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Full Length Research Paper

Determinants of poverty in case of Pakistan

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Abstract

Globally, about 90% of the poor people of developing world lived in Asia or Africa. Three of every four poor people in developing countries live in rural areas and 2.1 billion living on less than $ 2 a day and 880 million on less than $ 1 a day and mostly people depends on agriculture for their livelihoods. Poverty is totally out of control in the rural areas of the Pakistan, where people are in a state of deficiency with regards to incomes, clothing, housing, health care and education facilities. According to economics survey 2011-12, more than 63 percent of the population living in rural areas and depends on agriculture for their livelihood. Agriculture sector contributes in GDP is around 22 percent while it provides employment at least more than 40 percent of the total population. The study analyze the determinants of Poverty in case of Pakistan extracting 31 time series annually observations. The study employed Johansen co integration methodology to test for the existence of a long run relationship between variables. The co integrating regression as far as this considers only the long run property of the model, and does not deal with short run dynamics explicitly. For this, the error correction mechanism is used. The study concluded that all the variables have negative and significant effect on poverty while inflation has positive and significant effect on Poverty.

Keywords: Agriculture Growth, GDP, Trade Openness, Employment, Poverty, Pakistan, unit root, co integration, Error Correction

INTRODUCTION

Agriculture

In the 21st century, agriculture Continues to be a key instrument for sustainable development and poverty reduction. The worlds of agriculture are vast, varied, and rapidly changing, with The right policies and supportive investments at the local, national, and overall levels, today's agriculture offers New opportunities to hundreds of millions of rural poor to move out of poverty. Agriculture contributes to development as an economic activity, as a livelihood, and as a provider of environmental services, making the industry a unique instrument for development. Agriculture alone will not be enough to massively reduce poverty, but it has proven to be uniquely powerful for that task (Irz et al., 2001; WDR 2008). Using agriculture as the basis for economic growth in the agriculture based country clubs requires a productivity revolution in smallholder farming. Also Agriculture Contributes in the economic growth through the stipulation of food and employment. With the export agricultural trade liberalization is the important source of income especially in developing countries. Income of a large ratio of population depends on agriculture productivity and agriculture productivity can be a key to promote overall GDP and reduce poverty. (World Bank, 2008). However, agriculture is not always a solution to reduce poverty. Naturally agriculture is always associated with risks. The formers in the developing countries are most vulnerable to these risks (Nguyen and Cuong, 2004).

Pakistan is an agrarian economy where 62% population is currently living in rural areas and directly depends on agriculture farming by 2010. This part of Pakistan plays a vital position in the country. It is also the foremost area of the country and its share in GDP and employment is 21% and 45% correspondingly.

Agriculture sector of Pakistan provides raw material to domestic industries, such as leather and textile, which is further causal widely in Pakistan export. (Sikander and Rizvi; 2013)

Remittances

South Asia has been an important source of migrant workers for country clubs suffering from labor shortages and migrant workers, Remittances have become an increasingly important source of export income for this region. Within South Asia, Bangladesh, India, Pakistan and Sri Lanka have been the main suppliers of migrant workers who are spread over almost all over the world. These remittances sent by migrant workers to their home country clubs have played an important role to promote economic development and improve their living conditions In These countries. (Siddique *et al.,* 2010). Increases in remittance flows have greatly assisted these country clubs to minimize the problem arising from shortages of foreign exchange reserves which is badly needed to pay the import bills and in poverty reduction (Javeed *et al.,* 2012). The recorded Estimates of Pakistani migrants working abroad are accessible from 1971 when the Government of Pakistan established the Bureau of Emigration and Overseas Employment to deal with export of Pakistani manpower, mainly to the Gulf States. Since 1971, around 3.6 million laborers migrated for 6 Middle Eastern Countries, mainly to Saudi Arabia. However, registration of immigrants living in Europe and North America does not fall under the Bureau of Emigration and Overseas Employment and their figures are integrated in the overall migrant numbers (Khan *et al.,* 2009). The Remittances of Pakistanis living abroad has played a very vital role in Pakistan's economy and foreign exchange reserves. Since 1973 the Pakistani workers in the oil rich Arab states have been sources of billions dollars of remittances. The remittance inflows during the period of 2000 - 2010 are around $ 1 billion in 2000 and had reached more than $ 9 billion by 2010. In 2005-2006, official remittances reached $ 4.6 billion, an increase of 10% over the previous year (SBP, 2006). In 2006-2007 Pakistan received $ 5,493 billion as remittances. In 2007-2008 the estimated remittances were $ 6.5 billion, In FY10 the estimated remittances were at record of $ 8,906 billion, an Increase of 14% as compared to the FY 2009. The trend continued to show a rising amount of $ 791.19 million was received in the first month (July 2010) of the current tax year 2010-2011 (FY11), showing 6.22% rise over the same period of the previous tax year (Ahmad *et al* 2011).

Inflation

Inflation in Pakistan over the last 60 years had an erratic trend, ranging as high as 23 per cent in 1974 and as low as -3.52 per cent in 1959. Monetary factors played a dominant role in inflation creation in the country followed by food and other non-food items. Inflation was low relativamente during 1980s as compared to 1990s. Tight monetary policy (combined with tax consolidation) appears to have contributed to this low-inflation environment (Zakaria, 2010). Devaluation of domestic currency and political instability are held responsible for high inflation during 1990s. Trade openness and flexibility exchange rate system also contributed to cosmic inflation in the country. After remaining low relativeamente during early 2000s, the inflation rate in Pakistan started acceleration in 2005, which is mainly because of low export growth relative to import, high oil prices, reduction in foreign capital inflows and inadequate supply of food and non food items. Both food and non-food inflation contributed to the persistence of double-digit inflation during the period 2005-08 (Hassan and Malik, 2011).

Poverty

Globally, about 90% of the poor people of developing world lived in Asia or Africa. Less than 1% of the poor lived in the Middle East and North Africa and 7% live in Latin America and the Caribbean (WDR 2008). Three of every four poor people in developing countries live in rural areas 2.1 billion living on less than $ 2 a day and 880 million on less than $ 1 a day and Most depend on agriculture for their livelihoods. On the beginning of the 21st century, above 2.1 billion people are alive in intense poverty, subsisting on less than $ 1 a day. This proportion has fallen as of 32% in 1987 to 25% in 1998. The recent decline in the $ 1-a-day poverty rate in developing countries from 28 percent in 1993 to 22 percent in 2002 has been mainly the result of falling rural poverty (from 37 percent to 29 percent) while the urban poverty rate Remained nearly constant (at 13 percent). More than 80 percent of the decline in rural poverty is Attributable to better conditions in rural areas rather than to out-migration of the poor (World Bank 2000).

Poverty in any country of the world symbolizes the hunger and nourishment. As for the Pakistan, it is a middle income country and significant group of the people suffering the disease of poverty creating hunger and under nourishment in them. Origination Food and Agriculture (FAO) that confirms the number of the people at world level reach 962 million, or approximately 15% of the inhabitants of the earth predictable. This dealer to a boost of 142 million above the figure for 1990-92. (Sikander and Rivzi 2013) Poverty is measured by three methods:

1) Head Count Ratio: it is proportion of population below the national or international poverty line.

2) Poverty gap ratio: it is measure of poverty head count Obtained by multiplying by the average distance at which the poor are from the poverty line.

3) Severity of poverty measure: where the weight given to each poor person is relative to the square of the income loss of the poor from the poverty line.

During 1998-99, the HCR was 30.6% which is distended to at most 35% in 2000-01, but HCR was declined by 2004-06 from 24% to 22.3% in Pakistan. Poverty has decreased from 34.5% to 22.3% since 2002-2006. Poverty in rural areas is quite higher than urban areas because 60% of the overall population of Pakistan lives in rural area and betrothed to agriculture. The gap between rural and urban increased since 1992-93 due to rise in poverty but this gap narrowed with fall in rural poverty since 2000-01 (Economic Survey 2009-10)

Different studies explained different phenomenon with respect to Agriculture Growth, Trade openness, Inflation, Remittances and poverty reduction. Country Partnership Strategy (CPS) progress report for Pakistan by World Bank(2011) shows that, poverty in Pakistan experienced a decreasing trend as 34.5% since 2001 and 17.2% in 2008. This study tries to measure the Relationship between Multiple variables which affect the Poverty. Pakistan is an agrarian economy and almost more than 60% of rural population directly or indirectly depends upon agriculture. It also provides employment to almost 45% population, so it is also the largest sector of Pakistan with respect to employment. This study will check the impact of agricultural growth, Trade Openness, Employment in agriculture, Remittances, FDI and Inflation on poverty that whether this agriculture growth or employment and other variables has significant effect on poverty or not. Due to lack of studies on this topic there is a need to explore this issue in further detail especially for Pakistan.

The purpose of this study is to examine the Effect of Agriculture growth, trade openness, Employment in agriculture, Remittances, FDI and Inflation on poverty in Pakistan. The co integration method is applied to estimate the model. Annual data from 1980-2010 is selected for analysis. Augmented Dicky fuller test is used for stationarity check and then difference taken if necessary. The data is used for poverty head count ratio (HCR) is taken from Haroon Jamal paper 2006 which is publishing in PDR. In this paper the data is available onward from 1973 to 2003. In Pakistan, past studies have been estimated for the period up to 2008 by using OLS, Multi-variant regression or by co integration but in this study we will use not only variable agriculture growth but also use trade openness, employment in agriculture Inflation, FDI and Remittances and we not only estimate long run relationship of these variables but also we will find short run adjustment of the coefficients for these variables. These variables are not investigated in this way in context of Pakistan.

This paper will follow in the sequence. Section 2 sheds light on literature review which provides empirical evidence. Section 3 provides theoretical explanation about relationship between variables and modeling process. Section 4 contains on material and modeling. Section 5 contains on estimation results and interpretation of findings. Finally in section 6 conclusions is drawn on the basis of results.

Literature Review

Sikander and Rizvi (2013) tried to explore the impact of Agriculture Growth, Trade openness and Employment in Agriculture on Poverty Reduction. Time series data from 1980-2010 has been used. Co integration and Error Correction Model has been applied on this data. The empirical evidence of this paper tells that all the variables have a strong and statistically significant impact on Poverty Reduction.

Javid *et* al. (2012) tried to find the impact of Remittances on Economic Growth and Poverty. Time Series data from 1973-2010 has been used. ARDL technique has been applied on this data. The finding of this study tells that remittances effect economic growth positively and significantly. Furthermore the study also finds that remittances have a strong and statistically significant impact on poverty reduction.

Mehmood and Chaudry (2012) tried to find the impact of FDI on poverty reduction in Pakistan. Time series data from 1973 to 2003 has been used in this paper. ARDL and Error Correction Model are used to find the long run and short run relation relationships. Findings of the study show that all variable are significant and have negatively impact on poverty.

Hung (2004) tried to explore the impact of FDI on Poverty reduction in Vietnam. Panal data from 1992 to 2002 has been used in this paper. OLS technique has been applied. The finding of the study shows the FDI has negatively related to poverty which means that FDI help to decrease in Poverty Reduction.

Lin and Piese (2003) tried to find impact of Agriculture Growth on Poverty reduction in Africa, Asia and Latin America. Pooled data has been used in this paper which covers Africa, Asia and Latin America. Causal chain model has been has been applied. Findings of the study show that it has negatively related to each other.

Soloaga and Torres (2003) tried to find the relation between Agricultural Growth and Poverty Reduction in Mexico. Household data for years 1984, 1989, 1992, 1994, 1996, 1998, 2000 and 2002 and OLS and IV regression has been used. Findings of the study indicate that Poverty levels have been diminishing in Mexico since the late 90's, several regions still show high levels of poverty and they are extremely high in some rural areas but agricultural growth impacted negatively on poverty levels in Mexico.

Bakhshoodeh and Zibaei (2007) tried to find the relation between Agriculture Trade Openness and Poverty Reduction. Cross country data and OLS

technique has been used in this paper. Findings of the study show that Economic freedom appears to have positive impacts on income levels and good institutions reduce poverty.

Shepher and Prowse (2009) tried to find the relationship between Agriculture Growth and poverty. Panel data used from (1990-2005) and Gravity model approach has been used. Findings of the study show that impact of Agriculture Growth on income Poverty transmitted via prices (higher producer prices, lower food prices, higher wage).

Modeller *et al.* (2012) tried to explore the relationship between Trade Liberalization on Growth and Poverty in Ethopia. Social Accounting Matrix (SAM) data of 1999/2000 has been used. CGE Model has been applied. Findings of the study show that the short run impact of liberalization on poverty level was positive and in the long run impacts of direct liberalization on poverty indices are decreasing in the long run.

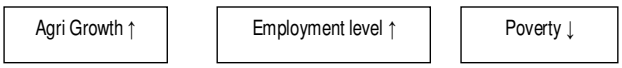
Theoretical Framework

As the study is, supposed to measure the relationship between multiple variables which effect the poverty. So, different studies explain that there is a significant relationship between agricultural growth, Remittances, FDI, Inflation and poverty. [Saboor, A. (2004), Bakhshoodeh and Zibaei (2007), Hassine, Robichaud and Decaluwe (2010), Christiaensen, Demery and Kuhl (2010)]. Channels are import to highlight the significance of the relationship of the variables. The way through which the agriculture growth and other variables affects the poverty, is explained as following:

Variables Justification

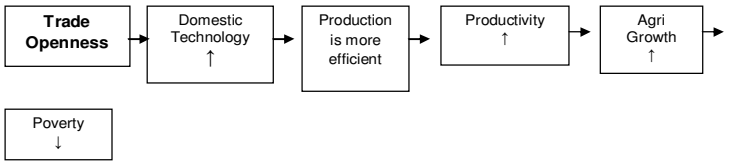
i. Agriculture Growth

As Agriculture Growth increases leads an increase in the number of labors yet this lead in their employment level which in turn leads a decrease in poverty. In Lin,Thirtle and Wiggins (2001).



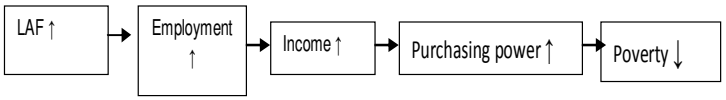
ii. Trade Openness

Trade Openness is also a key factor to reduce poverty. So Trade Openness leads to increase our domestic technology and our production will more efficient and then our productivity is raised then production increase after that our Agriculture Growth increase and then our Poverty reduce and trade openness is measured by sum of import and export with ration of GDP(X+M/GDP).In literature Khan and Sattar (2010).



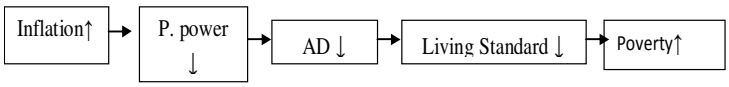
Agricultural labor force

As Labor in Agriculture increase the employment level of people in Agriculture increases then their income level increases, their purchasing power increases and hence poverty decreases. In literature Brajesh Jha (2003).



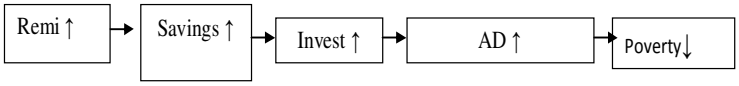
iii. Inflation

Inflation is the factor to increase poverty. So as inflation increases Purchasing power for people decrease which lead to decrease in aggregate demand, furthermore which lead to decrease the living standard of the people and hence poverty increase. In literature Hassan & Malik (2011).



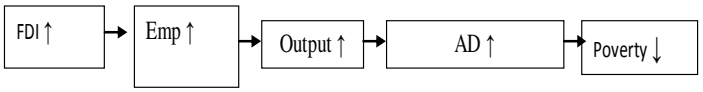
iv. Remittances

Remittances also a key factor to decrease Poverty. So When Remittances come in to country the migrant it lead to increase the Savings which lead to increase in Investment so Aggregate Demand increases and hence poverty Decreases. In literature Javid *et* al (2012).



v. Foreign Direct Investment: (FDI)

FDI also a key factor to promote GDP and Decrease Poverty. So When FDI increases in a country it lead to increase the employment in all sectors which lead to increase the output hence living standard of people improved which lead to decrease the Poverty.



From the above discuss theoretical framework, we are able to understand the process through which agricultural growth affects the poverty. On the base of this theoretical framework and from literature we build a model and estimate it by applying ARDL.

MATERIAL AND MODELING

a. Model

Variables are selected on the base of selected studies given in literature review and time series data from 1980 to 2010 is obtained from Economic survey of Pakistan, World Development indicator, Food and Agriculture Organization and Handbook of Statistics State Bank of Pakistan and Haroon Jamal (2006) Paper. For regression analysis we develop a model in which we took poverty as dependent variable and all other mentioned variables as independent

The functional form of proposed Model is:

Poverty = f (Agriculture Growth, Trade Openness, Inflation, Labor in agriculture, Remittances, FDI)

The model is:

$$Poverty = \alpha + \beta 1 agrigrowth + \beta 2 tradeopeneness + \beta 3 Inflation + \beta 4 labourinagri + \beta 5 Remittances + \beta 6 FDI + \beta 7 GDP + \mu$$

RESULTS AND METHODOLOGY

Unit Root Test

When we deal with a time series the first and foremost step is to check whether the underlying time series is stationary or not. If we want to apply the appropriate technique on the underlying time series then we must be aware of the order of integration of underlying time series. Stationarity is also important in the context that if we apply OLS to a non-stationary time series it may result in spurious regression. To check the unit root in the data Augmented Dickey-Fuller (ADF) Test is used. ADF is an extended form of Dickey-Fuller test. In DF test we assume that error terms are uncorrelated or white noise but if error terms are correlated then ADF is best because it also allows for Serial Correlation to be checked. ADF test has the following regression equation

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \sum_{i=1}^{m} \alpha_i \Delta Y_{t-1} + \varepsilon_t$$

Where ε_t is white noise error, $\Delta Y_{t-1} = (Y_{t-1} - Y_{t-2})$ where Δ represents first difference, q represents number of lagged difference, These lags are included to make error term in equation (5.3) white noise.$\beta_1$is intercept and t represents time trend.

ADF has a null hypothesis same as DF

$H_0 = \delta = 0$; There is Unit root

$H_1 = \delta < 0$; There is no unit root

ADF uses same critical values as DF. If $\Delta Y_{t-1} = 0$ then ADF = DF. So there is no difference between ADF and DF in that case.

In views we can run ADF in three different specifications

i. ADF with Intercept
ii. ADF with trend and intercept
iii. ADF without trend and Intercept (none)

An appropriate ADF test specification should be applied according to the nature of the data. We first check all variables at level and if non stationary at level then we move to first difference. In EViews one can take up to two differences (Gujarati).

The results are given below in the Tables. They are computed by applying ADF test statistic on data I(0). The test confirms that all variables have a unit root problem and they are non stationary at level but stationary at their first difference, therefore, the order of integration of all these variables are I(1).

The results in the table 1 reveal that the hypothesis of a unit root can't be rejected in all variables in levels and at first difference. However, the hypothesis of unit root is rejected in first differences at 0.05 level of significant which indicates that some of the variables are integrated of order one I(1) and some of the variable are integrated of order zero I(0)

Lag Length Criteria

In below table 2 Lag selection criteria have shown. In this table LR, FPE, AIC, SC and HQ criteria reported that we use two lag and we choose SC and AIC criteria because Asghar *et al*(2007), Gutierrez *et al*(2007) and Hofman(2007) has empirically proved that SC criteria is best criteria in choosing Lag length so that's why we choose lag length 2.

Johansen Co integration

If we regress two non-stationary time series' on each other it may result in a spurious regression. If underlying time aeries is non-stationary then OLS is not a good option for estimations. OLS is an appropriate method if all the variables are I (0) i.e. stationary at level otherwise one should check for the possible co-integration relationship between the underlying non-stationary series. 'OLS is for short run relationship while co-integration suggests a long run relationship between the series'.

"If the linear combination of two time series having unit root is stationary then we can say that the two time series are co-integrated."Gujarati (2004).

Let there are two variables x and y and both are I (1). Now if we regress y on x as

$$Y_t = \beta_1 + \beta_2 X_t + \varepsilon_t$$

Table 1.

Variables	Intercept only		Intercept and trend only	
	Level	First difference	Level	First difference
	Prob: value	Prob: value	Prob: value	Prob: value
Poverty	0.5891(0)	0.0007(1)***	0.1752(1)	0.0022(2) ***
AG	0.8153(0)	0.0002(0)***	0.4985(0)	0.0017(0) ***
ALF	1.000(0)	0.0057(0)***	0.9927(0)	0.0197(3)**
GDP	0.5432(0)	0.0021(0)***	0.3724(0)	0.0013(2) ***
X	0.4848(0)	0.0002(0)***	0.8616(0)	0.0012(0) ***
REM	1.000 (0)	0.0455(0)***	0.9999(0)	0.0190(0)***
FDI	0.1395(1)	0.0008(2)***	0.0280(1)	0.0049(2)***
Inflation	0.1656(0)	0.0000(0)***	0.1689(0)	0.0001(0)***

[*** indicates that variable are significant at 1 percent. ** indicates that variables are significant at level 5 percent.]

Table 2. VAR Lag Order Selection

Endogenous variables: LP LLF LAG LTO LREM LINF LFDI					Exogenous variables: C	
Sample: 1980 2010					Included observations: 29	
Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1074.647	NA	3.69+22	74.66534	75.04252	74.78346
1	-866.9101	286.5342	2.16e+18	64.75242	68.14708	65.81558
2	-715.3419	125.4357*	1.72e+16*	58.71323*	65.12538*	60.72144*

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Now if we write this as

$\varepsilon_t = Y_t - \beta_1 - \beta_2 X_t$

Now if check unit root of ε_t and if it turns out to be I (0) then we can say that their linear combination is stationary and both the variables are co integrated.

"A test for co-integration can be regarded as a pre-test to avoid spurious regression" (Granger).

There are several methods to check co-integration relationship between the variables like *Engel-Granger (EG) or Augmented Engel-Granger (AEG)* test can be used if all variables are I (1). It is a two-step procedure. In first step simply regress the variables using OLS like (5.4) and check the unit root of residuals using DF or ADF. For this values calculated by Engel and Granger are used instead of DF and ADF tabulated values. Engel-Granger is not appropriate for testing more than one co integration relationship.

If all the variables become stationary at their first difference i.e. I (1) then Johansen Co-integration test can also be used But if some variables are stationary at their level i.e. I (0) and some at first difference i.e. I (1) then Johansen is also not an appropriate method. In such cases where variables are both I (0) and I (1) Autoregressive Distributed Lag model is an appropriate technique.

For Present study Johansen co integration method is selected. It uses VAR framework and treats all variables as endogenous. Johansen maximum likelihood test allows testing for more than one co integration relations. Johansen test allows estimation of all the possible long run relations (Haleem *et al* (2005)). It uses two likelihood tests for determining the co integration relations Brooks (2002).

i. The Trace test
ii. The Maximum Eigenvalue test

According to table 3 and 4 both trace test and max Eigen values test reject the hypothesis of no co integration. For the rejection of null hypothesis calculated

Table 3. Trace Test Results

Sample (adjusted): 1982 2010			Included observations: 29 after adjustments			
Trend assumption: Linear deterministic trend						
Series: LP LTO LGDP LINF LFDI LAG LEMP						
Unrestricted Cointegration Rank Test (Trace)						
Hypothesized No. of CE(s)	Null Hypothesis	Alternative Hypothesis	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	r = 0	r ≥ 1	0.972598	391.6089	159.5297	0.0000
At most 1 *	r = 1	r ≥ 2	0.949520	287.2923	125.6154	0.0000
At most 2 *	r = 2	r ≥ 3	0.904763	200.6930	95.75366	0.0000
At most 3	r = 3	r ≥ 4	0.837936	132.5056	69.81889	0.0000
At most 4	r = 4	r ≥ 5	0.768932	79.72956	47.85613	0.0000
At most 5	r = 5	r ≥ 6	0.591062	37.24332	29.79707	0.0058
At most 6	r = 6	r ≥ 7	0.315698	11.31179	15.49471	0.1930
At most 7	R=7	r ≥ 8	0.10648	0.310462	3.841466	0.5774
Trace test indicates 6 cointegrating eqn(s) at the 0.05 level						
r indicates cointegration relations.						
* denotes rejection of the hypothesis at the 0.05 level						
**MacKinnon-Haug-Michelis (1999) p-values						

Table 4. Max Eigenvalue test Results

Unrestricted Co integration Rank Test (Maximum Eigen value)						
Hypothesized No. of CE(s)	Null Hypothesis	Alternative Hypothesis	Eigen value	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	r = 0	r ≥ 1	0.972598	104.3166	52.36261	0.0000
At most 1	r = 1	r ≥ 2	0.949520	86.59929	46.23141	0.0000
At most 2	r = 2	r ≥ 3	0.904763	68.19036	40.07757	0.0000
At most 3	r = 3	r ≥ 4	0.837936	52.77307	33.87687	0.0001
At most 4	r = 4	r ≥ 5	0.768932	42.48625	27.58234	0.0003
At most 5	r = 5	r ≥ 6	0.591062	25.93153	21.13162	0.0098
At most 6	r = 6	r ≥ 7	0.315698	11.00132	14.26460	0.1542
At most 7	r = 7	r ≥ 8	0.010648	0.310462	3.841466	0.5774
Max-eigenvalue test indicates 6 cointegratingeqn(s) at the 0.05 level						
r indicates cointegration relations.						
* denotes rejection of the hypothesis at the 0.05 level						
**MacKinnon-Haug-Michelis (1999) p-values						

values of both trace test and max eigen values test must exceed their respective critical values and probability value must be equal to or less than 0.05. At most 1 has null hypothesis that there exists at least one co integration relation and alternative hypothesis that there are more than one co integration relations. Max Eigen values test is unable to reject null hypothesis at 6 which means according to max eigen values test there is at least 6 co integration relation that exists between the variables. Trace test has rejected the null hypothesis at most 5 that there are at least 6 co integration relations respectively suggesting that there exist at least more than 6 co integration relations. Trace test is unable to reject at most 5 null hypothesis thus suggests that there exists at least 6 co integration relations. Trace test is more reliable than maximum eigen values test (Cheung and kai (1993), Liang (2006). So according to trace test there are three co integration relationships among variables Table 5

Table 5. Normalized Cointegration Coefficients

Cointegrating Equation		Log likelihood 815.6884					
LP	LAG	LREM	LTO	LFDI	LINF	LEMP	LGDP
1.000000	2.116099	0.004243	0.01424	4.69496	1.614170	0.002331	-0.023
Standard Errors	0.19403	0.19182	0.18312	0.64426	0.01181	0.01310	0.30767
T-statistics	2.12639	3.30190	1.96683	1.64697	-2.70492	2.62535	0.52279

Table 6. Long Run Equation Analysis

Variables	Coefficient	St errors	t-statistics	Prob.
C	-37.68624	0.000560	1.660119	0.1105
AG	0.545155	0.300320	0.084776	0.9332
LF	0.003336	8.98E-05	-1.672002	0.1081
GDP	-0.000150	0.951082	-3.476434	0.0020
INF	0.061675	0.450458	1.210224	0.2385
TO	0.025460	0.001078	3.093639	0.0051
FDI	-3.306372	0.174560	0.353319	0.7271
REM	0.000930	24.72051	-1.524493	0.1410
R-squared value		0.719172		
F statistics		8.414394		

Table 7. Vector Error Correction Model (VECM)

Error correction	D(P)	D(AG)	D (TO)	D(LF)	D(GDP)	D(FDI)	D(REM)	D(INF)
Coint Eq1	-0.354	0.055	-0.075	-15.909	-3.748	0.012	-32.248	-0.044
D(P(-1))	-0.150	-0.280	70.949	-27.129	0.627	-396.046	-0.0348	0.114
D(AG(-1))	0.442	0.881	44.390	-66.473	-0.452	590.059	-0.092	-0.016
D(GDP(-1))	-8.004	0.001	-0.005	0.003	0.000	0.1719	-4.891	2.621
D(LF(-1))	-0.002	0.008	0.345	0.334	-0.005	2.888	0.000	0.000
D(TO(-1))	-0.120	-0.471	-60.264	-10.634	-0.007	-199.33	-0.013	-0.038
D(FDI(-1))	-0.229	-0.827	444.24	-143.61	3.361	3723.24	0.0612	-0.3299
D(REM(-1))	0.0025	-0.000	0.493	0.1444	0.0172	5.530	-0.000	-0.0016
D(INF(-1))	0.2528	0.1493	29.2493	24.4368	-0.2483	237.955	0.0099	0.0375

Normal Equation

In equation form signs of normalized co integration coefficients will be reversed because EViews gives equation in deviation form so explanatory variables needs to be brought to the right side of the equation. Equation form will be as given below.

LP = 2.11(LAG) – 0.004(LREM) – 0.014(LTO) – 4.69(LFDI) + 1.61(LINF) – 0.002(LEMP) + 0.023(LGDP)

The Normalized co-integration equation reveals that the Agriculture Growth and other variables have negative impact while inflation has positive impact on Poverty. The Agriculture growth coefficient is 2.11and showing significant, implying in Pakistan, a one percent increase in Agriculture growth while other keep constant contributes 2.11% decrease in Poverty. Similarly, the GDP coefficient is -0.023, and showing insignificant, implying in Pakistan. Same as the case in Trade Openness, its coefficient is 0.014 and showing just significant, implying in Pakistan that one percent increase in Trade Openness while other keep constant contributes 0.0144% decrease in poverty. Same as the case in FDI, its coefficient is 4.69 and also showing just significant, implying in Pakistan that 1% increase in FDI while other keep constant contribute 4.69% decrease in Poverty. Same as the case in Remittances, its coefficient is 0.004

and showing significant, implying in Pakistan that 1% increase in remittances while other keep constant contribute 0.004% decrease in Poverty. And same as the case of Employment in Agriculture, its coefficient value is 0.002 and showing a significant, implying in Pakistan that 1 % increase in Employment in Agriculture while other keep constant contributes 0.002 % decreases in Poverty. All variables are negative but inflation has positive effect on poverty, its coefficient is 1.16 and showing significant result implying in Pakistan that 1% increase in inflation will lead to 1.16 % increase in poverty. According to World Bank (2000), trade openness and agriculture growth helps in the abolition of poverty and in fourteen of MDG; one of the Millennium Development Goal (MDG) is that developing countries like Pakistan, must reduce poverty to its half till 2050.

In the above table 6, the values of R-square (0.71), and F-statistics (8.41) shows that the model is overall good fit and statistically significant.

Vector Error Correction model is a restricted VAR model and it deals with those series which are non-stationary and found to be co integrated. If Co integration exists between series which suggests a long run relationship then VECM is used to check the short run properties of co integrated series. For VECM co integration must exist otherwise no need of VECM. It tells us about long run to short run adjustments of the model. In the Short run there exists an adjustment from long run to short run as shown by the following co-integration by 0.354. The estimated error correction model is enjoys a low goodness of fit(R2=0.5394). The empirical study is performed by using PC version of Eviews 6.0 (Table 7).

CONCLUSION AND POLICY IMPLICATIONS

Basic purpose of this study was to find out the determinants of poverty in case of Pakistan. According to empirical results all the variable has a significant impact on poverty while GDP has insignificant result which is not according to the theory. This study has also used Remittances as a variable which is also significant but as compared to Remittances agricultural growth has a stronger impact on poverty reduction. The reason behind this, in Pakistan most population belongs to rural areas and more than 62% rural population is related to agriculture directly or indirectly. So agricultural growth directly affects the poor and poverty. Agriculture sector gives employment to a huge ratio of population of Pakistan and also the largest employer sector. So govt. needs to improve this sectors output and growth as it benefits the poor. Govt. should subsidize the farmers so that production could increase and growth as well. Policies should be made to improve the performance of Agriculture sector. The government should improve the productivity of the agriculture sector by given that the farmer good seed, fertilizers, facility of credit, tractor and farmer education which in the long run eliminate the extreme poverty. Countries with higher Educational levels use remittances for investment in education which foster human capital development and for investment in productive projects such as small businesses which contributes to long term growth and employments which reduce the poverty. The Policy initiatives for remittances, such as the expansion of social programs in microfinance and skills development, and the lowering of interest rates on pre-departure loan schemes could provide the necessary help for struggling households not yet meeting the initial cost of migration.

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