Fertility transition, woman's education and Poverty: Why Punjab is different from others?

This paper studies various aspects of provincial fertility transition in Pakistan. Our aim is to consider whether Punjab fertility declines to date differ from declines in other provinces in their essential demographic features and to examine the nature of relationship between fertility, woman's education and poverty. Very little is known about the fertility changes at sub-national level in Pakistan. Using nationally representative data from Multiple Indicator Cluster Survey (MICS Punjab) Pakistan Demographic and health survey, we compare and contrast fertility patterns of Punjab with other provinces of Pakistan. The paper also examines fertility changes at district level of Punjab. Results indicate that fertility transition is a significant determinant of poverty reduction in districts of Punjab. Three patterns emerged, 1) Birth rate and transition to 4th or higher order births is lower in Punjab, 2) contraceptive use is imperative in fertility decline and 3) Punjab socio-economic development is pronounced. The paper also comments on the quality of MICS data.

Introduction

The rapid population growth of Pakistan is a result of declining death rate while the birth rate had remained largely unchanged prior to 1986. The crude birth rate (CBR) fell from 45 in 1961 to about 35 in 1998 and estimated around 27 per thousand for 2007. The crude death rate (CDR) declined steadily and steeply from around 24 per thousand in 1950s to 9 per thousand in 1998 and is estimated around 8 per thousand for 2007.

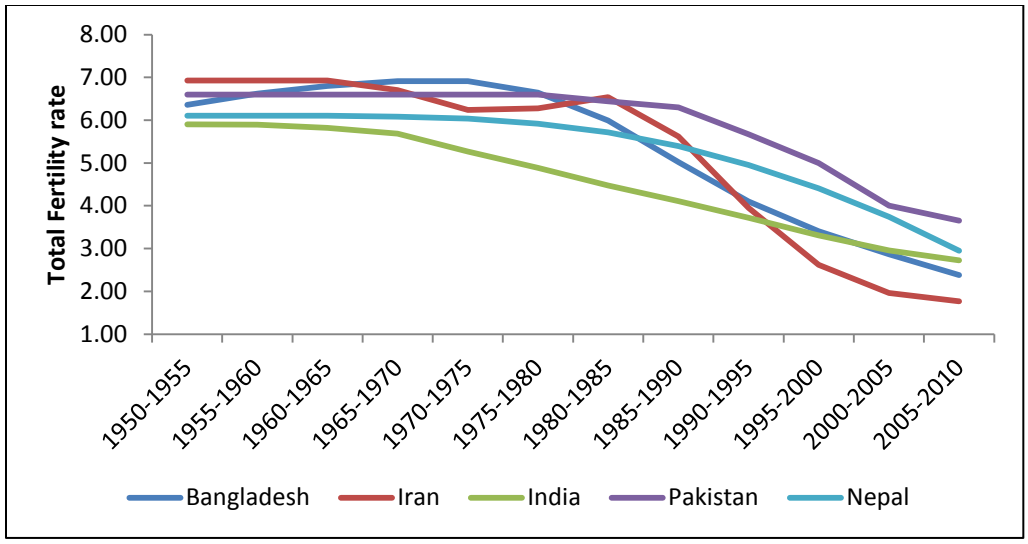
In Pakistan, fertility began to decline in the late 80's and early 90's from its level of a total fertility rate of about 6.8 to its current level of about 3.9. This decline of 2.5 children has been one of the fastest fertility declines in Asia.

Fertility transition in Pakistan has recorded its imprints as reduction in the proportion of population age less than five started in 1990s, and consequently in the proportion of youth, and working age population gets a gradual raise. The proportion of population less than age 15 year was 44.5 percent in 1981, 43.4 percent in 1998 and 41.6 in 2007 (FBS 2007). The youth profile has evolved as a result of sustained high fertility and sharply declining mortality over the past, indicating high momentum in population growth. This momentum is expected to result in the continuance of large addition of population over several decades even when fertility level gets reduced. The high population growth rate and associated population momentum contribute to exponential rise in population, which may reach 181 million by 2015. The absolute size of the population, and the changes in age structure resulting from declining fertility in particular, have clear implications for social and economic development.

Pakistan fertility decline is much Later than other Asian Countries

Pakistan experienced one of the highest fertility levels during the decades of 1960s to 1980s. The high fertility in past was significantly contributing to rapid population growth in Pakistan. Figure 1 illustrates the fertility levels of five South Asian Countries from 1950 to 2020. Demographers and social scientists in Pakistan have agreed that fertility transition started very late compared to other South Asian countries as shown in figure 1. Interestingly, until 1965 the fertility level in Iran was higher than Pakistan and later Iran experienced one of the fastest fertility declines in South Asian as well as in Muslim world and reaching a lower level of fertility at 1.8 children per women. Most of the South Asian countries have experienced a drastic reduction in fertility in the last three decades, such as Bangladesh, Iran and India. Although, the demographic transition begun quite late in Pakistan however, once the fertility decline started and was termed one of the fastest in Asia. However, the spurt of decline did not continue and seen a stagnation during the first decades of 21st century—at four children per women.

Figure 1: Total fertility rate for five South Asian Countries in Pakistan: 1950-2010

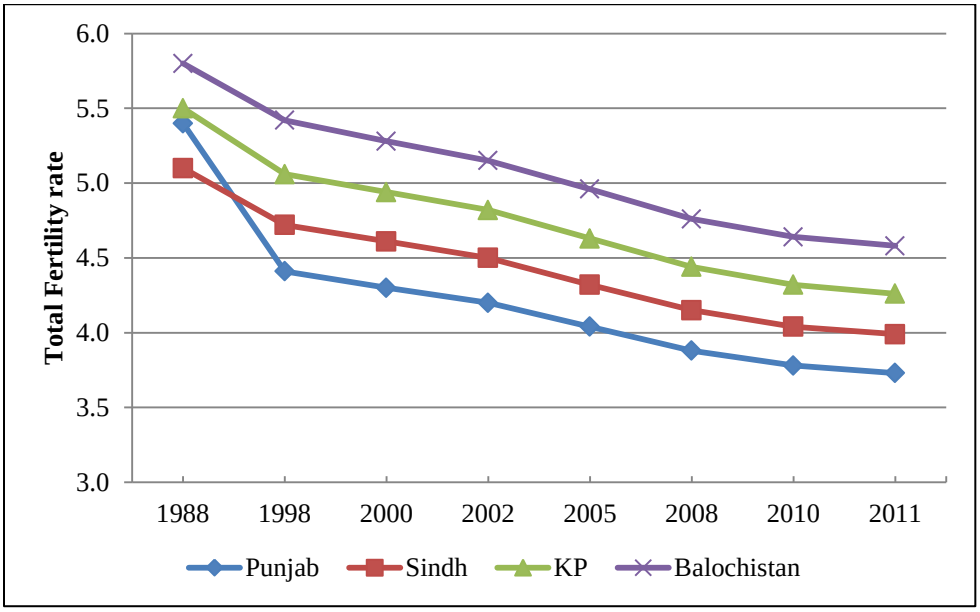


Source: World Population Prospects 2010, United Nations.

Provincial fertility levels and trends

High fertility in Pakistan at national and provincial level during past several decades is one of the main factors contributing to rapid population growth. However, detail analyses of fertility transition at provincial level in Pakistan are lacking. The statistically consistent and reliable estimates for demographic indicators (particularly for fertility) at provincial level in Pakistan are not available during the decades of 1960s to 1980s. Figure 2 shows the total fertility rate at provincial level in Pakistan from 1990 to 2011. We used several data sources (PDHS 1990-91, 2006-07, PRHFPS 2001, SWRHFPS 2003, PIHS 1998-99, PFFPS 1996-97, and several rounds of PSLM from 2004 to 2010) during past two decades to reconstruct consistent estimates of total fertility rate for four provinces of Pakistan. The prime objective of the exercise is to assess pace of fertility transition for each provinces during past two decades. The first evidence of provincial differentials for fertility was reported in Pakistan Demographic and Health Survey (PDHS) 1990-91. In 1990-91, the spatial fertility differentials were quite pronounced in Pakistan. Total fertility rate in Baluchistan and KP was very high (5.8 and 5.5 children per women respectively). The fertility rate in Punjab was close to KP (5.4 children per women) in 1990s and Sindh had a lowest fertility compared to other provinces (5.1 children per women). As can be seen in figure 2, Punjab experienced a sharp decline in fertility from 1988 to 1998. At a rate of one child per women per decade, fertility in Punjab has decline more rapidly than any other province in Pakistan. During the decades of 1990s, fertility in Pakistan at national level decline more rapidly than in any other counties in South Asia, and Punjab has play a major contributing role in fertility transition.

Figure 2: Total fertility rate for four provinces of Pakistan: 1990-2011



Objectives

- To assess the fertility level and trends for Punjab at district level
- Proximate Determinant of fertility for three geographical regions in Punjab (i.e. North, Central and South)
- Evaluate the impact of female education and poverty on the proximate determinants of fertility in Punjab

Data Sources

- MICS 2011, 2007-08
- PDHS, 1990-91, 2006-07 and 2012-13
- PRHFPS 2000-01

Initial findings

Figure 1A shows the total fertility rate in Punjab from 1990 to 2011. Punjab has experienced a substantial fertility decline in about twenty years, about 1.5 children on average. Figure 1B presents the geographic distribution of birth rate in Punjab during past five years. Significant geographic variation in birth rate in Punjab is notified with South Punjab has the highest fertility rate in Punjab compared to North and central regions of Punjab.

Figure 1A: Total fertility rate in Punjab from 1990-2011

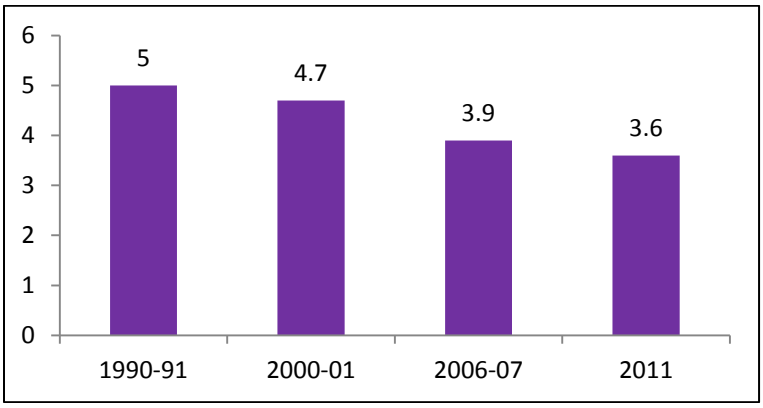


Figure 1B: Total fertility rate in three geographical regions of Punjab from 2006-2011

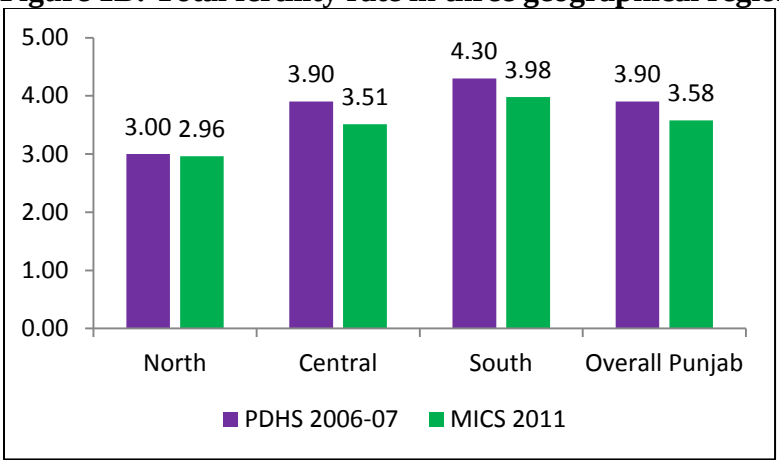


Figure 2A and 2B illustrates the total fertility by female education and place of residence in three regions of Punjab. It is interesting to note here that female with secondary education in North Punjab has already achieved close to the replacement level fertility, whereas female with secondary+ education in South Punjab still has higher fertility, 3.5 children per women. Similarly, urban/rural differentials are more pronounced in North Punjab compared to the South Punjab.

Figure 2A: Total fertility rate by education in Punjab: PDHS 2006-07

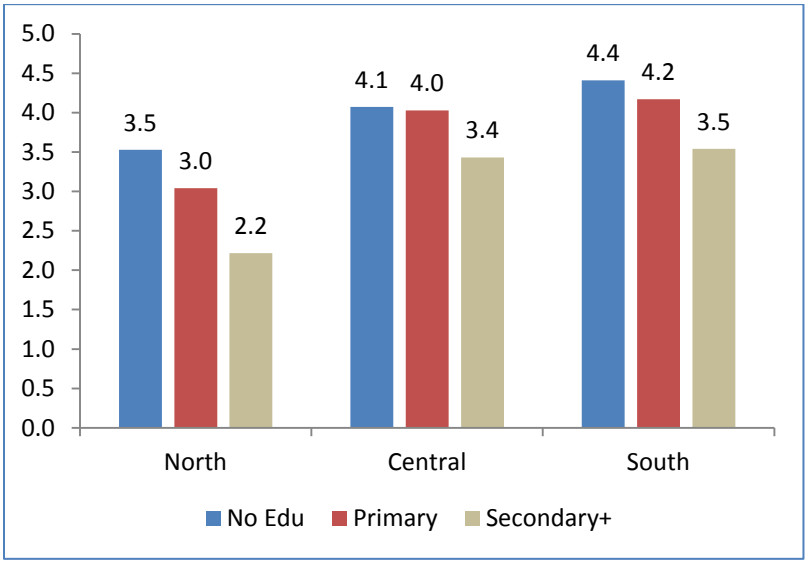


Figure 2B: Total fertility rate in by place of residence Punjab: PDHS 2006-07

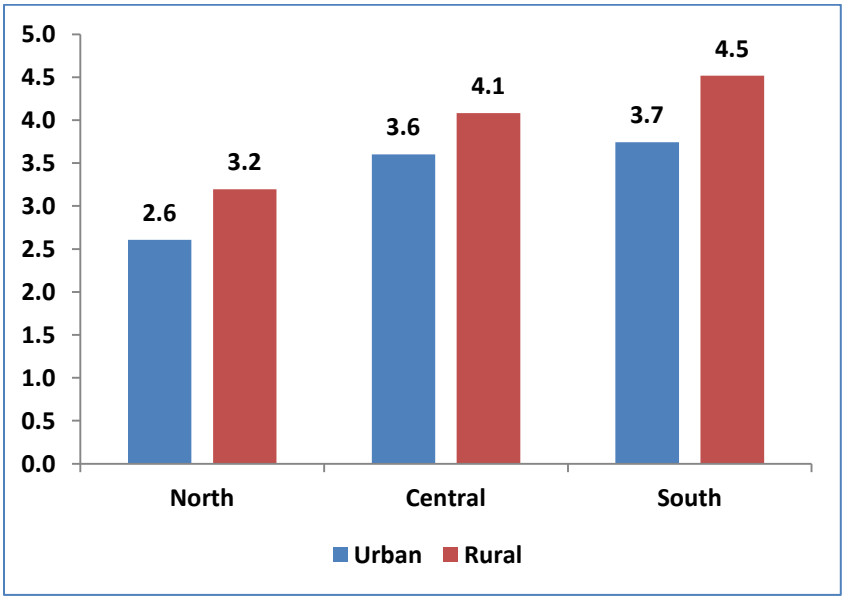


Figure 3 shows the proximate determinants of fertility in Punjab from 1990 to 2007. During the decades of 1980s, proportion married has contributed significantly in fertility decline in Punjab. However, over the next two decades contraceptive use has appeared most important factor in fertility decline in Punjab. We are also working on the development of proximate determinants model at three geographical regions in Punjab in order to assess the impact of contraceptives use in these regions.

Figure 3: Proximate determinants of fertility in Punjab: 1990-2007

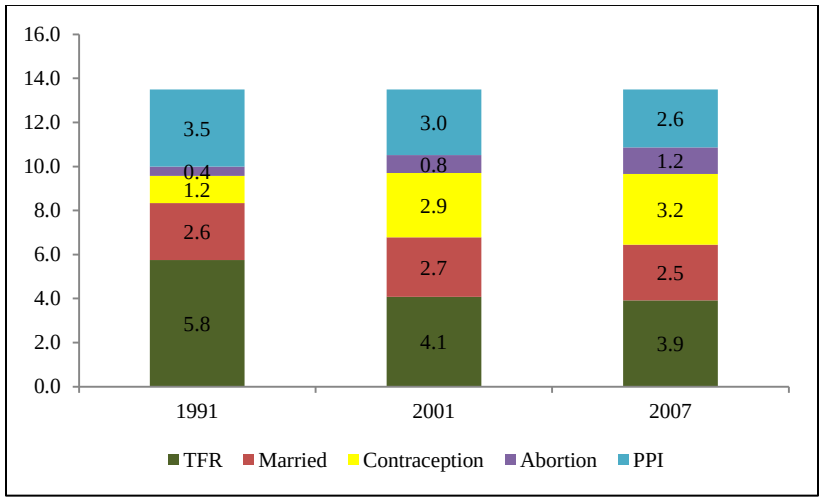


Figure 4 represents the demand and use o the contraception in Punjab. Cleary, demand for FP is high in all three regions and meeting the demand can accelerate the contraceptive prevalence in Punjab.

Figure 4: Demand and Use of contraceptives in Punjab: PDHS 2006-07

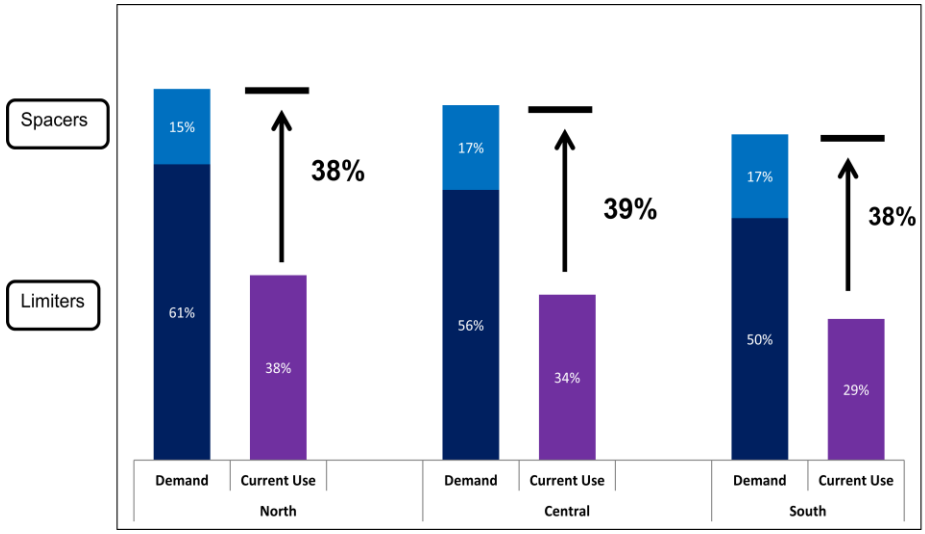
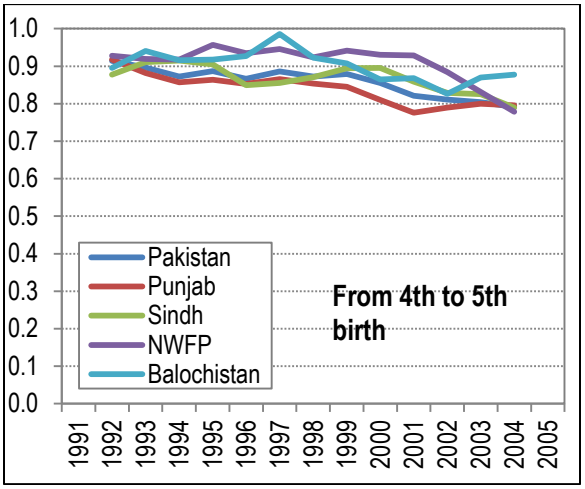


Figure 5. Synthetic parity progression ratios (3-year moving average), regions of Pakistan, 1991-2005
Source: Computed from 2006-07 Pakistan Demographic and Health Survey



Multivariate Analysis

Table 1 shows the OLS regression of number of children ever born with background characteristics by using MICS Punjab 2011 micro level data. Female education and poverty status of the woman has significant impact on the children ever born.

Table 1: OLS Regression of number of children ever born with back ground characteristics, MICS Punjab 2011

Variable Description	Categories	Coefficients
Children ever born	Dependent variable	.
Age of woman		0.202
Highest level of school you attended	0 never	
	1 primary	-0.132
	2 middle	-0.200
	3 metric	-0.225
	4 above metric	-0.286
Area of residence	0 rural	
	1 urban	0.164
Education of household head		-0.015
Age at marriage		-0.201
Wealth index quintiles	1 lowest	
	2 second	-0.218
	3 middle	-0.377
	4 fourth	-0.517
	5 highest	-0.819
Constant		1.334

All variable co-efficient are significant at 99% level of confidence

Conclusion

Three patterns emerged:

1. Ideal family size and transition to 4^{th} or higher order births is lower in Punjab
2. Contraceptive use is imperative in fertility decline and
3. Punjab socio-economic development (female education and poverty) is pronounced.