exp(a_1 + \lambda_1 * SES_i + b_1 * x_i)}$$

$$p_{2i} = \frac{\exp(a_2 + \lambda_2 * SES_i + b_2 * x_i)}{1 + \exp(a_2 + \lambda_2 * SES_i + b_2 * x_i)} \quad \text{if pass1} = 1$$

$$p_{3i} = \frac{\exp(a_3 + \lambda_3 * SES_i + b_3 * x_i)}{1 + \exp(a_3 + \lambda_3 * SES_i + b_3 * x_i)} \quad \text{if pass2} = 1$$

where the socio-economic variable associated with transition k is λ_k , the constant for transition k is a_k and the effect of the control variable x_k is b_k .

The model specification includes personal characteristics (age in years and a gender-marital status indicator), household socio-economic characteristics (education of male head of household and household consumption expenditure quintile), household demographic characteristics (number of children in the 0-14 age group and number of adult members) and location characteristics (urban/rural location and province).

4. Estimation

4.1 Results

The categorical dependent variable takes the value of 1 for 22-26 year-olds with completed primary education (primary or primary *madrassa*); 2 for those with completed lower secondary education (junior high or junior *madrassa*); 3 for those with completed upper secondary education (senior high, senior *madrassa*, secondary vocational); and 4 for 22-26 year-olds with completed tertiary education (diploma or bachelor's degree) or still in tertiary education institutions. The corresponding proportions for each category are 22%, 23%, 41% and 15% respectively. The variable of interest is the gender-marital status indicator, which distinguishes married female youth by age of marriage. There are five categories of 22-26 year-old young adults: males, never-married females, females married before the age of 18,

females married between the ages of 18 and 21 and females married after the age of 21. Among females, 31% had never been married, 17% had married before the age of 18, 36% had married between the age of 18 and 21 and 17% had married after the age of 21.

Table 2 gives the odds ratios from the estimation of the sequential logit⁴. First, socio-economic characteristics are, as expected, important determinants of education transitions; living in a household whose head has secondary or tertiary education is associated with 4-5 times better odds of passing transitions compared to those in households with less educated heads, while living in households in the top expenditure quintile is associated with 7-10 times better odds of passing transitions compared to the bottom expenditure quintile.

Turning to the indicator of interest - age at first marriage for girls - the odds of attaining a lower secondary education, are 2 to 1 in favour of males compared to girls who married before the age of 18, and the odds of attaining upper secondary and tertiary education are as unfavourable as 9 to 1 and nearly 50 to 1 in favour of males⁵. The corresponding odds for females who married between the ages of 18 and 21 are more favourable compared to males in the first transition and only moderately lower in higher transitions. On the other hand, the odds are strongly in favour of never married females (1.7-3.4 to 1) and females who married after the age of 21 (1.6-2.2 to 1). Charts 1 and 2 in the appendix depict the predicted margins towards the final outcome (in pseudo-years of schooling) by head's education and household expenditure quintile for different categories of the gender-marital status indicator. Thus, the expected outcome for girls who married early varies from under 8 years to just above 9 years depending on head's education, compared to 11 to 13 years for girls who had not married; similar estimates emerge by household expenditure quintile.

[Table 2 about here]

⁴ I used the Stata *seqlogit* module.

⁵ Additional analysis using a multinomial logit model for school-work-home care activity for 15-19 year olds shows that the predicted probability of home care/inactivity as primary activity was nearly 70% for married 15-19 year-old girls (compared to 18% for boys and 24% for never married girls).

4.2 Sensitivity Analysis

The potential effect of increasing amount of unobserved heterogeneity, β_{uk} , on the coefficients of interest was also explored using sensitivity analysis. Here β_{uk} is the effect of a standardised and normally distributed unobserved variable (or weighted sum of all unobserved variables), u , on the odds of passing transition k . One can think of u as primarily reflecting ability or prior academic performance (Cameron and Heckman 1998; Buis 2011). Here we are interested in the effect of the correlation of father's education with the unobserved variable on the coefficients of the variables of interest. One would expect selection on ability to increase over transitions (as ability is progressively observed).

By estimating successive models where β_{uk} is fixed (and constant over transitions) at 0, 0.5, 1, 1.5 and 2, I find that at higher values of β_{uk} , the coefficient associated with early marriage was even smaller (suggesting even less favourable odds compared to males and females married later), especially at higher transitions; on the other hand, the corresponding coefficients for never married females or females who married after the age of 21 were moderately higher at higher values of β_{uk} . Finally, in the presence of unobserved heterogeneity and higher values of β_{uk} , the coefficient of father's education was 2-3 times higher than those reported in Table 2, suggesting that the sequential logit model almost certainly underestimates the effect of father's education⁶.

5. Conclusions

I explore the association of early marriage of girls in Indonesia with the probability of passing education transitions to attain higher levels of education, using a sequential logit model. I first establish that, in Indonesia due to the socio-cultural and religious environment, marriage is the primary reason for exiting school for the majority of girls married before the age of 18, much more than corresponding estimates for countries in sub-Saharan Africa. I

⁶ This was also the finding in Buis 2011.

find that girls who married early are associated with extremely low odds of passing education transitions compared to boys, never married girls and girls who marry later; the estimates are even more unfavourable in the presence of unobserved heterogeneity.

Policy interventions should be two-pronged, dealing with household resource constraints and schooling costs, along with socio-cultural prejudices disadvantaging girls. Measures such as legislation increasing the minimum age of marriage for girls to 18 years need to be combined with open debate on questions such as the degree to which entrenched cultural norms should be respected, while pushing for change. Finally, mobilization campaigns targeting parents and local leaders can help towards changing practices which discriminate against girls.

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Table 1: Estimates of school exit due to marriage: girls who were in school at age 12, by age (%)

Age/Estimate	15	16	17	15-17	18-21	22-24
Married and stated marriage as primary reason for dropping out	51	56	50	52	42	25
Married within one year of school exit	68	60	48	52	31	18
Married within one year of school exit or stated marriage as primary reason	78	80	79	79	58	38

Table 2: Sequential logit results for children of male head of household, age 22-26

Characteristic	Odds-Ratio (z-value)		
	<u>2, 3, 4 vs. 1</u>	<u>3, 4 vs. 2</u>	<u>4 vs. 3</u>
Age 23	1.04 (0.60)	1.04 (0.59)	1.77 (6.47)
Age 24	1.13 (1.90)	1.12 (1.68)	2.36 (10.0)
Age 25	0.923 (1.33)	0.994 (0.26)	2.65 (11.1)
Age 26	1.04 (0.65)	1.09 (1.20)	3.04 (12.1)
Never married female	1.71 (9.96)	1.98 (12.4)	3.38 (20.9)
Female, married before 18	0.479 (6.34)	0.112 (11.0)	0.021 (3.77)
Female married from age 18 to 21	1.21 (2.60)	0.777 (3.27)	0.920 (0.58)
Female married after the age of 21	1.59 (4.73)	1.65 (5.44)	2.16 (7.18)
Head - secondary or higher education	3.89 (17.5)	4.73 (21.4)	4.70 (27.9)
HH expenditure Quintile: 2	1.73 (8.17)	1.60 (5.80)	1.64 (2.41)
HH expenditure Quintile: 3	2.41 (12.8)	2.22 (9.94)	2.63 (4.96)
HH expenditure Quintile: 4	3.93 (18.5)	3.32 (14.5)	3.46 (6.47)
HH expenditure Quintile: 5	7.22 (23.4)	5.97 (19.7)	10.10 (12.1)
Urban area	1.93 (13.5)	1.80 (12.8)	0.767 (4.30)
Aceh	1.16 (1.36)	1.20 (1.62)	1.59 (3.66)
North Sumatra	1.15 (1.29)	1.10 (0.89)	0.712 (2.82)
West Sumatra	1.03 (0.26)	1.11 (0.82)	1.03 (0.19)
South Sumatra	0.786 (2.24)	0.868 (1.21)	1.26 (1.64)
East Sumatra	0.530 (7.39)	0.432 (8.87)	0.725 (2.81)
West Java	0.779 (2.72)	0.660 (4.36)	1.13 (1.20)
Central Java	1.17 (1.76)	0.756 (3.05)	1.45 (3.50)
East Java	1.23 (2.46)	0.895 (1.21)	1.28 (2.51)
Kalimantan	0.601 (5.92)	0.807 (2.27)	0.817 (0.82)
Sulawesi	0.683 (4.59)	1.05 (0.53)	1.15 (1.31)
Maluku/Papua	0.988 (0.11)	1.33 (2.35)	1.09 (0.61)
# of children 0-14 years: 1	0.803 (4.52)	0.689 (7.58)	0.613 (7.80)
# of children 0-14 years: 2	0.575 (8.99)	0.594 (7.58)	0.484 (7.97)
# of children 0-14 years: 3 or more	0.409 (11.4)	0.458 (8.17)	0.314 (8.77)
# of adults: 3	1.35 (1.61)	1.06 (0.29)	1.42 (1.05)
# of adults: 4	1.21 (1.05)	0.809 (0.98)	0.969 (0.09)
# of adults: 5 or more	0.813 (1.12)	0.606 (2.31)	0.758 (0.83)
Constant	1.03 (0.16)	0.854 (0.69)	0.017 (10.9)
Wald chi2 [p-value]	2,404 [0.000]		
N	30,727		

Note: excluded groups are: age 22, male, head with less than secondary education, bottom household expenditure quintile, rural location, Jakarta area, no children 0-14 and 1-2 adult members.

Appendix

Chart2: Predictive margins of household head education on final outcome (in pseudo-years), by gender-marital status indicator

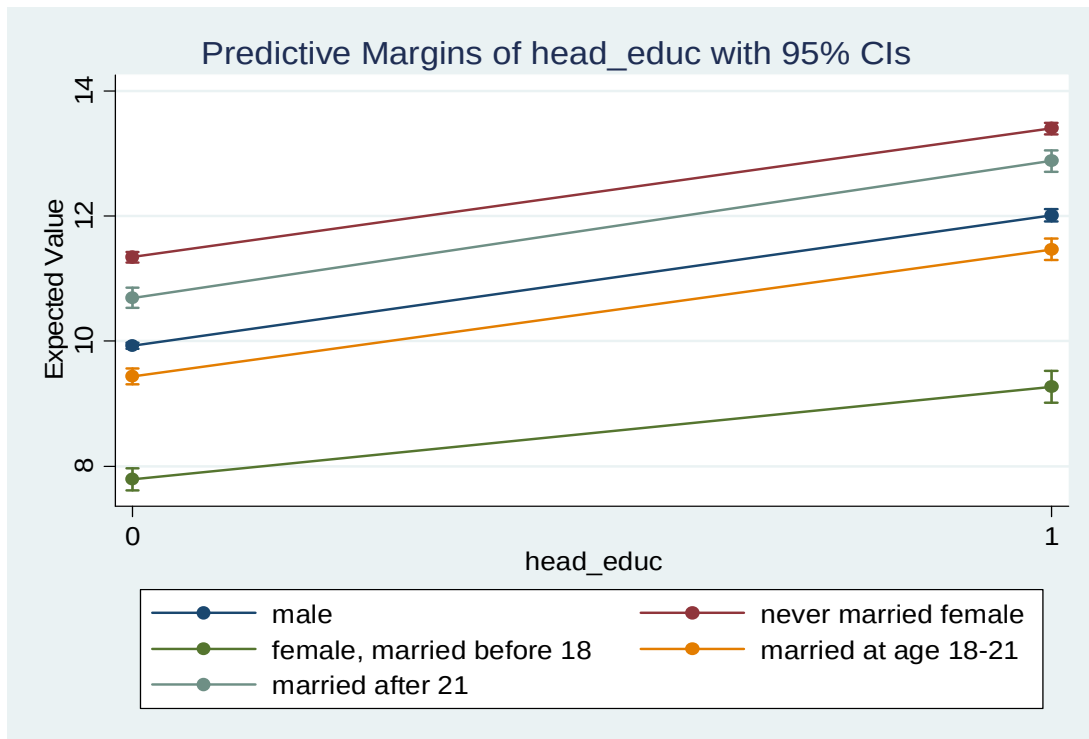


Chart2: Predictive margins of household expenditure quintile on final outcome (in pseudo-years), by gender-marital status indicator

