Sex-Selection in Pakistan: uncovering the truth

Extended Abstract

Background

Prenatal sex-selection in China and India has received significant attention by demographers, policy makers and the media alike. The resulting male-biased sex ratios are expected to lead to a disproportionate number of young men who will have difficulty finding wives. Having a large number of young single men will lead to increased crime, violence and possibly an expansion of the sex industry and trafficking (Hesketh et al 2006; Hudson and Den Boer 2004). Of course, this phenomenon is not limited to just the two most populous nations in Asia, but has been experienced to a varying degree by other parts of Southeast Asia, Central Asia and even by Asian immigrants to the US.

Gender inequality and widespread son-preference, coupled the availability of prenatal screening and abortion services are widely accepted to be the culprits behind the skewed sex ratios at birth. Given that Pakistan continues to be a highly patriarchal society, it may seem surprising how little research has been done on sex-ratios in the country. Gender imbalances in Pakistan's population did receive attention in Amartya Sen's 1990 piece on the 'missing women' of Asia. But in just a decade studies showed improvements in its population sex ratios due to reductions in gender differentials in mortality (Klasen and Wink 2002). Pakistan has not featured prominently in studies focusing particularly on sex ratios at birth because of the common belief/knowledge that abortion (particularly sex-selective) is both unacceptable and unavailable in the country.

We argue that Pakistan can longer be believed to be invulnerable to sex-selection practices. Firstly, Pakistan has been very late in experiencing its fertility decline. Fertility rates of around six births per woman began to decline much later (late 1980s, early 1990s) in Pakistan than in most of the other countries in Asia (Sathar and Casterline 1998). Despite a significant drop after the onset, overall fertility in Pakistan remained above four births per woman throughout the 1990s, and unwanted fertility remained high. Given the high number of children women were having, it is not surprising that son-preference did not translate into high sex-ratios at birth (Hesketh at al 2006). In the last decade however, Pakistan's TFR has declined and estimated 3.6 births per woman, and unwanted fertility, particularly among urban women, has declined substantially. As fertility continues to fall and women get closer to achieving their desired family size but son preference remains pervasive, the prevalence of prenatal sex-selection is expected to increase. Moreover, a national study on abortion in 2002 found abortion rates in Pakistan to be much higher than expected (Sathar et al 2007). This indicates both the availability of services and women's willingness to seek abortions, despite cultural taboos – a trend that is likely to have increased over the last decade.

If imbalances in sex ratios at birth rise to the levels of neighboring India, Pakistan will face even greater social, economic, and political challenges than it presently does. It is therefore, critical to identify this social problem before it becomes widespread.

Research questions/methodology:

This paper aims to use the latest demographic data available to assess whether declining fertility rates and persistent son preference in Pakistan have translated into prenatal sex-selection practices, as measured by abnormal sex ratios at birth.

It will begin with an overview of the changes (over the last decade) in the factors that contribute to the practice of prenatal sex selection: fertility decline, son preference, and the prevalence of abortion. Several national studies, research papers, and datasets will be used to present the trends in these three phenomena.

In analyzing fertility patterns, we will pay particular attention to changes in wanted and unwanted fertility. Trends in son preference will be measured using explicitly stated preferences (fertility intentions and desires), gender differentials in investments in children's wellbeing (inequalities in health and education), and an assessment of culturally perceived costs of having a girl child, including dowry. The analysis of trends in abortion will utilize findings from the seminal national study on abortion conducted in 2002, as well as the findings from the second round of this study that is being undertaken this year.

The next section will calculate changes in sex ratios at birth, by birth parity, and the gender composition of older siblings. We will also look at differentials by education, rural-urban residence, household wealth status, contraceptive use and prenatal care (proxy measures for access to services) as these differentials will help highlight the prevalence of sex-ratio imbalances in groups most at risk of practicing prenatal sex-selection. Statistical tests of variance and significance will be used in calculating these differences. Calculating sex ratios at birth (SRBs) for birth cohorts of 1992–1996, 1997–2001, and 2002–2006, will assist in determining whether the imbalance in sex ratios has been increasing or not. This section will also include a more prospective approach to analyzing the link between son-preference and fertility outcomes by studying fertility intentions. We will use Pollard and Morgan's (2002) methodology to look at differences in future fertility desires by the number and sex composition of previous births.

Probit and logistic regression models will be used to statistically test the effect of sex composition of previous siblings/children on sex ratios and fertility intentions.

Data:

Estimating the sex ratio at birth (SRB) can be difficult due to this statistical indicator's sensitivity to sample size (Guilmoto 2009). The SRB needs to be calculated using a large number of births to avoid fluctuations within large confidence intervals. The ideal sources for such data are the census and birth registration records. Unfortunately, Pakistan's lacks a reliable and comprehensive birth registration system and the last census is now more than 14 years old and was conducted at a time when fertility had just begun declining and therefore, sex selection was not likely to be evident.

In the absence of recent census data, this paper will utilize birth history data from the latest Pakistan Demographic and Health Survey (PDHS) 2006–07. Data from demographic and health surveys has been used in several international research studies on sex ratios at birth (Arnold et al.

2004; Ebenstein 2007; Garenne 2008; Stein et al. 2012). Using DHS data at this juncture proves useful because it allows us to look at SRB differentials across many characteristics, most of which are not available for census data. We believe the trends and differentials calculated will be both reliable and valuable in determining the emergence of prenatal sex-selection in Pakistan, as long as caution is exercised in interpreting the exact value of these ratios, and disaggregation is not at too small a level.

Another round of the PDHS is currently in the field and findings/data will be made available by the summer. The analysis done on the 2006–07 data will be replicated for this upcoming round, as soon as the data is accessible.

**Some preliminary findings:**

The SRB (male to female) is expected to be higher in urban areas, given that urban women are getting closer to achieving their desired family size and have relatively greater access to facilities providing prenatal screening and abortion services. The preliminary analysis of the PDHS 2006–07 data supports this hypothesis. Over time, the sex ratio at birth has increased significantly in urban areas, rising from 106 for cohort of births in 1992–96, to 116 for the 2002–2006 birth cohorts. Moreover, the increase in sex ratios at birth in urban areas corresponds to the timing of the decline in fertility rates – fertility decline in Pakistan is widely accepted to have begun by the late 1980s, early 1990s.

Figure 1: Sex ratio at birth for birth in the five years preceding the survey (2002–06) and for the birth cohort (1992–96), by place of residence
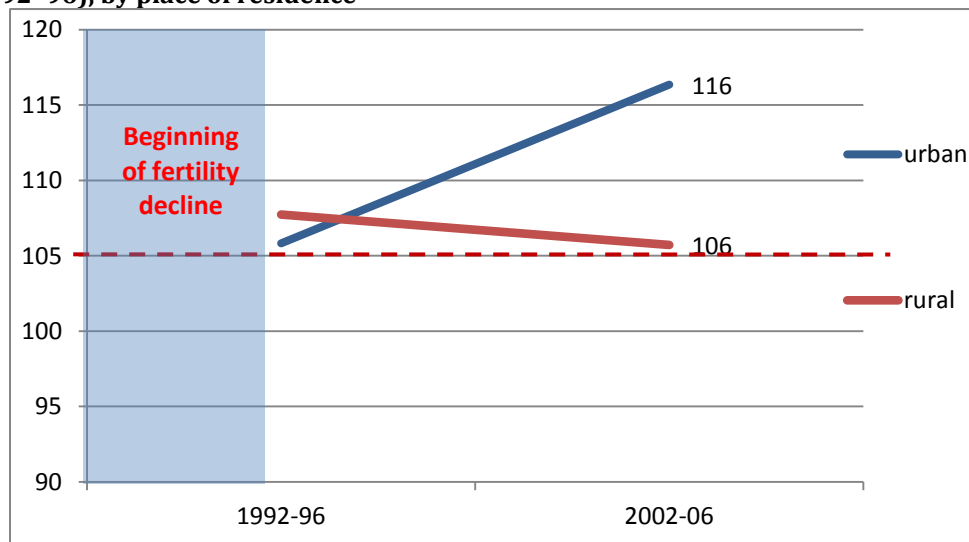
Looking at sex ratio by parity, points to even greater evidence of sex-selection in Pakistan. While sex ratios have remained largely unchanged for lower parities (one or two) and extremely high parities (five or more), they have increased substantially at parity three and four. These parities coincide with the ideal number of children women report.

Figure 2: Sex ratio at birth for births in the five years preceding the survey (2002–06) and for the birth cohort (1992–96), by birth parity
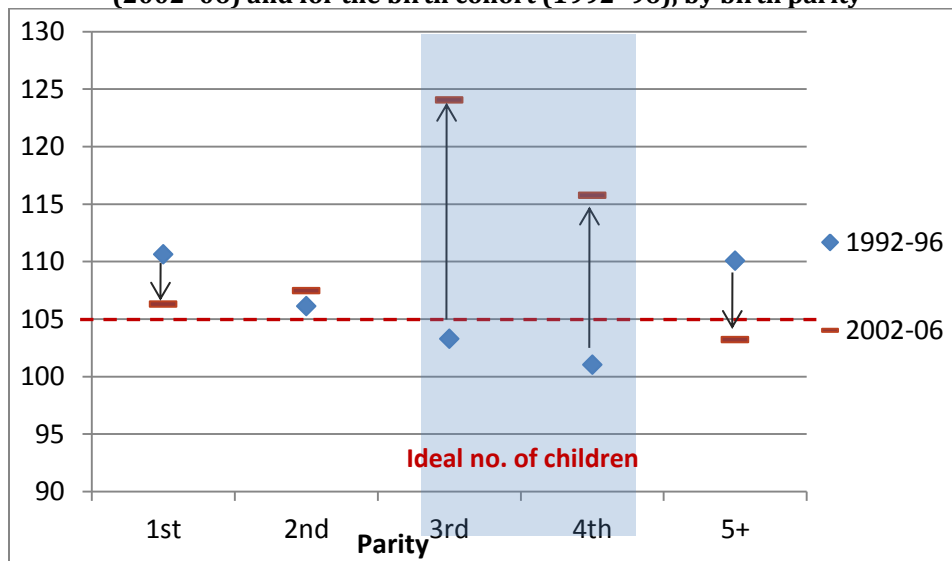
A preliminary analysis of sex ratios by women's educational attainment and household wealth status shows higher sex ratios for women with more education and women belonging to wealthier households. Sex ratio at birth for women belonging to the wealthiest 20% of households is 116 compared to 109 for women from the poorest 20%.

We predict that the imbalance in sex ratios will be greater for the 2012 sample, because fertility have continued to reach closer to desired levels over the last five years.

References:

Arnold, F., S. Kishor and T.K. Roy. 2004. Sex-selective abortions in India. *Population and Development Review.* 28(4):759-785.

Ebenstein, A. 2007. Estimating a Dynamic Model of Sex Selection in China. *Demography*. 2011(48):783–811.

Garenne, M. 2008. Poisson Variations of the Sex Ratio at Birth in African Demographic Surveys. *Human Biology.* 80(5):473-482.

Guilmoto, C.Z. 2009. Recent Increase in Sex Ratio at Birth in Viet Nam. PLoS ONE 4(2): e4624.

Hesketh, T. and Z.W. Xing. 2006. Abnormal sex ratios in human populations: Causes and consequences. *PNAS*. 103(36).

Hudson and Den Boer 2004. *Missing Women and Bare Branches: The security implications of Asia's surplus male population*. Mit Press.

Klasen, S. and C. Wink. 2002. A turning point in gender bias in mortality? An update on the number of missing women. *Population and Development Review.* 28(2):285-312.

Pollard, M.S. and S.P. Morgan. 2002. Emerging parental gender indifference? Sex composition of children and the third birth. *American Sociological Review.* 67(3):600-613.

Sathar, Z. and J.B. Casterline 1998. The Onset of Fertility Transition in Pakistan. *Population and Development Review*. 24(4): 773-796.

Sathar, Z. and F. Fikree. 2007. Estimating the incidence of abortion in Pakistan. *Studies in Family Planning.* 38(1):11-22.

Stein, A.G., P.G. Barnett and D.W. Shellen. 2012. Maternal undernutrition and the sex ratio at birth in Ethiopia: evidence from a national sample. *Proc. R. Soc. Lond. B.* 271(3):37-39.