Attitudinal Determinants of Son Preference for Pakistani Women: Poisson Regression Model Approach

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Abstract

Fertility desires has considerableimpacton a couple's actual demand of children. High reproductive goals of Pakistani women particularly due to son preference hinder fertility control.It is therefore required to investigate the attitudinal determinants of son preference in Pakistan. Poisson regression model was used to fit a model for attitudinal determinants of desired number of sons in a family on the basis of the latest Pakistan Demographic and Health Survey (2012-13).Region, work status of women, age of women, education of women, wealth index and cousin marriage are found to be the significant factors affecting the ideal number of sons.Finally, it can be concluded that intention for a higher number of sons is strong among older, poorer, illiterate, working women and women who were married to cousins.

Key Words: Poisson Regression Model, Attitudinal Determinants, Son Preference, Pakistan Demographic and Health Survey

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Introduction

Reproductive decision of couple is more likely to be altered due to preference for children of any specific gender. Fertility desires are an important area of demographic studies. These desires inspire the couple's targeted family size. Gender preferenceis one of the strongest factorthatinfluence reproductive goals.Desire for more sonsdelaysfertility control. Couples do not end child bearing until they accomplish their desired number of sons(Clark, 2000; Leone, Matthews,&Zuanna, 2003).

Gender preference in the shape of son preference existsin the roots of Pakistani society. In Pakistan,the ratio of son preference is the second largest in the world (Hussain, Fikree,&Berendes, 2000). Pakistani woman desire more sons because it is symbol of dignity and shelter for their mothers. Sons are considered asself-reliant and financial supporters of their families. Hence,Pakistani mother's wished to have high number of sons. Pakistani women (aged 15-49) residing in Bahawalpur, Bhawalnagar and Rahim Yar Khan,preferred to have at least one son in the family (Nasir, Tahir,&Riaz, 2010). Majority of Pakistani women desired family size comprised of two boys and two girls or two boys and one girl (Zafar, Asif, Khan,&Bajwa, 2002). After having their desired number of living sons, they no longer want to become pregnant (Hussain, Fikree&Berendes, 2000; Nasir, Tahir&Riaz, 2010). Only 3% of Pakistani women wanted more daughters than sons while 35.3% preferred more sons, others have balanced preference (Fuse, 2010).The fertility rate for Pakistan is 4.1 (Ali &Buriro, 2008) which is still high as compared to neighboring countries like Bangladesh (2.21), Nepal (2.39) and India (2.5). The birth interval of Pakistani women for the next child is shorter if preceding birth is male (Ali &Buriro, 2008).This entiremeansthatprevalence of son preference has resulted in low contraceptive prevalence rate and higher fertility. On the basis of Pakistan Demographic Health

Survey (2006-07), it was found that Pakistani women aged 15-49, who wanted to have more than two sons,had higher number of actual children as compared to those who wanted less than two sons (Kamal &Pervaiz, 2011). Family planning efforts to lower fertility rates are made ineffective due to the high son preference among Pakistani women.

Son preference also skews the gender ratio in favor of males. In 2008 the sex ratio in Pakistan was 105(Sheraz&Zahir, 2008) and then declined to 102according to report of recent Pakistan Demographic and Health Survey (National Institute of Population Studies Pakistan and ICF International, 2013, Page 19) but still it is considered high. The infant mortality rate was higher for Pakistani, Indian, Chinese and Nepaligirls as compared to boys while the reverse was true forother countries of the world (Westley&Choe, 2007). Post neonatal mortality is foundhigher for girls than boys in some research studies and also in latest Pakistan Demographic and Health Survey report(Bhutta, Cross, Raza&Zahir, 2007;National Institute of Population Studies Pakistan and ICF International, 2013, Page 123). One of the reasonsfor this post neonatal mortality, documented in the report is socio-cultural factors. Son preference is one of the factors which results in high mortality among female infants in Pakistan (Arnold, 1992). It isfactor that shows bias towards female child regarding nutrition and health care (Westley&Choe, 2007).

Fuse (2008) found that son preference was prevalent in Central Asia, North Africa/West Asia, South Asia and Southeast Asia. It is motivated by economic, religious, social and emotional desires and norms that favor males and make females less desirable. Socio-economic factors affecting son preferences were found in many studies in these regions (El-Gilany& Shady, 2007; Hussain, Fikree&Berendes, 2000;Leone, Matthews &Zauanna, 2003; Nag, 1991; Poston, 1995).Urban residence may reduce the preference for sons because daughters have more access to jobs (Goldstein, 2008). El-Gilany and Shady (2007) reported significant son preference

in Egypt among rural residents.Education affects reproductive behavior because it creates awareness among women regarding family planning programs (Caldwell, 1980).

One of the most common marriage patterns in Pakistan is consanguineous marriages i.e. marriage between blood relatives. In cousin marriage, reproductive decisionsare influenced by family. The general thought is that marriage is practiced mainly to have children especially sons to continue the family lineage. Fertility decisions are made by both spouses, not by woman alone. If both spouses do not reach consensus on the number of children then it may influence theirchoice with reference to the sex composition of children in a family.

Chavada and Bhagyalaxmi (2009) reported that son preference was more significantly prevalent among women who were less educated or rural residents as compared to their other counterparts in Ahmadabad, India. Similar findings about area of residence wereereported by Vadera,Joshi, Unadakat, Yadav, B. S. and Yadav, S. (2007) and Das (1987). Arokiasamy (2002), Pande and Astone (2007) andLeone, et al. (2003) reported that an increase in the education level of women was associated with a decrease in the preference for sons. Goldstein (2008) found that status index and religion were statistically significant determinants of son preference but only in rural areas of India. Education, media access and religion were found to have a much larger relative impact on the desire for son than employment. Bhatand Zavier(2003) also documented that increase in education, revelation to mass media and urbanization has negative effect on son preference.El-Gilany and Shady (2007) computed aSon Preference Index. This index had shown moderate son preference in Egypt. Psychological and social determinants were found as strong determinants than economic. Societal traditions and values had affected the son preference strongly than religion in Egypt. Education of husband and gender of offspring were found as significant contributors towards son preference. Khan and Khanum (2000), Hank and Kohler

(2002), El-Shafty (2004), Malhi, Rania, Malhotra, and Jerath(1999) had also reported the same findings.

Pande and Astone (2007) showed that women's education, particularly secondary and higher levels, was consistently and significantly associated with weaker son preference, regardless of desired family size in rural India. These results supported the findings of Pande, Malhotra,and Grown (2003).

To examine the adverse consequences like female mortality (Ghosh, 2013), high fertility rate (Shah, 2005) and negligence towards women health (Mitra, 2014) due to son preference motivated us to investigate the social, economic and demographic factors that leads towards this bias. It is tried in current study to investigate significant factors responsible for a desire to have higher number of boys/sons in Pakistani society.

Hypothesis

We predict a relationshipbetween desired number of boys(sons) and socio-economic, demographic and attitudinal factors (region, place of residence, age of women, education of women, women's work status, wealth index, husband's education, husband's desire for children, cousin marriage, polygyny) for Pakistani women

Method

Sample

Source of current data is Pakistan Demographic and Health Survey 2012-13 (National Institute of Population Studies Pakistan and ICF International, 2013). Ideal number of sons/boys is taken as dependent variable. Women aged 15-49 (13558 women) years were asked, "If you could go back to the time you did not have any children and could choose exactly the number of

children to have in your whole life, how many of these children would you like to be boys?" The response is documented under the name of variable "ideal number of boys". Categories for education of women (primary and secondary) and wealth index (poorer and poorest, richer and richest) are merged to make analysis simple.

Assessment Measures

Secondary data is used for current analysis. It is collected by USAID and Macro International in 2012-13. Many articles are published based on DHS datasets (National Institute of Population Studies Pakistan and ICF International, 2013)

Procedures

"The primary objective of the 2012-13 PDHS is to provide reliable estimates of the key fertility, maternal and child health indicators at the national, provincial, and urban-rural levels as well as for Gilgit-Baltistan and ICT Islamabad. Asample size of 14,000 households was estimated to provide these indicators with reasonable precision. The survey utilized a two-stage sample design. The first stage involved selecting 500 sample points (clusters), 248 in urban areas and 252 in rural areas. The sample points were selected from the sample frame maintained by Pakistan Bureau of Statistics. The urban frame consists of 43,000 blocks whereas the rural frame has 105,000 blocks. Each block consists of 200-250 households. The second stage of sampling involved selecting households. In each sample point, 28 households were selected by applying a systematic random start technique, yielding a total of 13,944 households selected. All ever-married women age 15-49 years in these households were administered the Woman's Questionnaire"(National Institute of Population StudiesPakistan and ICF International. 2013, Page 5).

Results

Pearson chi-square is applied to study Bivariateassociation between response variable and selected socio-economic and demographic factors.Poisson regression model is used for modeling ideal number of boys. Government of Pakistan promotestwo children as an ideal family size.But Pakistani mothers generally wish to have more than one son. Majority of people choosesat least two sons as an ideal number of boys in a family. In PDHS (2012-13) mother's desire for sons/boys in a family is documented under variable titled as "ideal number of boys". Analysis is done in SPSS 17.0 and STATA 12accounting complex survey design in the analysis.

Descriptive Analysis

Majority of Pakistani women wished to have an average number of two sons (See Figure 1). Majority of Pakistani women favored to have 1 to 3 (M= 2.1, SD=1.3) number of sons in their family.The graph also shows accelerated decline in the number of women whose desirable number of sonsis above four (See Figure 1).

For descriptive and bivariate analyses, the "ideal number of boys"variable is categorized as:

<2 women who prefer to have at least one boy (normal son desire)

=2 women who prefer to have two boys (moderate son desire)

>2 women who prefer to have more than two boys (strong son desire)

First category is defined as normal son preference because Family Planning Program of Pakistan promoted two children (1 boy, 1 girl). It is observed from Table (1) that inclination of women's desire towards number of boys/sons is same for different categories of region except Baluchistan. Majority of women who belonged to Punjab, Sindh and KPK wished to have two sons. But in Baluchistan majority of women are eager to have more than two boys. In Gilgit-

Baltistan, only six respondents desire to have less than two sons. Situation is inverse for Islamabad, where four women desired to have more than two sons.

Majorityof women irrespective of their place of residence (urban or rural settings) wanted two sons. High percentage (20.8%) of rural women wanted more than two boys in their families. An inverted U shaped pattern can be observed for son desire and women who belonged to different age groups. This pattern is more visible for first two categories of ideal number of boys/sons (<2 and =2). Percentage of the illiterate women who wanted two sons is found highest. Percentage of women who never worked after marriage is 70.9% and majority of these womenpreferred to have at least two sons. Women's desire to ideal number of sons shows that poorer/poorest women desired at least two sons. This pattern is reversed for richer/richest women. Majority of these women desired to have at most two sons.Among those women who desired more than two sons, majority had uneducated husbands. Women who had highly educated husbands and who had also preferred more than two sons are only 3%. Trend of the women's desire towards ideal number of sons (<2, >2) is almost the same across two categories of polygyny. Consistent pattern (inverted U shaped) for the three categories of son preference exist across various categories of factors.

The p-value of Table (1) shows that region, place of residence, age of women, education of women, work status of women, wealth status, husband's education, husband desire for children and cousin marriage are significantly associated with response variate.Only polygamous type of marriage isnot significantly associated with ideal number of boys.

Multivariate Analyses

This analysis involve numerous explanatory variables: region, place of residence, age of women, education of women, work status of women, wealth index, education of husband,

husband desire for children, polygyny and cousin marriage. The dependent variable is “ideal number of boys/sons”.

PoissonRegression model is proposed to fit for modeling ideal number of boys/sons so it is essential to check the equi- dispersion assumption.For ideal number of sons M= 2.1 and VAR=1.7. This shows a slight under dispersion in the data. Generalized Poisson regression model is appropriate for under dispersed data. Equi-dispersion assumption is also verified with the help of dispersion parameter “α”. The value of α is close to zero (Table 2). In such case Generalized Poisson Regression model is reduced to Poisson regression model. Backward elimination technique is chosen for the selection of variables for a final model(Table 2).

Region, work status of women, age of women, education of women, wealth index and cousin marriage are significantlyrelated to the ideal number of sons.Region (Sindh, Baluchistan, GilgitBaltistan), work status of women (yes), age of women and cousin marriage (yes) have significant positive effect on ideal number of sons, women desired to have. Region (Islamabad and KPK), education of women and wealth index have negative effect on the dependent variable.

Women who belonged to Sindh, Baluchistan and GilgitBaltistan have strong desire for more sons as compared to Punjabi women. Women who belonged to KPK and Islamabad desired fewersons as compared to Punjabi women. Working women or those who were married to cousin desired more sons as compared to their other counterparts. Older women also desired more sons as compared to younger women. Economic status and educational level also significantly affect women’s desired number of sons. Highly educated women or women who belonged to rich families desired to have fewer sons as compared to uneducated women or women who belonged to poorer families.

Discussion

Pakistani women have high reproductive targets particularly due to their intention for higher number of sons. This approach of Pakistani women towards child bearing had resulted in low contraceptive prevalence for stopping fertility. This therefore come forth in failure of population policy of Government of Pakistan i.e., two children in a family.Results show that Pakistani women want at least three sons. It is essential for policy makers to determine significant factors behind this behavior. It will help in formulation of necessary measures to avoid this gender biased behavior and also to achieve low fertility rate. Otherwise like India, China and Korea, Pakistan may face sex selective abortions due to son preference (Westley&Choe, 2007).Important factors affecting theintended number of sons are identified in current study. Region, work status of women, age of women, education of women, wealth index and cousin marriage are observed to be the statistically significant factors affecting the ideal number of sons. Sindhi, Baluchi and GilgitBaltistani womendesired more sons as compared to Punjabi women. Punjabi women are more educated, autonomous, modern and well aware as compared to women belonging to other provinces. Working women intended more sons than non-working women. Reason might be that most of these working women are engaged in low profile job with minor earnings. Working women are still not autonomous in decision making in Pakistan. Other family members influence her choices regardless of whether or not she is earning money for the family. Generally in other studies it was foundthat women's participation in economic activity increased the status of women and enabledthemto resist the pressure of the males to discriminate in favor of boys (Goldstein, 2008).Older Pakistani women desired moresons as compared to young Pakistani women. A similar trend wasobserved by Goldstein (2008). Highly educated Pakistani women desiredfewer sons as compared to illiterate women or

less educated women. Therefore increase in educational level of Pakistani women can reduce their great desire for higher number of sons.

Education is known to affect reproductive behavior because it familiarizes women to new ideas and ends about childbearing, (Caldwell, 1980). Delay inwomen'smarriages, their financial self-sufficiencyand exposureare due to the education of women which effect fertility decisions. Education can decrease a woman's desire for sons because of increased knowledge of issues of son preference and discrimination against women (Goldstein 2008).

Women who belonged to lower economic class are more likely to have more sons than the women who belonged to higher economic class. In developed countries children are regarded important more for economic reasons rather social or cultural (Hank &Kohler, 2002). Financial benefits from son, old age security and property inheritance are major determinants of son preference in India (Chavada&Bhagyalaxmi, 2009).The practice of discrimination is also widespread even in traditional societies where reason is economic as well as social. Parents have to pay a dowry on the marriage of their daughters in these societies. The killing of female new-born babies as the final solution to the dowry problem is becoming more common, particularly in the poorer areas of India (Wesemann, n.d.).Fuse (2008) reported that increase in wealth lessen the chances of preferring sons in India, Nepal, Morocco and Cambodia. So, poorer families are more likely to prefer sons. Wealth is significantly and negatively correlated with son preference (Goldstein 2008).

Son preference prevails more among those women who are engaged in consanguineous marriages. Reason might be higher fertility as Bittles (1991) found that union between cousins in Pakistan was characterized by higher fertility as well as higher mortality among the

offspring.Finally, it can be concluded that intention for a higher number of sonsis strong among older, poorer, illiterate, working and women who were married to their cousins.

Implications

Intention for higher number of sons is an important issue to be addressed because for a country like Pakistan it results in negative social, economic and demographic effects.

Education is the key to the solution of all problems. Uneducated women produce children until they get their desired number of sonswhich results in higher fertility. Educated women can understand the consequences of this gender biasedness on society. Education creates confidence in women to make their reproductive decisions and lessen their insecurities. Government should promote the education of women to change the mind set of society. Women empowerment is also necessary.Women who belonged to low wealth indexdesired more sons despite that they cannot afford big families. They cannot provide a good lifestyle to their children resulting in burden on economy. The government should create awareness among poor and rural communities to convince them to prefer quality over quantity. The media and NGO's should play a role in convincing these women that more number of sons is not their insurance for old age. There is need to improve the status of women and break the social norms regarding son preference.

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Figure1: Bar Chart Showing Desired Number of Sons by Pakistani Women

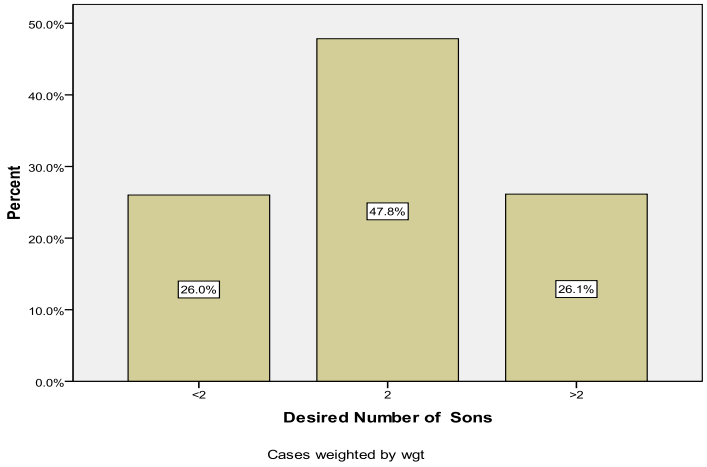

Table 1

Percentage Distribution of Women (Ideal No. of Sons × Factors) in Pakistan

Factors		Ideal Number of So					
		<2	=2	>2	χ^2	P	*p*
Region	Punjab	2053(15.8%)	4015(30.9%)	1381(10.6%)	925.46	0.00	0.00
	Sindh	621(4.8%)	1346(10.4%)	1108(8.5%)			
	KPK	607(4.7%)	648(5.0%)	511(3.9%)			
	Baluchistan	68(.5%)	141(1.1%)	341(2.6%)			
	Gilgit-Baltistan	6(.0%)	35(.3%)	52(.4%)			
	Islamabad (ICT)	27(.2%)	31(.2%)	4(.0%)			
Place of							

Residence							
	Urban	1491(11.5%)	2197(16.9%)	697(5.4%)	435.89	0.00	0.00
	Rural	1889(14.5%)	4019(30.9%)	2700(20.8%)			
Age of Women							
	15-19	164(1.3%)	324(2.5%)	102(.8%)	301.70	0.00	0.00
	20-24	635(4.9%)	1016(7.8%)	408(3.1%)			
	25-29	752(5.8%)	1353(10.4%)	543(4.2%)			
	30-34	560(4.3%)	1261(9.7%)	616(4.7%)			
	35-39	574(4.4%)	932(7.2%)	625(4.8%)			
	40-44	385(3.0%)	729(5.6%)	538(4.1%)			
	45-49	310(2.4%)	601(4.6%)	565(4.3%)			
Education of Women							
	No	1394(10.7%)	3201(24.6%)	2716(20.9%)	1234.42	0.00	0.00
	Primary/Secondary	1422(10.9%)	2429(18.7%)	590(4.5%)			
	Higher	564(4.3%)	586(4.5%)	90(.7%)			

Table 1.Percentage Distribution of Women (Ideal No. of Sons × Factors) in Pakistan (Contd.)

Factors		<2	=2	>2	χ^2	P	*p*
Work Status of Women							
	No	2671(20.6%)	4408(33.9%)	2134(16.4%)	215.46	0.00	0.00
	Yes	709(5.5%)	1808(13.9%)	1263(9.7%)			
Wealth Index							
	Poorer/Poorest	859(6.6%)	2115(16.3%)	2059(15.8%)	1102.94	0.00	0.00
	Middle	663(5.1%)	1316(10.1%)	591(4.6%)			
	Richer/ Richest	1858(14.3%)	2785(21.4%)	747(5.7%)			
Education of							

Husband							
	No	873(6.7%)	1789(13.8%)	1601(12.3%)	490.45	0.00	0.00
	Primary/Secondary	1728(13.3%)	3341(25.8%)	1395(10.8%)			
	Higher	771(6.0%)	1070(8.3%)	394(3.0%)			
Husband desire for Children							
	Same or Few than Wife	1842(18.2%)	3816(37.7%)	1509(14.9%)	224.78	0.00	0.00
	More than Wife	841(8.3%)	1134(11.2%)	971(9.6%)			
Polygyny							
	No	3055(24.6%)	5761(46.5%)	3114(25.1%)	3.99	0.00	0.39
	Yes	129(1.0%)	205(1.7%)	136(1.1%)			
Cousin marriage							
	No	1405(10.8%)	2182(16.8%)	921(7.1%)	157.18	0.00	0.00
	Yes	1975(15.2%)	4031(31.0%)	2475(19.1%)			

p-value<0.05 (significant)

Table 2

Parameter Estimates of Final Poisson Regression Model for Ideal Number of Sons

		B	S.E.	IRR	95%CI	Z	P	*p*
		.47	.04	1.61	[0.40,0.54]	13.15	0.00	0.00
Region								
	Punjab	-	-			-		-
	Sindh	.18	.03	1.19	[0.12,0.23]	6.55	0.00	0.00
	KPK	-.04	.05	.96	[-0.14,0.06]	-0.80	0.43	0.43
	Baluchistan	.46	.03	1.58	[0.40,0.53]	13.89	0.00	0.00
	Gilgit-Baltistan	.41	.07	1.50	[0.28,0.53]	6.23	0.00	0.00
	Islamabad (ICT)	-.09	.04	.92	[-0.16,0.02]	-2.44	0.02	0.02
Work Status of Women								
	No	-	-	-			-	-
	Yes	.04	.02	1.04	[0.01,0.08]	2.25	0.03	0.03
Age of Women		.01	.001	1.01	[0.007,0.010]	11.51	0.00	0.00
Education of Women								
	No	-	-	-			-	-
	Prim./Secondary	-.15	.02	.86	[-0.19,-0.11]	-7.53	0.00	0.00
	Higher	-.31	.03	.73	[-0.37,-0.25]	-10.14	0.00	0.00
Wealth Index								
	Poorest/Poorer	-	-	-		-		-
	Middle	-.11	.03	.89	[-0.17,-0.06]	-4.17	0.00	0.00
	Richer/Richest	-.16	.03	.85	[-0.22,-0.11]	-5.94	0.00	0.00
Cousin Marriage								
	No	-	-	-		-		-
	Yes	.06	.01	1.07	[0.04,0.09]	4.36	0.00	0.00

P-value<0.05 (significant)

Note. α=4.49e-21(p>1.00). CI=confidence interval for coefficients (B)