From Marriage to Parenthood:
Trends in the Timing of Marriage and First Birth in Asia

Kerry MacQuarrie

Short Abstract

This paper examines trends in the timing of marriage and first birth in South and Southeast Asia, with a particular focus on how the duration of the first birth interval changes as age at marriage increases. It uses multiple waves of DHS data from Bangladesh, India, Nepal, Indonesia, the Philippines, and Vietnam. Marriage is marked by two regional patterns: later (early 20's) in Southeast Asia and earlier (14-17) and more universal in South Asia. In all six countries, age at marriage increased across surveys and with successive cohorts. Given the literature, a relationship between later marriage and shorter first birth interval would be expected. In contrast to this expectation, the first birth interval decreased in three countries but lengthened in the other three, with no regional pattern discernible. The paper next analyzes first birth interval by ethnicity, religion, education, and socioeconomic status to attempt to explain this observed variation.

Background

Marriage and the onset of childbearing are each fundamental life transitions, defining life events that may signal a change in life roles, confer a change in status (e.g. from child to adulthood) or level of empowerment, and define life options (Furstenberg et al 2004). Demographers observe that changes in the magnitude, timing, and meaning of these transitions accompany fertility transitions and incorporate such phenomena into demographic transition theories. For example, the first stage of fertility transition is primarily marked by a move from

high to relatively low total fertility. While this reduction is often brought about by falling marital fertility rates (as in Europe's fertility transition), delayed marriage until later in the life course may be a not insignificant contributor to lower fertility, by reducing the timespan couples are exposed to the risk of childbearing (Hirschman and Rindfuss 1980). Hirschman notes that where marriage occurs early in the life course, its delay can have a notable impact on both individual and aggregate fertility (1985). Nonetheless, the emphasis is frequently on the quantum of childbearing, and not the tempo of fertility or timing of the onset of childbearing.

In contrast, the second stage of fertility transitions is marked by (further) delays in the age at marriage, a greater degree of non-marriage, a deinstitutionalization of marriage as an institution—or at least a decoupling of childbearing from marriage—, and a general trend from familism toward individualism that includes delaying the onset of childbearing within marriage and increasing childlessness within marriage, further cementing bearing children to satisfy affective motivations and overall lower (perhaps below replacement level) fertility. It is important to note that a population may not necessarily complete one stage of the fertility transition before the next begins; they may overlap. Additionally, there may be variation in behaviors among subgroups of a population.

Fertility has fallen and the age at marriage has increased throughout Asia (see, for example Jones 2009; 2007a), but to greatly varying degrees as countries in Southeast and East Asia have generally proceeded farther with their fertility transitions as compared to countries in South Asia. Less attention has been paid to early marital childbearing and, in particular the timing of onset of childbearing within marriage. One exception is an examination of the duration from the time of marriage to the first birth in Asia within a proximate determinants framework,

with an especial focus on coital frequency (Rindfuss and Morgan 1983). The authors loosely linked higher coital frequency to choice as opposed to arranged marriages, highlighting the potential importance of underlying marriage systems. Increased coital frequency is also acknowledged as the likely mechanism for shorter first birth intervals in studies conducted by Hirschman and Rindfuss (1982; 1980). Far less is known about how the onset of childbearing within marriage may be changing as age at marriage increasing, in particular whether increasing age at marriage is accompanied by (or reflects) other changes in marriage systems, conditions at time of marriage, and the meaning of marriage.

While one would ultimately want to analyze whether changes in the timing of onset of childbearing can be attributed to changing features of marriage systems, this research agenda is broader than the scope of the present paper allows. One must first establish how the onset of childbearing may be changing as age at marriage increases: *Does the interval to first birth increase, decrease, or stay the same (postponed only as much as marriage is postponed)?* This paper examines the following specific research questions:

1. How much has age at marriage changed in South and Southeast Asia? How much variation is there in the pace of marriage delay across countries?
2. In what direction does the duration of the first birth interval change?
3. Is the direction of change consistent across settings?
4. Does the direction and degree of change vary within countries by sociodemographic subgroups in the population, e.g. by rural/urban residence, ethnicity, religion, socioeconomic status, or education?

The interval from marriage to first birth may decrease as age at marriage if (1) later marriage simply exposes women to the risk of pregnancy at a time of peak fecundability, coinciding with physical maturation of the reproductive system rather than social or behavioral changes (e.g. Kallan and Udry 1986); (2) if later age at marriage is associated with greater predominance of choice marriages and choice marriages foster greater intimacy and coital frequency (Fricke and Teachman 1993; Morgan and Freeman; Feng and Quanhe 1996); (3) if delayed marriage is a catalyst for "catch-up" fertility, a phenomenon that has been observed when a period-specific shock results in delayed marriage (Eltigani 2000). A similar phenomenon could occur with a secular trend toward delayed marriage if, for example, couples believe delayed marriage requires them to "squeeze" their childbearing into a shorter span of time, or if delayed marriage is unevenly distributed throughout a population and women feel they need to hasten childbearing to catch-up with peers who married earlier or to demonstrate conformity with gender norms if delayed marriage is contrary to those norms. Finally, delayed marriage may result in shorter first birth intervals (4) if there remain strong norms about marriage being the preferred institution in which childbearing takes place and couples convert other relationship forms into marriage when childbearing is intended (see Jones 2007b for a discussion of delayed marriage and intentions to initiate family formation in East Asia).

In contrast, the interval to first birth may lengthen if (1) if later age at marriage reflects greater empowerment of women and ability to choose whether, when and to whom they marry and greater reproductive agency[1]; (2) if later age at marriage is one of several factors reflecting a process of greater individualism. Finally, the interval from marriage to first birth may stay the same, but occur at a later average age, if later age at marriage is not the result of widespread

[1] Much research demonstrates that women in South Asia generally experience shorter birth intervals than they desire, including the first birth interval, because they lack agency. Greater agency, on balance, would imply longer birth intervals.

change in marriage norms, but exogenous effects (e.g. of economic, labor, or educational conditions) that make later age at marriage practical.

On balance, there is more support for an association between later marriage and shorter first birth intervals in the theoretical and empirical literature, than for a lengthened or static first birth interval (see, for example, Hirschman 1985 and Tsui 1982).

Data and Methods

This paper uses data from the Demographic and Health Surveys (DHS) for six Asian countries to explore trends in the age of marriage and duration of the first birth interval over the last two decades. The DHS[2] are large-scale, probability-sampled, household surveys that adopt a repeat cross-sectional design and are conducted among nationally representative samples of women of reproductive age. The DHS includes precisely measured variables on timing of marriage and (first) birth, using century month codes, from which accurate durations of the first birth interval are calculated. Furthermore, the DHS includes a wide range of basic socio-demographic variables by which the variables of interest (age at marriage and time to first childbirth) may be examined.

There are six countries for which at least three waves of DHS data are available, the minimum needed to establish a trend with any confidence. These are Bangladesh, India and Nepal in South Asia and Indonesia, the Philippines, and Vietnam in Southeast Asia. Sample sizes and year for each country/wave survey are reported below.

[2] DHS data are publicly available by request from www.measuredhs.com and have been collected in accordance with principles of responsible conduct of research. Because they are publicly available data and non-identifiable data, IRB approval for their use has not been sought at this time.

Country	DHS-1	DHS-2	DHS-3	DHS-4	DHS-5
Bangladesh	1993-94 (n=9,640)	1996-97 (n=9,127)	1999-2000 (n=10,544)	2004 (n=11,440)	2007 (n=10,996)
India	--	--	1992-93 (n=89,777)	1998-99 (n=89,199)	2005-06 (n=124,385)
Nepal	--	--	1996 (n=8,429)	2001 (n=8,726)	2006 (n=10,793)
Indonesia	1987 (n=11,884)	1991 (n=22,909)	1994 (n=28,168) 1997 (n=28,810)	2002-03 (n=29,483)	2007 (n=32,895)
Philippines	--	1993 (n=15,029)	1998 (n=13,983)	2003 (n=13,633)	2008 (n=13,594)
Vietnam	--	--	1997 (n=5,664)	2002 (n=5,665)	2005 (n=7,289)

Samples are based on a stratified two-stage, cluster design. In the first stage, enumeration areas (EA) are drawn from census files and, in the second, a sample of households is drawn from an updated list of households in each EA selected. The sample is generally representative not only at the national level, but also at the residence level (urban-rural), and the regional level (e.g. departments or states). Where samples are drawn with unequal probability of case selection or interview, household and individual sample weights are included to adjust for the sample design as well as differential response rates[3]. In most countries, women eligible for interview are between the ages of 15 and 49 who slept in the household the night before the survey. In ever-married samples, women are eligible for interview only if they have ever been married or lived in a consensual union, and statistics for all women are estimated on the basis of coverage of subgroup characteristics.

The analytic dataset was restricted by variable, but not by sample, meaning all cases for which there were complete data on the variables of interest are included in the analysis. However, certain variables are logically restricted to the subset of women of reproductive age

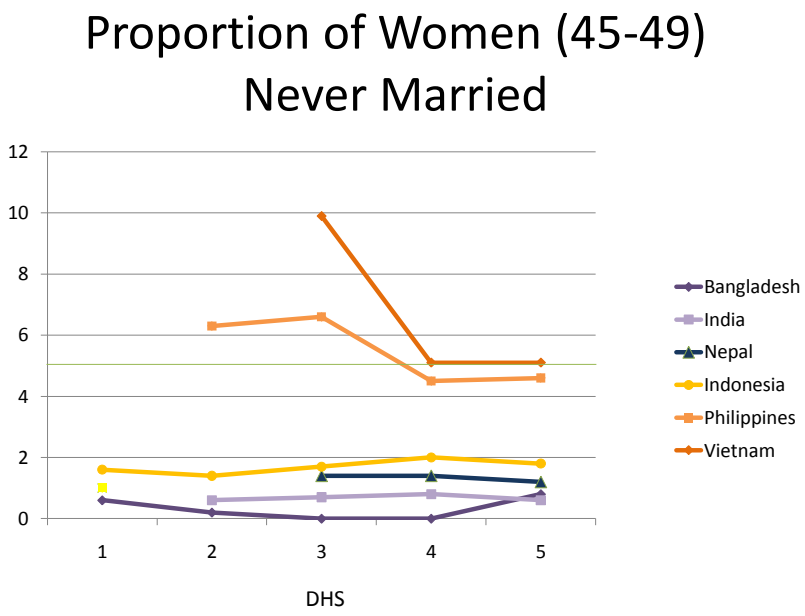
[3] Rutstein and Rojas. 2006. *Online Guide to DHS Statistics*. Calverton, MD: ICF Macro.

who are also ever-married (namely duration of the interval from marriage to first birth). Additionally, while the youngest birth cohorts in the surveys most immediately exhibit current trends in age at marriage, they are incomplete marriage cohorts (left censored). To reduce the selection effects that would be present if early-marrying women were over-represented in the data, analysis of the first birth interval is restricted to women aged 30 and older. Analytic samples, therefore, may sometimes be smaller than the sample sizes shown above and are so noted.

Preliminary Results

Universal Marriage

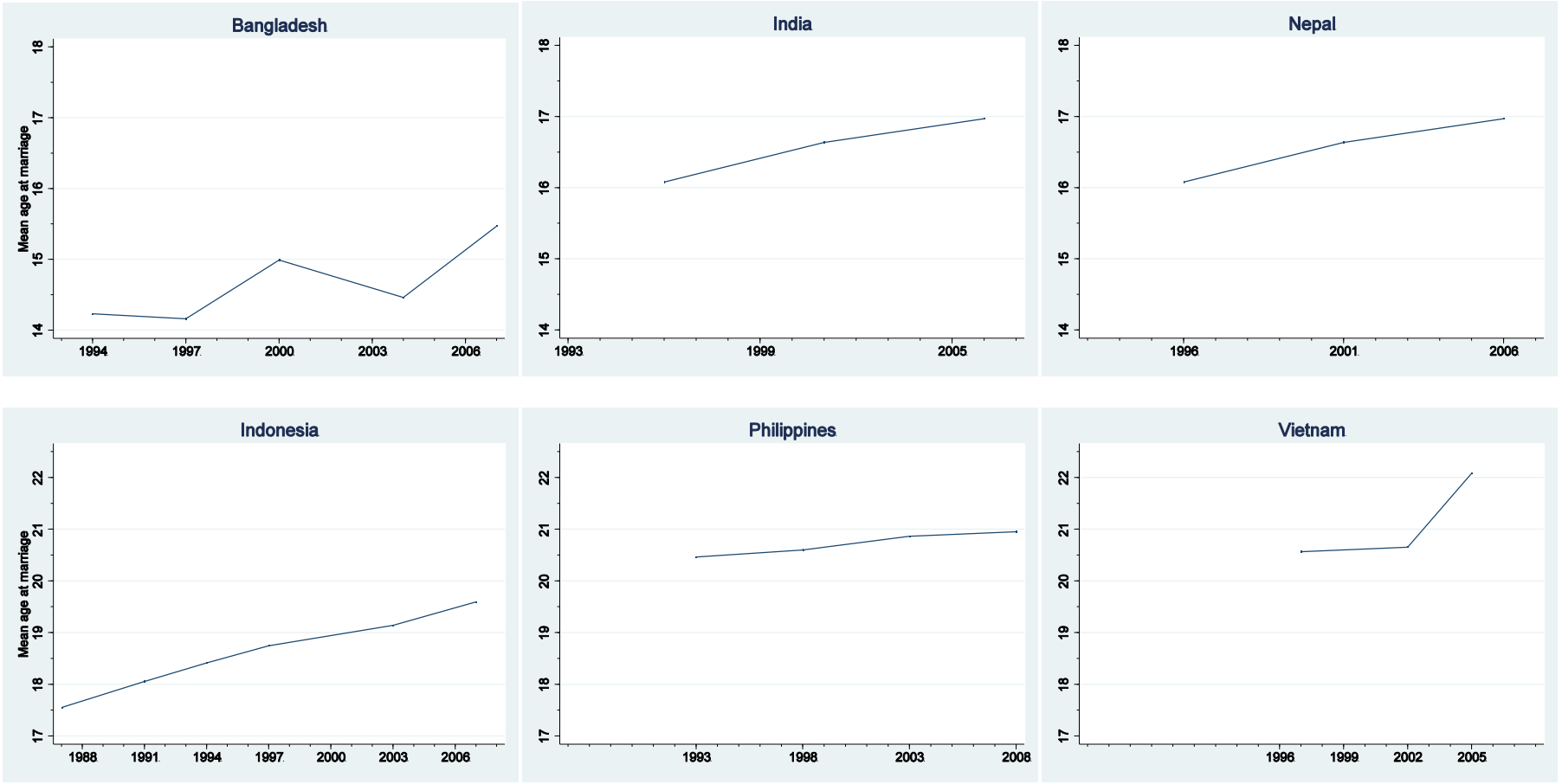
Marriage continues to be a largely universal phenomenon across the survey years. Universal marriage is frequently defined as less than 5% of women remaining unmarried at the end their reproductive years or (Jones 2007b, Skinner 1997). Figure 1 demonstrates that in each South Asian country and in Indonesia, fewer than 2% of women remained single by the time they reached their late 40's, with little to no change across survey year. While women in the Philippines and Vietnam have had rates of singlehood above 5%, the proportion single did not exceed single digits and appears to converge toward universal marriage by the time of the last survey.



Age at marriage

Figure 2 below illustrates the mean age at marriage in the survey countries, with several trends to note. First, age at marriage has increased in all study countries, albeit not monotonically in the case of Bangladesh and Vietnam. Secondly, two different patterns distinguish South from Southeast Asia. South Asia is characterized by overall lower ages at marriage, before legal age of majority, while marriage in Southeast Asia largely occurs in the early 20's. Indonesia, which has experienced the largest increase in the singulate mean age at marriage, has seen its mean age at marriage increase steadily from the late teen years in 1987 to 20 years in 2007.

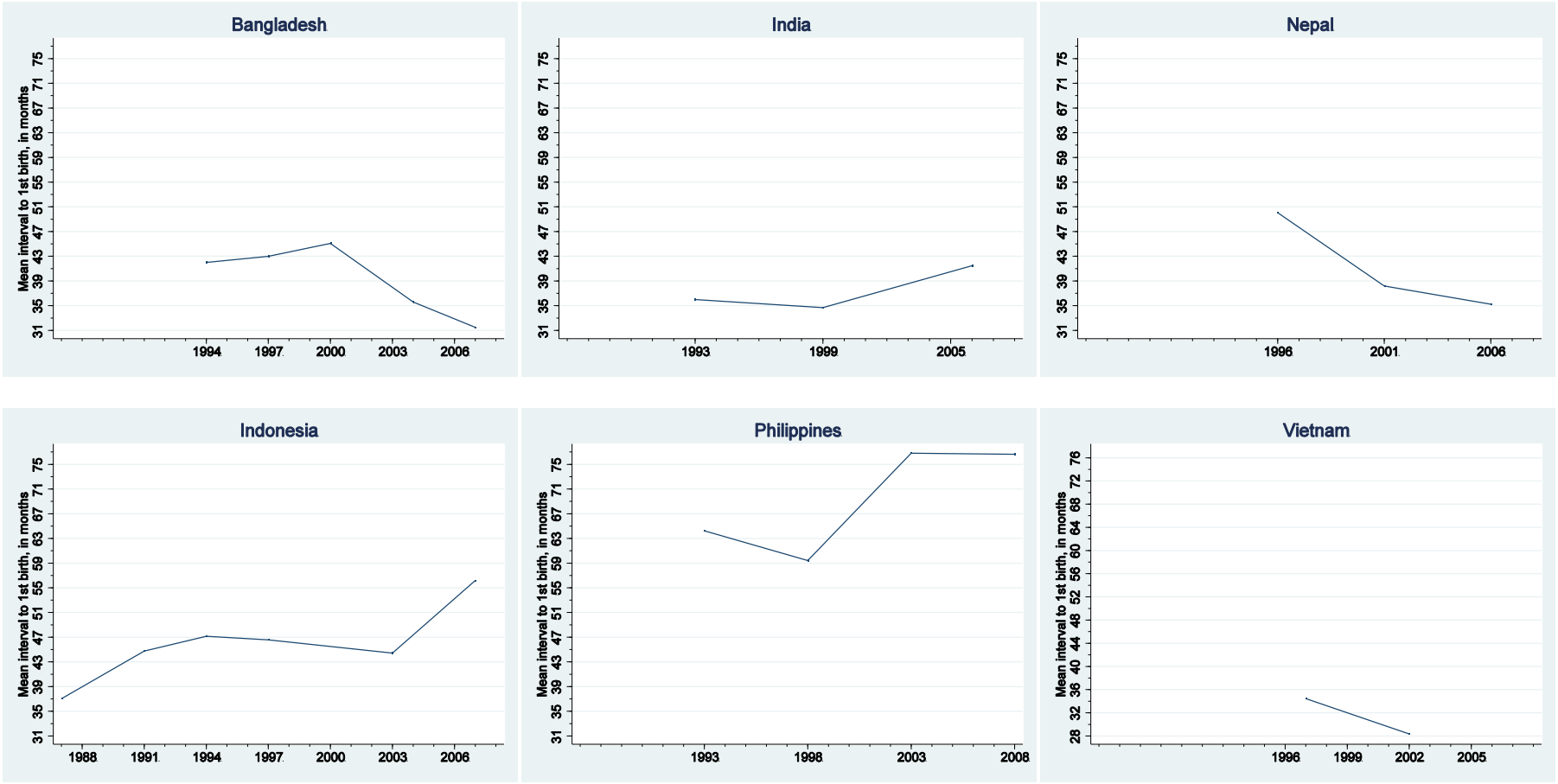
Figure 1. Mean Age at Marriage by Year



Duration to First Birth

Contrary to expectations implied by literature on the topic, there is no discernable secular trend in the duration of the interval from marriage to first birth by region of Asia (see Figure 2). The interval generally decreased in Bangladesh, Nepal, and also in Vietnam but generally lengthened in India, Indonesia, and the Philippines. Overall, the first birth interval is shorter in South Asia and in Vietnam, while Indonesia again suggests a shifting pattern from having resembled South Asian countries toward, in this case, the Philippines. The Philippines stands out as having the longest interval among all countries at each time point, including its Southeast Asian counterparts. It is not immediately clear why this should be the case, as this country neither had the highest (or lowest) age at marriage or largest increase in the age. At the last time point, Bangladesh and Vietnam had the shortest first birth intervals in spite of the former having the lowest age at marriage and the latter having the highest. The lack of a clear relationship between age at marriage (or increases in age at marriage) and duration of the first birth interval offers much scope for additional factors, be they aspects of the marriage and family systems or socio-demographic variables, to provide explanatory power. Thus, the later portion of this paper turns its attention to bivariate and multivariate relationships between socio-demographic factors, namely urban/rural residence, ethnicity, religion, education, and socioeconomic status, and duration of the first birth interval.

Figure 2. Time from Marriage to First Birth



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