

## **Evolution and determinants of second birth interval in Asia and Latin America**

Child spacing is an important dimension of fertility dynamics (Desgrées-du-Loû & Brou, 2005; Lesthaeghe, Ohadike, Kocher, & Page, 1981) and the resulting birth intervals have significant demographic and socio-economic implications. They are also relevant for public health research, as studies have shown that short intervals have adverse consequences on the health of the mother and child (Arnold, Choe and Roy, 1998; Whitworth and Stephenson, 2002; Rutstein, 2005). Describing the evolution of birth-interval distributions during the fertility transition might contribute to a more thorough understanding of family-building dynamics and reproductive behaviour in changing societies. As fertility declined, first to second birth have become more relevant and gained attention in fertility research (Berg and Rotkirch, 2014). However, most studies are focused on European countries, and evidence about birth intervals in other regions is scarce.

Biologically, the birth interval is affected by duration of postpartum amenorrhoea, ovulatory cycles, time to conception and duration of the pregnancy (Potter, 1963). These biological factors have been conventionally studied as interacting with the principal proximate determinants of fertility -age at marriage, contraception use and duration of breastfeeding-(Bongaarts & Potter 1983). Social determinants can capture some of this variation. The first interval is a special case, as some variables - typically, breastfeeding - do not play a role. Age at first marriage determines the beginning of exposure to the childbearing process in societies where birth is primarily within marriage, such as India. In Latin America, exposure mainly begins with first union, in most of the cases, consensual unions.

Birth intervals are expected to increase during the demographic transition (Moultrie, Sayi, & Timæus, 2012). However, there is a substantial heterogeneity across countries and regions, mainly because an important part of the female population in developing countries have shorter birth intervals than they want - as contraceptive use remains imperfect, women are likely to become pregnant once fecundity returns (Nahla, Sarah and Amal, 2008). Also, the length of breast-feeding is directly related to the duration of postpartum amenorrhoea, and rates of contraceptive use -and failure- decreaseas -or increases- the probability of conception (Erfani, Nojomi and Hosseini, 2018).

At the individual level, the differentials in birth intervals may be related to socioeconomic and demographic variables, i.e., maternal age, duration of breast feeding, sex of child, history of still births, history of infant mortality, type of contraception used, regular attendance at a family planning clinics, union dissolution, parity (Fallahian, Kazemnegat and Ebrahimi, 1993; Bongaarts, 1982; Bongaarts and Potter, 1983; Bulatao and Lee, 1983; Davis and Blake, 1956; Fayehun, Omololu and Isiugo-Abanihe, 2011). Previous studies have concentrated on the duration of breastfeeding and the method of contraceptive use as factors associated with birth intervals (Hajian-Tilaki, Asnafi and Aliakbarnia-Omrani, 2009). Additionally, birth interval can be affected by gender preference, considering that couples who want to have a son, may have the next birth sooner than others (Leung, 1988; Das, 1987; Rahman and DaVanzo, 1993; Haughton and Haughton, 1996; Arnold, 1997; van Soest and Saha, 2012; Rossi and Rouanet, 2015).

At the macro level, socio-economic, demographic, and cultural trends shape the effect of individual variables on birth intervals. Examining the determinants of second birth interval (i.e., interval

between first birth and second birth) in Asian and Latin American countries might shed light on how to interpret the interplay between socio-economic and demographic factors in each regional context. Those factors are reflected on individual and household variables such as educational level, place of residence, or socioeconomic status, making it interesting to describe how did birth intervals evolve in different socio-economic strata.

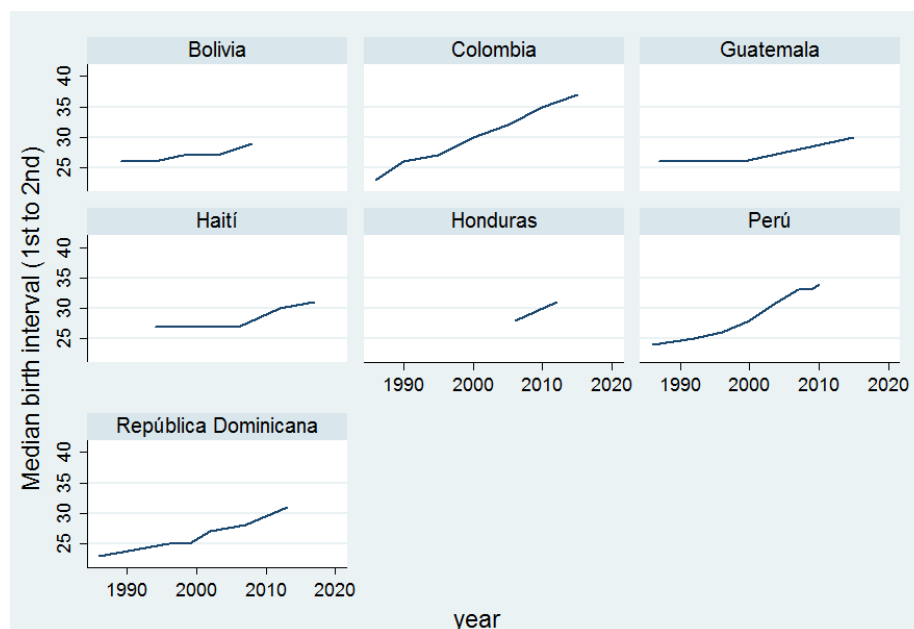
This study is a first effort to assess how second birth interval distributions changed in the last three decades among women of reproductive age in selected Asian and Latin American countries. First, we explore the evolution of second birth interval in the period. Second, we examine determinants of second birth interval in each country. In our models, factors include place of residence, education level, socioeconomic status, sex of previous children and maternal age. Data source is the Demographic and Health Survey (DHS), from the late 1980's to the last available data, for Bolivia, Colombia, Dominican Republic, Guatemala, Haiti, Peru (Latin America), Bangladesh, Cambodia, India, Nepal, Pakistan and Philippines (Asia)

We address three questions:

- Have second birth interval lengthen while fertility was declining in Asia and Latin America?
- What are the factors associated to second birth intervals in Asia and Latin America?
- How similar is the evolution of second birth interval across countries, regional and socio-economic strata?

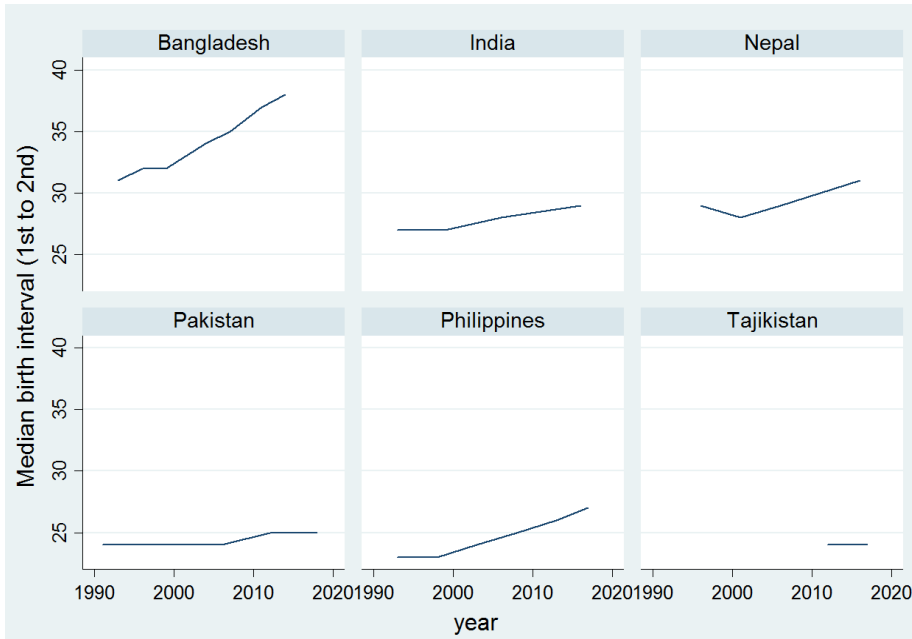
### Preliminary and expected results

Figure 1: Median second birth interval (in months) in selected Latin American countries



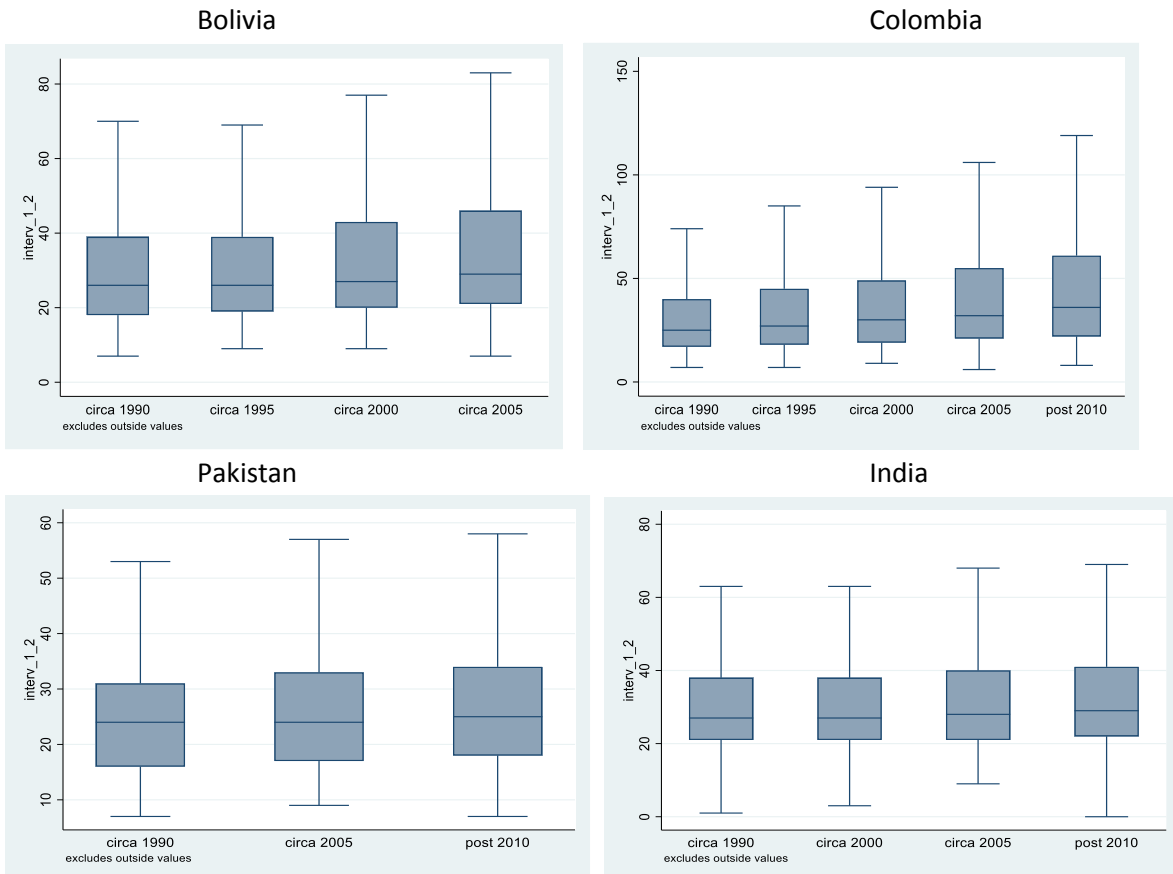
Source: Computed from DHS data files

Figure 2: Median second birth interval (in months) in selected Asian countries



Source: Computed from DHS data files

Figure 3: Boxplots of Second birth interval in selected Latin American and Asian countries



Source: Computed from DHS data files

Second birth intervals increased in the last three decades in almost every country from our sample (Figures 1, 2 and 3). However, some Asian countries show modest or null increase (India, Tajikistan and Pakistan). Expected results include a) a more thorough description of the evolution of second birth intervals, b) the description of second birth intervals by educational strata, and c) the specification of models examining second birth interval determinants.

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