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Poverty and Its Determinants in Pakistan: Evidence from Pslm 2010-11

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Abstract
This study estimates the poverty in terms of head count ratio, poverty gap and squared poverty gap by using the fresh available PSLM data for the year 2010-11 in Pakistan. This study also finds its economic determinants by estimating multiple OLS regression.The results show that the headcount ratio, poverty gap and squared poverty gap are statistically significant 15.06 %, 2.29 % and 0.55 %, respectively in Pakistan. All of the poverty estimates arestatistically significant almost double in rural areas as compared to urban areas. The comparisons of the poverty estimates of this year with the previous ones of2007-08 at urban, rural and nationallevel show that poverty decreased statistically significantly. Among the provinces it is the highest in Baluchistan and the lowest in Sindh. The comparison of provincial poverty estimates of this year with the same ones of previous year (2007-08) depict that poverty decreased in all of the provinces, but it is statistically significant only in case of Baluchistan.Further the resultsshow that Poverty has statistically significantinverse relationship with education. Households having animals for transportation, owning residential buildings, shops and commercial buildings and living in urban areas have less poverty than those who do not. But it hasstatistically significant positive association with the household size and dependency ratio. The household size is greater in poor families than the rich ones. As far as household head's employment status, occupation and industry is concerned, it is highest in sharecroppers,elementary occupations, and community, social services. At a policy level, it is suggested that Govt. should focus more on education and generationof employment opportunities. Further it should provide loansto lower income groups on reduced rates for housing facilities andto start their own businesses like shops.Family planning should be encouraged especially in poor families.All such policies should focus more on rural areas of especially Baluchistan and KPK in Pakistan.
Keywords: Poverty; Education; Animal for transportation; Household size; Dependency ratio; Family planning; Residential building;Shops; Pakistan.

I. Introduction

Reduction of poverty has been the central focus of the policies of the economies. Since the Millennium Development Goal's adoption it has attracted more attentions. Nasim (1973), Mujahid (1978), Malik (1988), Malik (1991), Ali and Tahir (1999), Cheema (2001), Anwer and Qureshi(2002), FBS (2001 & 2003),Saboor (2004), Jamal (2005), Kakwani (2006) applied Food Energy Intake (FEI) approach while Gazder et. al (1994), Qureshi and Arif (2001), World Bank (2002,2004 and 2006) employed the Cost of Basic Needs (CBN) approach to calculate poverty. Qureshi and Arif (2001) calculated separate poverty lines for a new data set. While Nasim (1973), Alauddine (1975), Malik (1991),FBS (2001 & 2003), Anwar and Qureshi (2002), World Bank (2002, 2004 & 2006) and Kakwani (2006) adjusted the poverty line by a price index. Among the studies which updated the poverty line by price index, Malik (1988), Kemal and Amjad (1997), Ali and Tahir (1999) FBS (2001 & 2003), Anwar and Qureshi (2002) adjusted poverty line by using consumer price index, but World bank (2002, 2004 & 2005), Kakwani (2006) and Jan et al.(2008) did the same by Tornqvist price index. Both these indices have their own merits and demerits. The merit of the consumer price index is that it is estimated for the majority of the items, but it is only urban based index. It doe not cover the rural areas. As far as Tornqvist price index is concerned, its merit is that covers both urban and rural areas, it includes only food and fuel items. Thus another index- composite price index is required that make up the deficiencies of these two index.This index was used by Cheema and Sial (2012) to obtain the consistent and comparable poverty estimates from 1992-93 to 2007-08 in Pakistan. Now a fresh Pakistan Social and Living Standard Measurement Survey (PSLM) data 2010-11 is available. Thus study aims at estimating poverty by following the methodology used by Cheema and Sial (2012) to obtain the same for the year 2010-11. Thus study also aims at preparing the poverty profile and estimating the poverty determinants for the same year in Pakistan.

The structure of the paper is as follows: After introduction, data and methodologyare given in the second section. The results are provided in the third section. Final section concludes the study.

II.DATA and Methodology

DATA

This study uses the fresh available PSLM data for the year 2010-11 which was collected by Pakistan Bureau of Statistics. The sample size chosen by Pakistan Bureau of statistic is representative of National and provincial level with urban/ rural breaks up. The details of households covered are given in the following table.

Table 1: Household covered at National and provincial level with urban/ rural break up

Region	Urban	Rural	Overall
Pakistan	**6586**	**9750**	**16336**
Sindh	2935	4018	6953
Khyber Pakhtoon Khaw (KPK)	1799	2295	4094
Baluchistan	1041	1913	2954
Baluchistan	811	1524	2335

Source: Pakistan Social and Living Standard Measurement Survey 2010-11

METHODOLOGY

2.1. Poverty line

First of all, poverty line was estimated by running a log-log ordinary least squares regression on first three quintiles using the HIES data 1998-99 that is given as under:

$$Ln(Y) = a + b\ln(X) + e$$ Where

Y=per adult equivalent consumption expenditure per month (food + non food) and X= per adult equivalent calorie intakes per day.

The consumption expenditure was taken as an indicator of welfare for the following reasons: (I) consumption is considered a more direct indicator of achievement and fulfillment of basic needs. (II) Consumption is more easily observable and measurable than income especially in developing countries. (III) According to life cycle theory, individuals want to smooth their consumption during their low and high income years through borrowing and saving. So consumption is considered smoother than income.

Now the question arises which items should be included to estimate the expenditure. In this connection it is stated that the Consumption expenditures on all items consumed regardless of whether they were purchased or produced by own or got as assistance or gifts were added up to calculate monthly expenditure. Whereas expenditures on fines, property and house taxes were not included.

Generally in order to get per capita expenditure, household expenditure is divided by household size. It is not a good way to measure the welfare at individual level. Different households differ in size and composition. One household may include more adult male members and the other may include more female members while still the other household may include more children. To find the welfare at the level of individual, it is essential to adjust the consumption expenditure of the household according to the composition and size of the household. Following FBS (2001) and World Bank (2002) this study used equivalent scales which gave weights 0.8 to individuals who are less than 18 years old and 1 to individuals who are equal to or greater than 18 years old to reach per adult equivalent so that the expenditures of households be divided by this per adult equivalent and in this way true welfare levels of individuals were ascertained.

Next the question arises how to address the problem of price differential between different families located at different places and over the time period because the survey is spread over more or less a year. So in order to address this problem, it is essential to make adjustments in the consumption expenditure for these price differences. The spatial price index called Paache price index at the primary sampling unit level was calculated using the median unit prices obtained from household surveys in order to remove price differences across regions. The same price index was used by (FBS, 2001) and (World Bank, 2002).

Now it is essential to explain the variable (calories) on the right side of the equation. Requirements of calories are not the same for adults and children as well as males and females. Adults require more calories than females and children, while children need fewer calories than even female adults. So it needs to adjust the household size keeping in view age and sex of the members of the household. This study adjusted the household size using the nutrient based equivalent scales (1985), developed by Planning Commission, Government of Pakistan (2002). Calories per adult equivalent were obtained by dividing the total calories consumed by the household by the so adjusted size of household. Quantities consumed of food items obtained from the household income and expenditure surveys were converted into calories by using conversion factor.

2.2. Updating of poverty line

The main purpose of employing the absolute poverty line approach is that any contraction or expansion can be calculated against a fixed target. This means that poverty line measured under this approach should be consistent and remain unchanged over time. A poverty profile is said to be inconsistent if out of two households having the same living standard but living in different places, one is regarded as poor, while the other as non-poor (Ravallion and Bidani, 1994). Consistency means that the welfare of each individual must be estimated against the same bench mark. For a poverty line to remain unchanged over time, it implies that poverty line should not

change over time but only up to changes in prices. This means that poverty line should be adjusted by a suitable price index so that comparable poverty estimates over time can be obtained (Cheema, 2005; Kakwani, 2006; Jan et al, 2008). Absolute poverty line can be updated in two ways: (I) updating poverty line by a price index (II) estimating a new poverty line for a new year.

2.2.1. Updating poverty line by appropriate price index

Poverty line calculated for the base year is updated using consumer price index or by employing Tornqvist price index (TPI) or by the combination of both. These methods allow for changes in prices whereas the consumption basket associated with poverty line in the base year is kept constant. The poverty line remains constant over time and hence, poverty estimates are constant and comparable over time. Consumer price index and Tornqvist price index have some advantages and disadvantages.

The main advantage of consumer price index based 1990-91 is that it collects prices for 460 food as well as non-food items and the consumer price index based 2000-01 does the same for 375 items (food and non-food) regularly. One limitation of CPI is that it covers thirty five cities only. Since a large proportion of population of Pakistan is living in the rural areas, non-availability of the data on rural prices is likely to introduce bias in calculating true inflation rate which is the representative of the whole Pakistan.

The other way to calculate the inflation rate between two surveys is the Tornqvist price index (TPI). HIES surveys provide information on quantities and expenditure for majority of food items and a number of non-food items. Using this information, inflation rate between two surveys is calculated.

Its advantages include: (i) it uses unit prices for both rural and urban areas which are obtained by dividing the values of items by their quantities, (ii) the unit prices are the households' actual transactions. Its drawback is that the HIES surveys do not provide information on quantities for a number of non-food items. If such part of non-food items is ignored for the calculation of inflation rate, this would be a great biasness.

The best way to estimate inflation rate between two surveys of households is one that covers both rural and urban areas as well as large number of items. In other words composite price index which is the combination of consumer price index and Tornqvist price index is estimated. This index was used in Bangladesh by World Bank (2001). As the HIES surveys provide enough information on food and fuel items, so Tornqvist price index is estimated for these items. For non-food and non-fuel items, consumer price indices estimated by Federal Bureau of statistics, government of Pakistan is utilized.

2.2.2. Estimating a new poverty line for a new year

It is very common in Pakistan to compute fresh poverty line for each survey. Under this method poverty line for the base year is not updated by the inflation rate between two survey periods. Rather, a new poverty line is computed from the recent available data set. This method allows for variations in prices as well as in the contents of consumption basket. The fresh poverty line would not be constant over time and hence, poverty estimates would not be comparable and consistent over time. However, there are situations where new poverty line has to be calculated. The new poverty line is suggested only when price structure has changed significantly as a result of introduction of dramatic changes in the economy such as sudden liberalization of the economy. A new poverty line is also suggested when questionnaires in two different years are sharply different (Cheema, 2005).

This study updated the poverty line by composite price index which is a combination of consumer price index (CPI) for non-food and non-fuel items and Tornqvist price index (TPI) for food and fuel items. It is notable that this study utilized Monthly CPIs calculated by FBS (1992-93-2010-11), information on interview in different months and TPIs estimated by this study from surveys data as well as the group weights of commodities and services of Government of Pakistan (2009) in developing a Composite Price Index. Tornqvist Price Index was estimated as under:

$$\ln \mathrm{P}_{10} = \sum_{k=1}^{n} \frac{w_{1k} + w_{0k}}{2} \ln\left(\frac{p_{1k}}{p_{0k}}\right)$$

Where W_{1k} and w_{0k} are budget shares of items between the two periods whereas p_{1k} and p_{0k} are prices in two periods.

2.2.3 Poverty Indices

This study estimates three measures of poverty namely, headcount ratio, poverty gap and squared poverty gap known as first three poverty measures of Foster et al (1984). These are given below:

2.2.3.1 Headcount Ratio

Headcount Index calculates the population proportion whose consumption is below the poverty line z:

$$H = \frac{q}{\mathrm{N}}$$ where H = Headcount index, q = number of poor and N= size of the population. Its advantages are that It is sensitive to number of poor; it is direct and easy to calculate as well as it is most widely used poverty

measure. But it suffers from defects. It does not satisfy the axioms of monotonicity1 and transfer2.

2.2.3.2 Poverty Gap

It measures the distances that poor people fall from the poverty line and expresses that as percentage of poverty line. It measures the mean shortfall in consumption expenditure from the poverty line. It depicts the depth of poverty. It is estimated as under:

$$PG = \frac{1}{n}\sum_{i=1}^{q}\left[\frac{z - y_i}{z}\right]$$

Where y_i denotes the individual i's income and the sum is taken only over those people whom incomes are less than the poverty line. Its advantage is that it meets the axiom of monotonicity, but it does not satisfy the transfer axiom.

2.2.3.3 **Squared Poverty Gap (SPG)**

Poverty gap calculates the distance that poor people fall from the poverty line, while the squared poverty gap considers the square of that distance. It depicts the severity of poverty. It is estimated as follows:

$$SQP = \frac{1}{n}\sum_{i=1}^{q}\left[\frac{z - y_i}{z}\right]^2$$

Its advantages are that it satisfies the monotonicity and transfer axioms.

2.3.DETERMINANTS OF POVERTY

Generally categorical regressions- Logit and Probit models are estimated to know the determinants of poverty. Qureshi and Arif (2001), Geda et al.(2005), Moke et al (2007), Bhaumik et al. (2006), Chaudhry (2009), Hashmi (2008), Sikandar and Ahmed (2008), Siddiqui (2009), Achia et al. (2010), and Apata et al. (2010) used these categorical regressions. Such like regressions are employed on the assumption that the consumption or income variables are not available. There is only known whether the household is poor or not, that is shown by categorical variable that take 1 if the household is poor, other wise it takes 0 World Bank (2002). There are some problems with the categorical regressions that estimates are sensitive to specification error. In case of probit model the parameters are biased if the distribution is not normal. More generally all information is not used by these models because income or expenditure is collapsed into a binary variable. These categorical regressions have predictive power for classifying the household as poor or not World Bank (2002). Thus as an alternative, OLS regression of log on the welfare indicator is estimated that uses full information for the dependent variable World Bank (2002). Jamal (2005) estimated for the same purpose using the HIES data 2001-02. Jan et al. (2008) estimated the same to find the determinants of poverty in rural sector in Pakistan. Fagemas and Wallace (2003), Alber and Collado (2004), Andesson et al. (2006), Baumik et al. (2006), Esanov (2006), Amendola and Vecchi (2008), Akerele and Adewuyi (2011), Sakuhunni et al. (2011) also used OLS regressions. Cheema and Sial (2012) estimated the multiple OLS regressions to find the poverty determinants byusing the Household Income and Expenditure Survey data for the year 2005-06. This study also followed the same technique to find the determinants of poverty using the fresh available HIES data for the year 2010-11.

$$Ln(Expenditure) = \beta_0 + \beta_1 \ln(HS) + \beta_2 DR + \beta_3 EduHH + \beta_4 EduHH^2 + \beta_5 RB + \beta_6 SC + \beta_7 URBAN + \beta_8 EMPSTHH + \beta_9 OCPHH + \beta_{10} ANIT + e$$

$$H_0 = \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = \beta_8 = \beta_9 = \beta_{10}$$

$$H_1 = At\ least\ one\ of\ betas \neq 0$$

Where

$$DR = Dependency\ ratio = \frac{Persons\ with\ age\ less\ than\ 15\ \&\ greater\ than\ 64}{Persons\ with\ age\ greater\ than\ 14\ \&\ less\ than\ 65}$$

HS=Householdsize**,** , EduHH= Education of household head, RB=Residential building, SC=shop and commercial building, EMPSTHH=employment status of household head, OCCHH=occupation of household head and ANIT=animal for transportation.

3. RESULTS AND DISCUSSIONS

Government of Pakistan's poverty line is Rs. 1745 which was obtained by updating the poverty line of 2007-08 by consumer price index.Cheema and Sial (2012) estimated the poverty line for the year 1998-99 by using the same technique as was adopted by government of Pakistan. Then poverty lines for the years 1992-93 to 2007-08 were obtained by adjusting the poverty line of 1998-99 by composite price index. Now this study updated the poverty line of 2007-08 by this price index and obtained the poverty line ofRs.1825.46 for the year 2010-11. By using this one, poverty estimates are obtained which are given in the table 2.

1 It remains constant when the welfare of a poor person changes if he/she remains under the poverty line

2 It remains unchanged when the income of a poor is transferred to other poor, relatively better off, but he/she still in under the poverty line.

Table 2: Poverty estimates in Pakistan with urban/rural break up in 2010-11			
variables	Pakistan	Urban areas	Rural areas
Headcount ratio	15.06 (0.52)* (28.96)**	9.23 (0.68)* (13.57)**	17.96 (0.69)* (26.03)**
Poverty gap	2.29 (0.11)* (20.82)**	1.33 (0.12)* (11.08)**	2.77 (0.16)* (17.31)**
Squared poverty gap	0.55 (.04)* (13.75)**	0.33 (.05)* (6.60)**	0.66 (.06)* (11.00)**
*and **depicts the standard errors and t-values respectively.			

The results show that headcount ratio is 15.06 percent in Pakistan and it is statistically significant at 5 percent level. It is higher in rural areas as compared to urban counterparts and it is statistically significant at less than 5 percent level. As far as poverty gap and squared poverty gap are concerned, these are 2.29 and 0.55 percent respectively and these are statistically significant at less than 5 percent level. Just like headcount ratio, these poverty estimates are also higher in rural areasas compared to urban areas and are statistically significant at less than 5 percent level.

When these poverty estimates are compared with those of previous year (i.e., 2007-08), it comes to know that all the three types of poverty (i.e., headcount ratio, poverty gap and squared poverty gap) have decreased and these reductions are statistically significant (see appendix-A). The results depict that headcount ratio decreased from 18 percent to 15 percent in Pakistan (see the figure 1). The figure demonstrates that Poverty reduced not only in overall Pakistan, but also in urban and rural areas of Pakistan. The same story is regarding the poverty gap and squared poverty gap (i.e., these estimates decreased in rural, urban and overall Pakistan (see figure 2).

Fig 1: Headcount ratio in Pakistan with rural/urban break up in 2007-08 and 2010-11

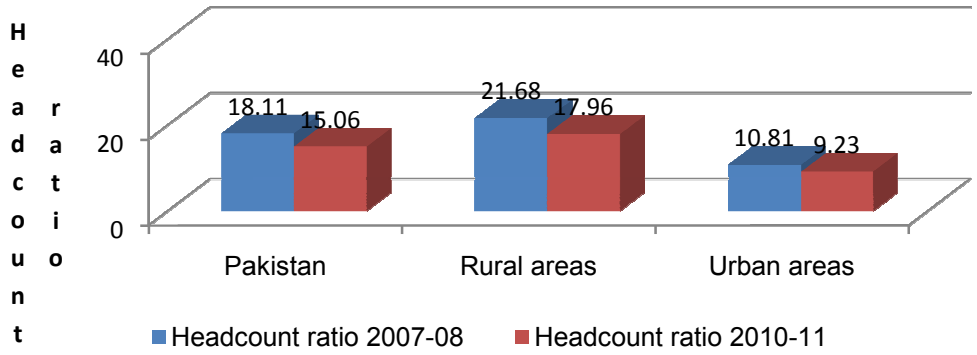
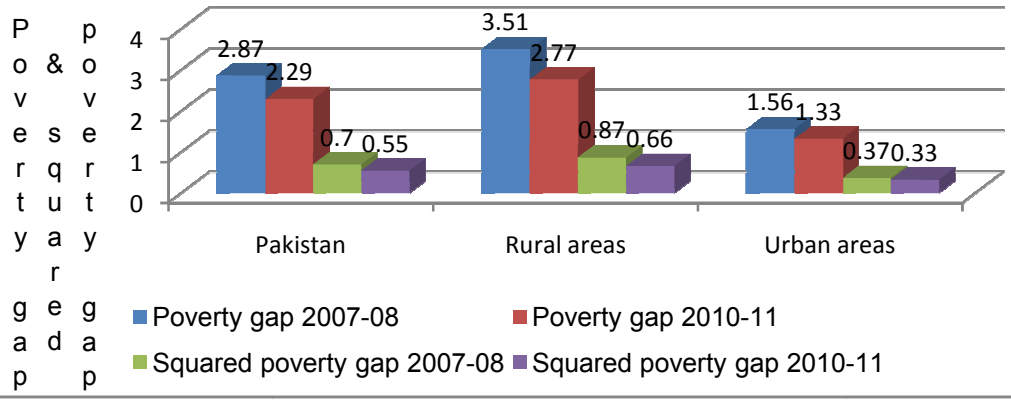
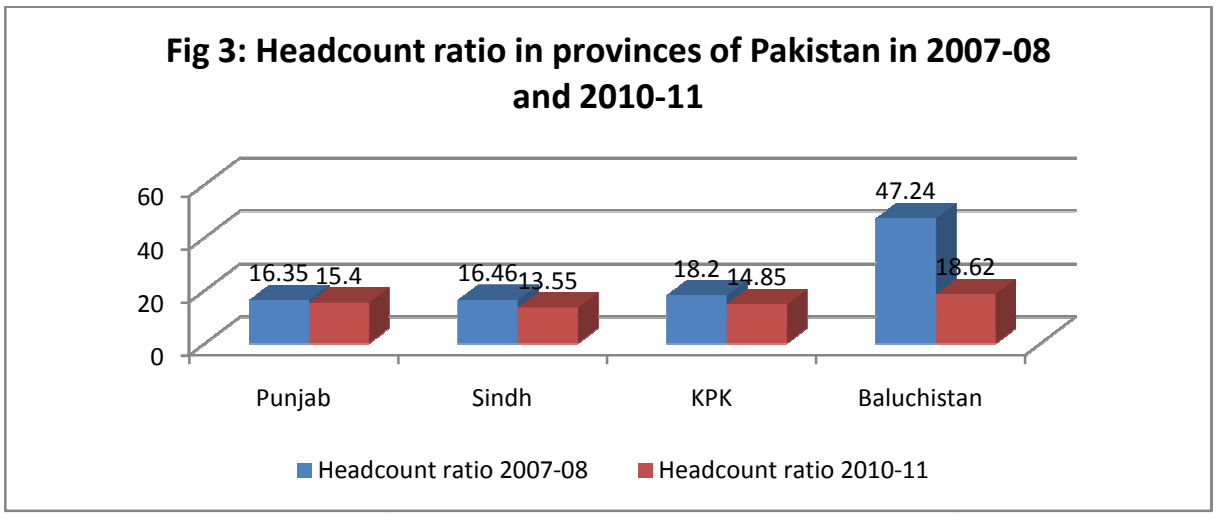


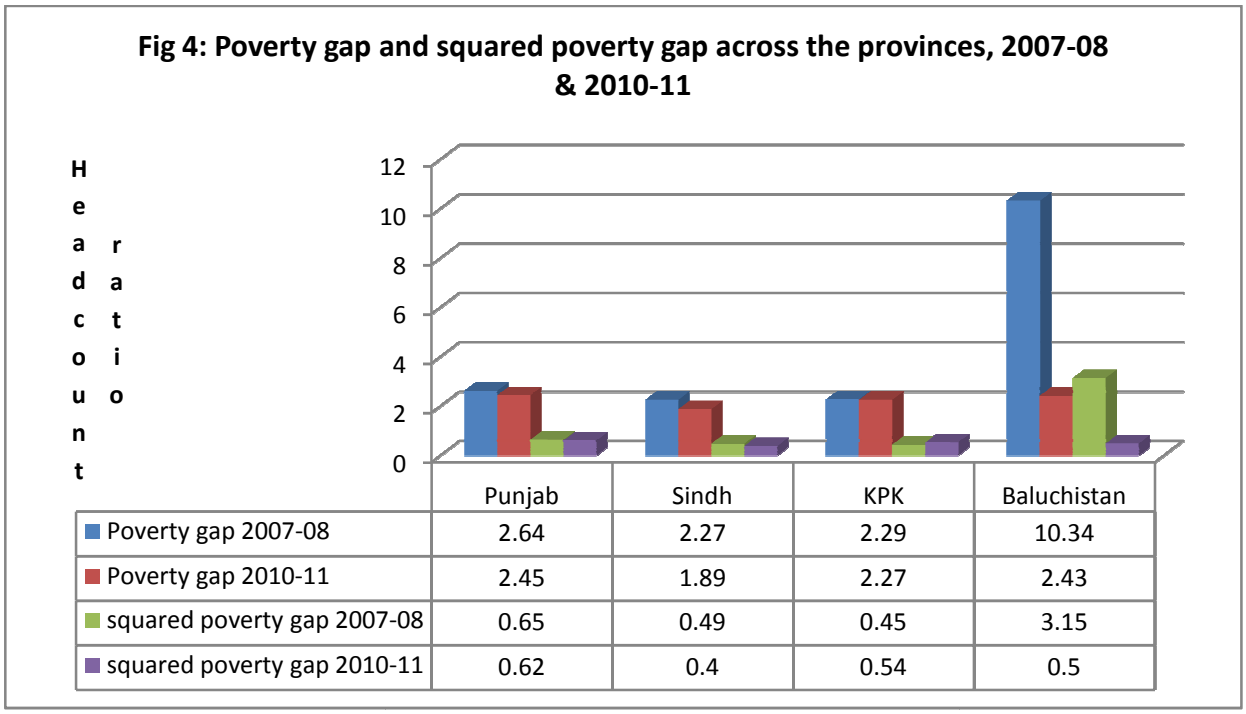
Fig 2: Poverty gap and squared poverty gap in Pakistan with rural/urban break up in 2007-08 and 2010-11



POVERTY AT PROVINCIAL LEVEL

It is instructive to find which part of the country is lagging behind so that proper policy can be chalked out for that area. The poverty estimates at province level with rural/urban breakdown are presented in the appendix-B. The results show that it is highest (18 %) in Baluchistan and lowest (14 %) in Sindh (see figure 3). The figure depicts that there is decreasing trend in poverty estimates in all of the provinces, but it is statistically significant only in case of Baluchistan (see appendix-A). As far as poverty gap and squared poverty gap, there is the same situation as is in case of headcount ratio (see figure-4).

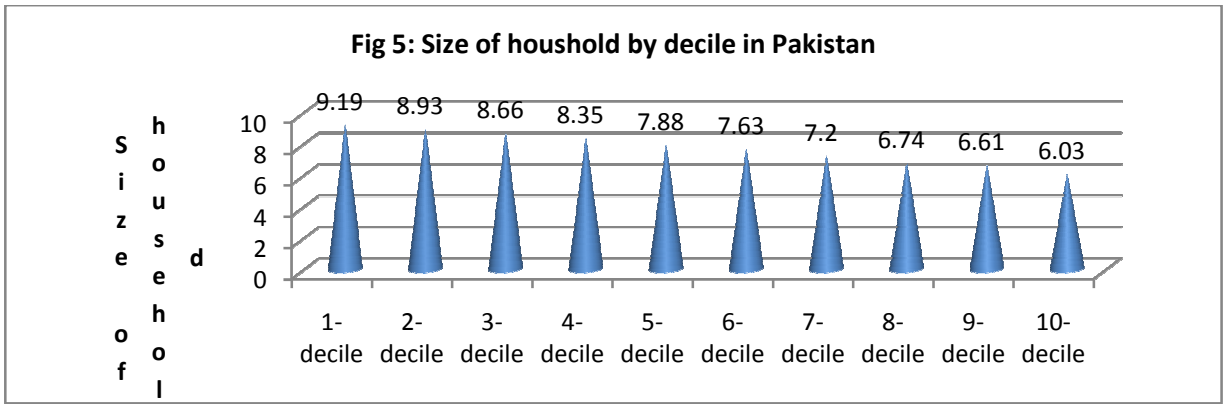




	Punjab	Sindh	KPK	Baluchistan
Poverty gap 2007-08	2.64	2.27	2.29	10.34
Poverty gap 2010-11	2.45	1.89	2.27	2.43
squared poverty gap 2007-08	0.65	0.49	0.45	3.15
squared poverty gap 2010-11	0.62	0.4	0.54	0.5

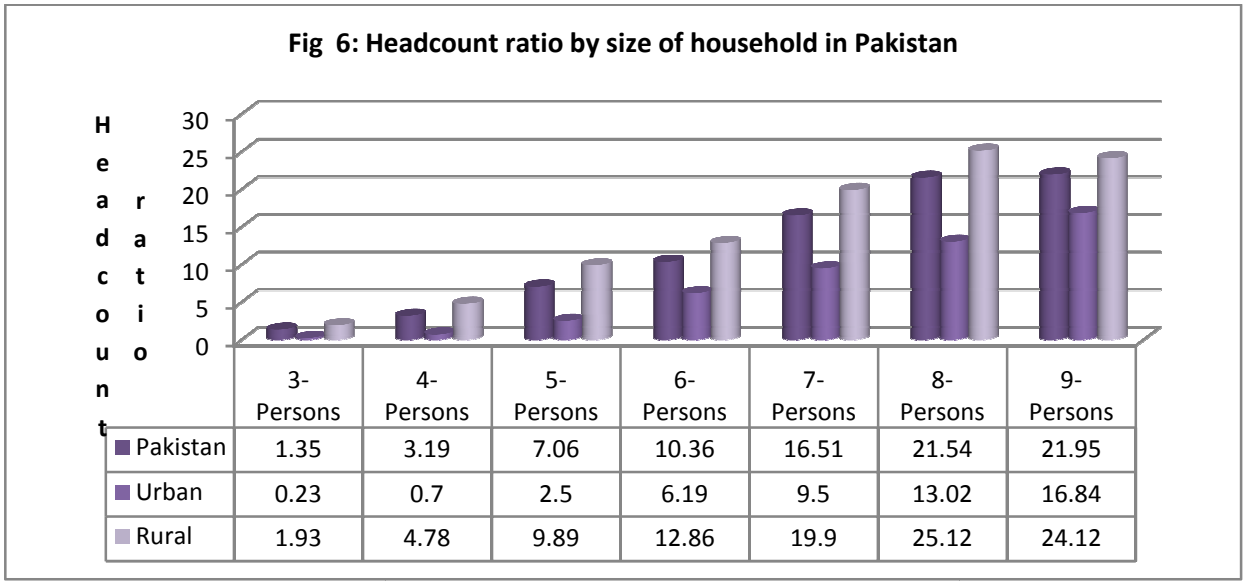
Poverty Profile

It is instructive to prepare a profile that depicts the socio-economic characteristics of the poor. The poor families have larger household size which is supported by the current available PSLM data 2010-11. The results are reported in the figure 5.In order to find this, deciles were estimated where the first decile is representing the poorest group. The higher and higher decile is showing the richer and richer group. The size of household is decreasing as the decile is increasing.



Poverty by size of household

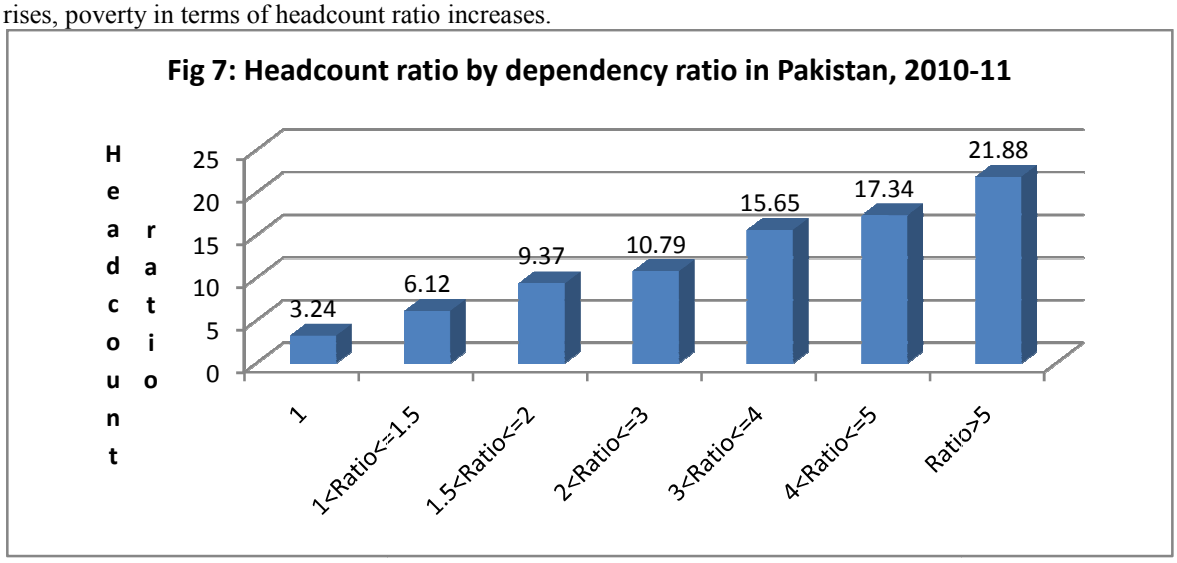
As the size of household increases, it becomes very difficult to bring their children up properly. As a result, there are chances that there is more poverty in such like families. This thing is supported by this study and results are reported in the figure 6. The figure shows that as the size of household increases poverty increases. It is equally valid in urban and rural areas.



	3-Persons	4-Persons	5-Persons	6-Persons	7-Persons	8-Persons	9-Persons
Pakistan	1.35	3.19	7.06	10.36	16.51	21.54	21.95
Urban	0.23	0.7	2.5	6.19	9.5	13.02	16.84
Rural	1.93	4.78	9.89	12.86	19.9	25.12	24.12

Poverty by dependency ratio

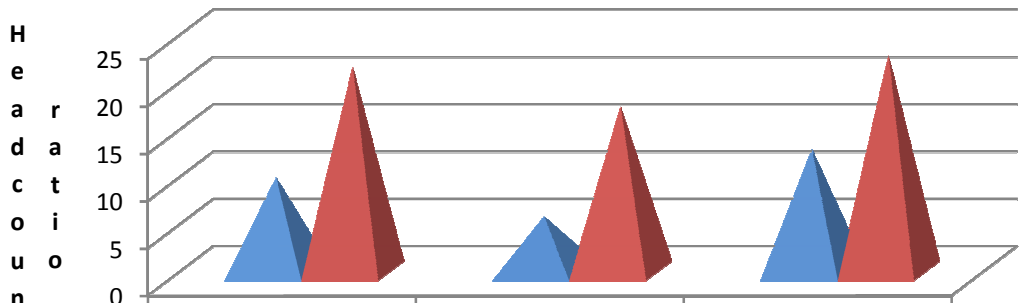
It is also useful to find the relationship between poverty and dependency ratio. The results are presented in the figure 7. There is positive relationship between headcount ratio and dependency ratio. As the dependency ratio rises, poverty in terms of headcount ratio increases.



Poverty by literate/illiterate in Pakistan

One of the important factors affecting poverty is literacy rate. If population is literate, then they can escape from poverty. The results show that the poverty is more than double in illiterate as compared to literate in Pakistan (see figure 8). It is about 10 percent in literate and 22 percent in illiterate. In urban area, it is more than three times in illiterate than that in literate. In rural areas, the story is same.

Fig 8: Headcount ratio by literate/illiterate in Pakistan with urban/rural break up in 2010-11

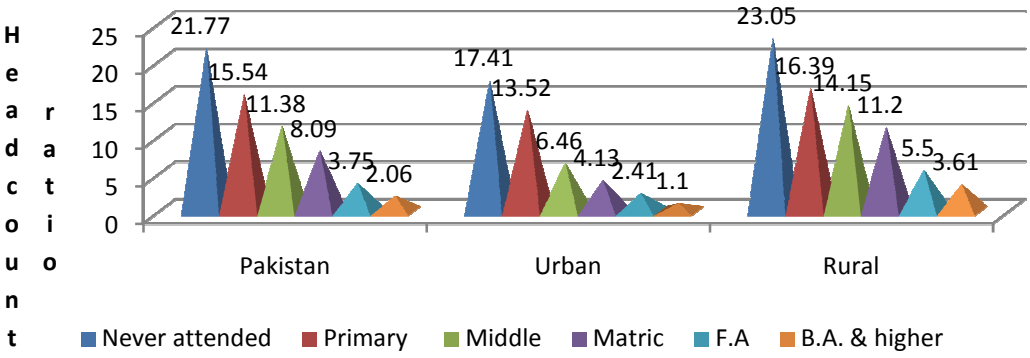


	Pakistan	Urban	Rural
Literate	9.87	5.74	12.84
Illiterate	21.55	17.35	22.77

Poverty by educational attainment of household head

Education plays a prominent role to get out of poverty. There is negative relationship between education and poverty. As education increases, poverty decreases. This is evident from the figure 9.

Fig 9: Headcount ratio by educational level of household head in Pakistan with urban /rural break up, 2010-11



Poverty by status, occupation and industry of household head in Pakistan

Individuals may entrap into or get out of poverty only depending upon their incomes from employment. Thus, it is necessary to estimate the relationship between poverty and individual's employment status.Moreover, it is also beneficial to estimate the relationship between occupation and poverty, and poverty and individual's employment sector. The results are presented in figure 10, 11 and 12. The results show that poverty is lowest (i.e., 5%) in employer followed by those who have inherited property from their forefathers and it is highest (i.e., 19 %) in sharecropper. As far as relationship between poverty and occupation is concerned, it is lowest in legislatives and senior officials followed by professionals and highest in elementary occupations. The relationship between poverty and industry of household head is such like that it lowest in whole sale and storage and highest in community and social services.

Fig 10: Headcount ratio by employment status of household head in Pakistan

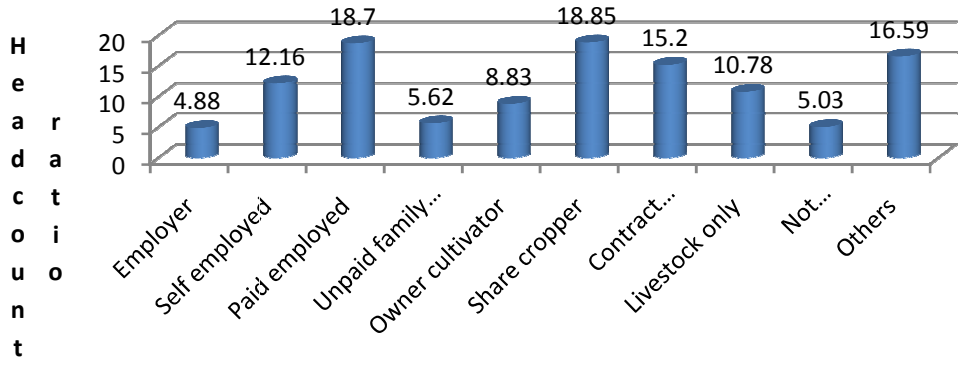


Fig 11: Headcount by occupation of household head in Pakistan

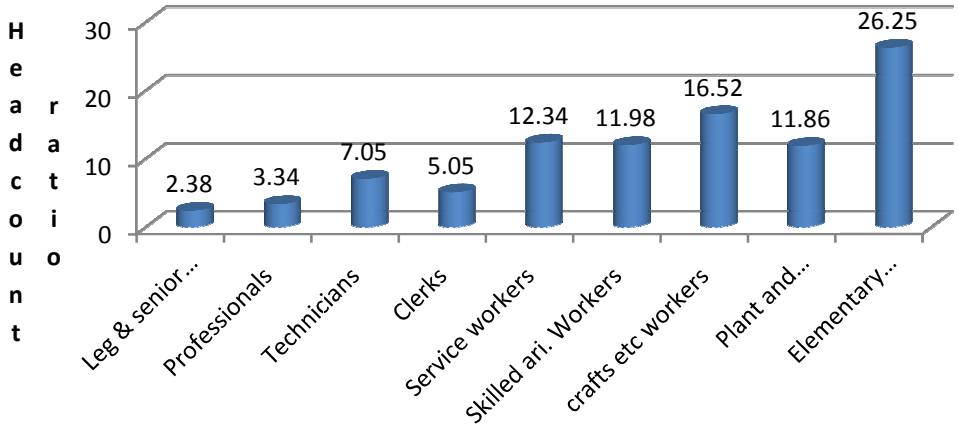
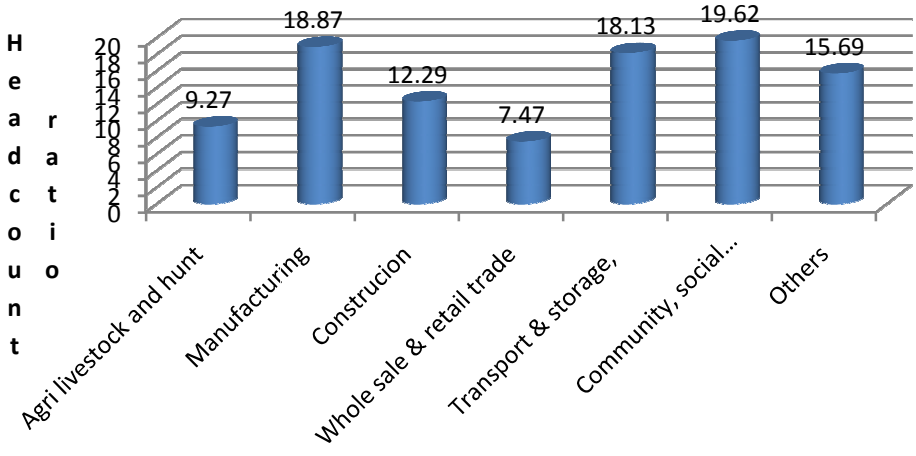


Fig 12: Headcount ratio by industry of household head in Pakistan



DETERMINANTS OF POVERTY

When poverty has been estimated and poverty profile prepared, it is essential to find what the determinants of poverty are in Pakistan. Cheema and Sial (2012) estimated poverty determinants using the HIES data 2005-06. This study again estimated the same using the PSLM data 2010-11 and supported the same relationships. The results are reported in the appendix-C. After this, the study also estimated the other factors affecting poverty in Pakistan. There is expectation that the relationship between poverty and education is not of inverted-U shape education. There are different statuses of employment given in the PSLM data 2010-11.So it is essential to estimate the relationships between poverty and different employment statuses as well as different occupations of household heads. Further, the households having own houses, shops and commercial buildings and having animal for transportations have less poverty than those who don't. Household living in urban areas have less poverty than the rural ones. Dependency ratio and household sizeare expected to be positively related with poverty.According to World Bank (2002), the preferred model to estimate the determinants of poverty is OLS regression theresult of which is reported in the table 3.

Table 3: Determinants of poverty using PSLM data 2010-11 in Pakistan

Variables	Coefficient	Robust Standard error**	t-statistic	Prob.
Constant	8.430	.014	601.73	0.000
Log(Household size)	-.387	.007	-58.37	0.000
Education	.013	.002	7.59	0.000
Education square	.001	.0001	6.81	0.000
Animal for transportation	.121	.012	9.80	0.000
Residential building	.0788	.008	9.71	0.000
Shop, commercial building	.178	.016	10.97	0.000
Urban	.170	.007	25.99	0.000
Dependency ratio	-.065	.003	-19.04	0.000
EMPSTHH	.308	.015	20.91	0.000
EMPSTHH1	.219	.009	24.17	0.000
OCPHH	.258	.018	14.07	0.000
OCPHH1	.112	.0125	8.96	0.000
R-squared	0.45			
F-statistic	830.28			
Prob(F-statistic)	0.0000			

*Authors own calculations

**log (expenditure) is dependent variable

***These are standard errors after correcting for heteroscedasticity

The results given in the table show that all of the variables have expected signs and these relationships are statistically significant at one percent level of significance. The coefficient of education and education square is positive. This implies that the relationship between poverty and education is not of inverted-U shape that is, increasing level of education increases real per capita expenditure. To check the contributions of different levels of education, the whole education is categorized into Primary, Middle, Matric and higher than Matric education. The results are reported in the appendix-D. The coefficients of Primary, Middle, Matric and higher than Matric education are 0.05, 0.12, 0.18 and 0.41 respectively showing that higher and higher level of education increases higher and higher per capita expenditure. It can be said that there is negative relationship between poverty and education as was expected.

Household size is also an important factor for affecting the poverty adversely. As the size of household increases, it is very difficult for the head of the household to meet their expenses. Thus the education as well as the health of family member is adversely affected. The results show that one percent increase in household size decreases per adult equivalent expenditure by 0.39 percent. It means that as household increase, poverty also rises. As far as dependency ratio is concerned, it has negative association with per adult expenditure meaning that it has positive relation with poverty.

Households having residential buildings as well as having shops and commercial buildings have less poverty than those who do not.The coefficients of both variables are positive meaning there are positive relationships between them. . It implies that are negative relationships between poverty and these variables. The households having animals for the purpose of transportation also have less poverty than those who do not. Regional differentials play important role in affecting poverty. The results depict that the families living in urban areas have lower poverty than those who live in rural areas.

As far as status and occupation of employment is concerned, It is lower in families whose heads status is employer or who have inherited assets from their forefathers or those households where there are unpaid family workers (i.e., EMPSTHH) as well as those families who are owner cultivator or having livestock (i.e.,

EMPSTHH1) than those whose heads employment status are self employed, paid employee, share cropper or contract cultivators.With respect to occupation of household heads, it is lower in families whose heads occupations are legislature and senior officials or professionals (i.e., OCPHH) or technicians and clerks (i.e., OCPHH1) than those families whose heads occupations are service workers or skilled agriculture workers or crafts etc workers or plant and machinery workers or elementary workers.

CONCLUSION AND POLICY IMPLICATIONS

This study estimates the poverty rates, profile and economic determinants of poverty by using the fresh available PSLM data for the year 2010-11. The study estimate the head count ratio. The results show that the headcount ratio, poverty gap and squared poverty gap are 15.06 %, 2.29 % and 0.55 % in Pakistan and these are statistically significant at 5 % level. All of the poverty estimates are almost double in rural areas as compared to urban areas and these are also statistically significant. The comparisons of the poverty estimates of this year with the previous ones of 2007-08 show that poverty decreased and this is statistically significant. Among the provinces it is highest in Baluchistan and lowest in Sindh. The comparison of provincial poverty estimates of this year with same ones of previous year (2007-08) depict that poverty decreased in all of the provinces, but it is statistically significant only in case of Baluchistan. The results for poverty profile show that Poverty is higher in those families whose heads are illiterate. It is highest in those households whose heads have never attended the school. As the level of education increases, poverty decreases. Household size is higher in poor families than that in rich ones and poverty increases, as the size of household increases. Further, poverty is more in those families where the dependency ratio is higher. As far as household head's employment status, occupation and industry is concerned, it is highest in sharecroppers,elementary occupations and community, social services.

As majority of population is living in rural areas and poverty is higher here, so policies to promote agriculture growth should form an important part of poverty alleviation strategy. Agro-based industries should be encouraged for their set up. Education is very important factor for the reduction of poverty. Free education for those who are unable to afford the expenses should be provided. Illiteracy should be reduced. Reduction of dependency ratio can play an important role in the reduction of poverty. In order to reduce dependency ratio, on the one side household size be decreased and on the other side more jobs are created so that more persons are able to get jobs and become earner. In this way poverty can be reduced. For the reduction of size of household, family planning should be promoted especially in poor families. It has been found that household size gets smaller and smaller as the household gets richer and richer. The Govt. should provide funds to provide housing facilities and set up shops.

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Appendix-A Hypothesis testing across region in Pakistan, 2007-08 to 2010-11						
Hypotheses	Coefficient	Standard Error	T	p>|t|	95%confidence intervals	
					Minimum	Maximum
Headcount ratio, poverty gap and squared poverty gap: hypotheses testing across region and over the years						
[poor]u11 - [poor]r11 = 0	-8.73	0.97	-9.02	0.00	-10.63	-6.83
[poor]08 - [poor]11 = 0	3.05	0.79	3.86	0.00	1.44	4.66
povgap]08 - [povgap]11 = 0	0.58	0.17	3.42	0.00	1.50	4.61
[sevpov]08 - [sevpov]11 = 0	0.15	0.06	2.62	0.01	0.04	0.27
[poor]Punjab08- [poor]Punjab 11 = 0	.94	1.07	0.88	0.38	-1.15	3.04
[poor]Sindh08-[poor] Sindh 11 = 0	2.91	1.60	1.82	0.07	-0.23	6.05
[poor]KPK08- [poor] KPK 11 = 0	3.35	1.85	1.81	0.07	-0.28	6.98
[poor]Baluchistan08- [poor] Baluchistan 11 = 0	28.62	2.94	9.71	0.00	22.84	34.41
poor]Punjabu08- [poor]Punjab u11 = 0	.65	1.40	0.46	0.64	-2.09	3.39
poor]Punjabr08- [poor]Punjab r11 = 0	1.04	1.43	0.72	0.469	-1.77	3.84
[poor]Sindhu08-[poor] Sindh u11 = 0	1.49	1.76	0.85	0.39	-1.96	4.94
[poor]Sindhr08-[poor] Sindh r11 = 0	3.73	2.52	1.48	0.139	-1.21	8.678
[poor]KPKu08- [poor] KPK u11 = 0	1.40	2.908	0.48	0.63	-4.30	7.106
[poor]KPK308- [poor] KPK r11 = 0	3.71	2.14	1.73	0.08	-.495	7.917
[poor]Baluchistanu08- [poor] Baluchistan u11 = 0	14.379	4.118	3.49	0.00	6.30	22.45
[poor]Baluchistanr08- [poor] Baluchistan r11 = 0	34.715	3.575	9.71	0.00	27.70	41.726
[poor]PUNJAB - [poor]SINDH = 0	1.86	1.24	1.50	0.135	-.577	4.298
[poor]PUNJAB – [poor]KPK = 0	.555	1.42	0.39	0.696	-2.23	3.34
[poor]PUNJAB - [poor]BALOCHIS = 0	-3.208	1.697	-1.89	0.059	-6.539	.122
[poor]SINDH - [poor]BALOCHIS = 0	-5.068557	1.83	-2.76	0.006	-8.665	-1.47
[poor]SINDH – [poor]KPK = 0	-1.30	1.579	-0.83	0.409	-4.404	1.79
- [poor]KPK + [poor]BALOCHIS = 0	3.76	1.958	1.92	0.055	-0.078	7.605
[povgap]2008 - [povgap]2011 = 0	0.58	0.17	3.42	0.001	0.25	0.91
	-1.44	0.20	-7.32	0.000	-1.83	-1.06
	0.55	0.24	2.29	0.022	0.08	1.04

[povgap]URBAN - [povgap]RURAL = 0	0.18	0.30	0.59	0.55	-0.41	0.77
[povgap]PUNJAB - [povgap]SINDH = 0	0.02	0.30	0.06	0.95	-0.57	0.61
[povgap]PUNJAB - [povgap]KPK = 0	-0.54	0.30	-1.79	0.07	-1.13	0.05
[povgap]PUNJAB - [povgap]BALOCHIS = 0	-0.38	0.30	-1.25	0.21	-0.97	0.22
[povgap]SINDH - [povgap]BALOCHIS = 0	0.16	0.35	0.46	0.65	-0.53	0.85
[povgap]SINDH - [povgap]KPK = 0	0.19	0.23	0.81	0.42	-0.27	0.65
- [povgap]KPK + [povgap]BALOCHIS = 0	0.38	0.29	1.27	0.20	-0.20	0.96
[povgap]P08 - [povgap]P11 = 0	0.01	0.33	0.04	0.97	-0.63	0.65
[povgap]S08 - [povgap]S11 = 0	7.90	0.97	8.13	0.00	6.00	9.82
[povgap]KPK08 - [povgap]KPK11 = 0	-0.003	0.27	-0.01	0.99	-0.54	0.54
[povgap]BAL08 - [povgap]BAL11 = 0	0.27	0.32	0.85	0.40	-0.36	0.90
[povgap]PU08 - [povgap]PU11= 0	0.12	0.29	0.38	0.71	-0.45	0.67
[povgap]PR08 - [povgap]PR11 = 0	0.55	0.49	1.12	0.26	-0.41	1.50
[povgap]SU08 - [povgap]SU11 = 0	0.12	0.45	0.26	0.80	-0.77	1.01
[povgap]SR08 - [povgap]SR11 = 0	-0.01	0.38	-0.03	0.98	-0.76	0.74
[povgap]KPKU08 - [povgap]KPKU11 = 0	4.43	1.37	3.23	0.00	1.74	7.11
[povgap]KPKR08 - [povgap]KPKR11 = 0	9.35	1.24	7.54	0.00	6.92	11.78
[povgap]BALU08 - [povgap]BALU11 = 0	-0.34	0.07	-4.56	0.00	-0.48	-0.19
[povgap]BALR08 - [povgap]BALR11 = 0	0.22	0.08	2.80	0.01	0.07	0.38
[sevpov]URBAN11 - [sevpov]RURAL11 = 0	0.08	0.10	0.78	0.44	-0.12	0.27
[sevpov]PUNJAB - [sevpov]SINDH = 0	0.12	0.09	1.28	0.20	-0.06	0.30
[sevpov]PUNJAB - [sevpov]KPK = 0	-0.11	0.08	-1.32	0.19	-0.26	0.05
[sevpov]PUNJAB - [sevpov]BALOCHIS = 0	-0.15	0.09	-1.70	0.09	-0.31	0.02
[sevpov]SINDH - [sevpov]BALOCHIS = 0	-0.04	0.10	-0.42	0.67	-0.24	0.15
[sevpov]SINDH - [sevpov]KPK = 0	-0.5	0.11	-0.49	0.63	-0.26	0.16
- [sevpov]KPK + [sevpov]BALOCHIS = 0	0.06	0.11	0.57	0.57	-0.17	0.28
[sevpov]PU08 -	0.01	0.08	0.18	0.86	-0.14	0.17
	0.16	0.14	1.10	0.27	-0.12	0.43
	0.04	0.12	0.31	0.76	-0.20	0.28
	-0.12	0.11	-1.18	0.24	-0.31	0.08
	1.60	0.55	2.91	0.00	0.52	2.68
	3.07	0.52	5.89	0.00	2.05	4.09

[sevpov]PU11 = 0 [sevpov]PR08 - [sevpov]PR11 = 0 [sevpov]SU08 - [sevpov]SU11 = 0 [sevpov]SR08 - [sevpov]SR11 = 0 [sevpov]KPKU08 - [sevpov]KPKU11 = 0 [sevpov]KPKR08 - [sevpov]KPKU11 = 0 [sevpov]BALU08 - [sevpov]BALU11 = 0 [sevpov]BALR08 - [sevpov]BALR11 = 0						

Appendix-B: Poverty estimates across provinces in Pakistan in 2010-11

Region	Headcount ratio	Poverty gap	Squared poverty gap
Punjab	15.40 (0.73)	2.45 (0.170)	0.62 (0.07)
Rural	18.03 (0.97)	2.90 (0.23)	0.73 (0.09)
Urban	9.80 (0.92)	1.48 (0.18)	0.40 (0.08)
Sindh	13.55 (1.01)	1.89 (0.17)	0.40 (0.05)
Rural	19.29 (1.52)	2.74 (0.28)	0.57 (0.08)
Urban	7.46 (1.29)	0.99 (0.20)	0.22 (0.05)
KPK	14.85 (1.22)	2.27 (0.25)	0.54 (0.07)
Rural	15.50 (1.43)	2.40 (0.30)	0.58 (0.09)
Urban	11.76 (1.62)	1.67 (0.25)	0.35 (0.06)
Baluchistan	18.62 (1.54)	2.43 (0.25)	0.50 (0.07)
Rural	20.49 (1.92)	2.71 (0.314)	0.57 (0.084)
Urban	12.49 (1.81)	1.52 (0.259)	0.28 (0.06)

*Standard errors in the brackets

Appendix-C: Determinants of poverty in Pakistan, 2010-11* including variable in the study Cheema and Sial (2012)

Variables	Coefficient	Standard error**	t-statistic	Prob.
Constant	7.999	0.029	269.85	0.000
lhhsize	-0.4997	0.007	-74.14	0.000
Education	0.034	0.001	52.07	0.000
Foreign remittances	0.239	0.014	17.40	0.000
Sewing machine	0.19	0.006	32.27	0.000
Live stock	0.104	0.007	16.01	0.000
land	0.013	0.001	16.26	0.000
Land square	-0.000	0.000	-8.26	0.000
Age of household head	0.019	0.001	15.08	0.000
Age squared of household head	-0.0001	0.000	-10.56	0.000
R-squared	0.46			
F-statistic	1160.06			
Prob(F-statistic)	(0.000)			

Appendix-D: Determinants of poverty in Pakistan, 2010-11

Variables	Coefficient	Robust Standard error**	t-statistic	Prob.
Constant	8.44	.0135	623.16	0.000
lhhsize	-.385	.006	-62.68	0.000
Primary education	.054	.008	6.28	0.000
Middle education	.136	.0106	12.91	0.000
Matric education	.198	.009	21.75	0.000
Higher than Matric	.428	.010	41.22	0.000
Animalt	.120	.0129	9.31	0.000
Rbuild	.077	.008	9.24	0.000
Shopcom	.176	.014	12.45	0.000
urban	.167	.006	25.97	0.000
Dependency ratio	-.0657	.003	-20.40	0.000
stat	.302	.011	26.32	0.000
Stat1	.220	.0095	23.18	0.000
pro	.265	.014	18.91	0.000
pro1	.087	.012	7.09	0.000
R-squared	0.45			
F-statistic	948.77			
Prob(F-statistic)	0.0000			