

## AN EMPIRICAL INVESTIGATION OF SAVING BEHAVIOUR IN PAKISTAN

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**Abstract.** The main objective of this study is to examine short-run and long-run causal relationship between national savings and its selected determinants in Pakistan for the period 1984-2014. Using Johansen cointegration and Vector Error Correction Model (VECM), the results of the study indicate that foreign remittances, economic stability and population have positive impact on savings while government stability and income inequality have negative impact on savings. The short-run estimates show that there is convergence in the national savings equation which has speed of adjustment 47 percent in one period. Using Toda-Yamamoto Causality test the study indicates that there is bidirectional causality between income inequality and foreign remittances, income inequality and population size, government stability and population size, savings and income inequality. There is unidirectional causality between the variables included in the model: savings and economic stability, savings and population, savings and government stability, population size and economic stability, government stability and foreign remittances, foreign remittances and savings except between economic stability and foreign remittances, and between economic stability and income inequality.

**Keywords:** National savings, Gini coefficient, Remittances, Economic stability

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## I. INTRODUCTION

Savings play an important role in attaining and maintaining higher levels of economic growth. The significance of savings in economic growth has been highlighted in various theories of economic growth. Harrod-Domar model of economic growth emphasizes the crucial role of savings in economic growth. The neoclassical growth model by Solow (1956) discusses the role of savings in determining the higher growth rates of per capita income and capital per capita. Later on endogenous growth theories also discuss the role of savings. Romer (1986) explains that economic growth depends upon technological changes, human capital and aggregate saving and if less developed countries have desire for achieving high economic growth rates they must save and invest higher fraction of Gross Domestic Product (GDP). A number of empirical studies are available in the literature which are consistent with these theories. Comparative analysis of savings have revealed that most of the emerging economies like China, India, Indonesia, Malaysia, Singapore, South Korea, and Thailand have high saving rates. Similarly many sub-Saharan African and some of the Latin American countries save less and as a result these countries have experienced low levels of economic growth. This indicates that the exploration of the determinants of savings in an economy is highly important for policy makers to formulate and implement relevant policies for increasing savings and economic growth.

Since independence low saving rate has been observed in Pakistan among South Asian countries which has resulted in low economic growth rate over time. This low saving rate reflects the consumption preference of economic agents. Pakistani culture is considered to be the most pompous and people are highly extravagant. Beside that policy makers have failed to formulate effective policies to provide incentives for savings so that it motivates individuals to change their consumption behaviour. Due to lack of education people prefer to spend money on useless customs and traditions. Furthermore, economic conditions prevailing in Pakistan economy bring up the need to focus on raising the domestic savings, and not to rely on foreign savings and loans to sustain its economic growth by augmenting investment in physical and human capital (for details see *World Bank Report 2006*).

The average saving rate of Pakistan in the decades of 1970s and 1980s was quite premature. To cope with this devastating situation of savings in the economy, Structural Adjustment Programme (SAP) was launched in 1989-90. According to SAP, the government was forced to abstain bank borrowing to finance the consistent budget deficits. Government then redefined

National Saving Scheme (NSS) and set high returns on all certificates and bonds of NSS. Interest rate was set at 18 percent or more, many other incentives were also announced for savers in the form of tax exemptions. After the implementation of SAP 1989-90 there was a notable increase in the savings rate in the early 1990s.

Unfortunately saving rate in Pakistan remained much low as compared to other regional countries. Saving rate in India has been observed higher than Pakistan although both countries face similar socio-economic conditions. **Table 1** shows the comparative analysis of gross domestic saving (five year average) with neighbouring countries, South Asia and overall World. The average saving rates over the time of comparison (1976 to 2013) in Pakistan has been 21.46 percent of GDP and in case of India it is 24.35 percent of GDP which is higher than Pakistan. The average saving rate in Bangladesh is 21.81 of GDP which is also higher than Pakistan. The average saving rate in overall South Asia is 23.69 percent of GDP which is higher than Pakistan. Furthermore, the average saving rate of the world during this period has been observed at 22.19 percent of GDP which is also higher than Pakistan. This indicates that savings rate in Pakistan remained low which brings up the need to focus for raising the investment level for achieving impressive economic growth rate in the region.

TABLE 1

Comparative Analysis of Gross Domestic Saving (% of GDP)

Country	1976-80	1981-85	1986-90	1991-95	1996-2000	2001-05	2006-10	2011-13	Average
Pakistan	21.7712	26.4647	22.4726	22.9795	19.2798	25.8528	20.3321	12.5640	21.4646
India	19.4596	20.7006	22.3759	23.5566	24.7519	29.5859	34.6984	19.7381	24.3584
Bangladesh	5.4852	15.9923	16.8417	21.1933	24.4531	29.8996	37.3295	23.3644	21.8199
Nepal	16.7916	16.4876	14.1503	15.6901	20.3659	25.4140	34.4555	24.5957	20.9938
Sri Lanka	10.9112	21.3802	19.4634	20.8125	21.8712	21.8873	22.7373	14.3859	19.1811
South Asia	18.5989	21.0071	21.9019	23.2226	24.0537	28.9787	32.8743	18.9245	23.6952
World	24.3289	23.3308	23.6898	22.5883	23.6844	23.1246	23.2468	13.5543	22.1935

Source: *World Development Indicators (WDI) 2015*

Several empirical studies are available in the literature on the causal long-run and short-run relationship between the variables which affect the saving behaviour of people in Pakistan but most of these studies suffer from

defects due to short span of data, poor estimation techniques and the selection of irrelevant variables in the model. In this situation, it is difficult to point out the exact factors responsible for low saving rate in Pakistan. This study is an attempt to bridge the research gap by analyzing the long-run and short-run causal relationship of saving behaviour in Pakistan. This study is of great importance as it analyzes the relationship between the variables using the latest econometric techniques, appropriate selection of time span and the use of relevant variables in the estimation of the model. The results of the study may be helpful to the researchers and policy makers in designing policies needed for removing the bottlenecks in the way of increasing the saving rate in Pakistan.

The rest of the paper is organized as follows. Section II reviews the empirical literature on the behaviour and determinants of saving. Section III presents data and model specification, section IV contains econometric methodology and section V provides the empirical results and interpretation. The final section concludes.

## II. REVIEW OF LITERATURE

A number of studies have analyzed the behaviour of savings in different countries of the world. Some studies are based on time series analysis of macroeconomic variables while other studies use cross section micro dataset for analysis purpose. The present study is an attempt to analyze the relationship between national saving and its determinants using time series dataset which is more consistent with the objectives of the study. Several studies are available in the literature which have thrown light on the relationship between national savings and its determinants in developing and developed countries of the world (for details *see* Pradhan and Upadhyaya, 2001; Dirschmid and Glatzer, 2004; Narayan and Siyabi, 2005; Thomas, 2006; Nwachukwu and Egwaikhide, 2007; Cohen-Cory *et al.*, 2010; Mualley, 2011; Igbatayo and Agbada, 2012; Aktas *et al.*, 2010; Larbi, 2013). For this purpose various econometric techniques were utilized. A number of studies have analyzed the saving behaviour in Pakistan.

Khan *et al.* (1994) examine the determinants of saving rate in Pakistan. The study shows that per capita GNP, real interest rate, changes in terms of trade and openness of economy have positive and significant influence on the national savings. While debt to GDP ratio and dependency ratio are found to have adverse impact on national savings.

Nasir *et al.* (2004) analyze the long-run behaviour of savings and investment in Pakistan using appropriate econometric technique. The study

points out that GDP growth, government current expenditure and insensitivity of industry to interest rates show significant impact on national saving rate. The study concludes that investment is considerably responsive to domestic savings, yield and uncertainty in Pakistan.

Ahmad *et al.* (2006) focus on the behaviour of household savings in Pakistan. The study evaluates the determinants of household saving in the process of economic development during 1972-2003. Johansen-Juselius cointegration and error correction models have been used to determine the short-run and long-run dynamics of the system. The study concludes that the income and growth variables have a significant and positive impact on household savings. Similarly, the positive impact of real interest rate on savings indicates that in Pakistan the substitution effect dominates the income effect. The study concludes that the inflation rate affects household saving rate negatively and public savings crowd-out private savings less proportionately in case of Pakistan than in other comparable cases.

Sajid and Sarfaraz (2008) have investigated causal relationship between savings and output in Pakistan using quarterly data for the period of 1973:1 to 2003:4. The cointegration and the vector error correction techniques have been used to explore causal relationship between savings and economic growth. The results of the study show the existence of bidirectional or mutual long-run relationship between savings and output level. However, there is unidirectional long-run causality from public savings to output (GNP and GDP). The results also indicate that the speed of adjustment in case of savings is higher than level of output. The overall long-run results of the study favour the capital fundamentalist's point of view.

Chaudhry *et al.* (2010) have analyzed the long-run and short-run relationship between national savings and its monetary and fiscal determinants in Pakistan for the period 1972-2010. The results show the existence of positive relationship between deposit rate, government expenditure, inflation rate and national saving rate. The study concludes that macroeconomic stability combined with prudential regulations of financial institutions may provide an environment which may be helpful for increasing national saving rate in Pakistan.

Ahmad and Mahmood (2013) have investigated the factors that determine the national savings in the course of economic progress. The study uses time series data for the period 1974-2010 and employ Autoregressive Distributed Lag Model (ARDL) bounds testing approach for estimation purposes. The study finds that per capita income has inverse relation with savings both in the long-run and short-run. The study points out that

Keynesian and permanent income hypothesis do not hold in Pakistan. Exchange rate and inflation are found to be negatively related to national savings. Trade openness has positive impact on national savings because trade openness enhances welfare level. It has also observed that an increase in money supply increases national savings through the seigniorage effect in Pakistan.

Keeping in view the above mentioned studies it can be observed that these studies have used different variables and estimation techniques for analyzing the relationship between variables and national savings. The results of these studies fail to reveal the clear relationship between the variables. It brings up the need for further econometric analysis using appropriate variables and latest estimation techniques. The results of present study may be helpful for policy makers to formulate and implement policies consistent with the economic conditions prevailing in Pakistan. For this purpose the study tries to analyze the short-run and long-run saving behaviour in Pakistan using recent advances in dynamic modeling.

### III. DATA AND MODEL SPECIFICATION

The study uses annual time series data for the variables included in the model for the period 1973-2014. The data has been collected from *Pakistan Economic Survey*, *World Development Indicators*, Standardized income inequality database, and international country risk guide.

For investigating the relationship between national savings and its determinants, the following model is specified.

$$LNS = \alpha + \beta_1 LGINI + \beta_2 LFREM + \beta_3 LECOS + \beta_4 GOVTS + \beta_5 LPOP + \mu_t$$

Where

- $LNS$  = Log of National Savings
- $LGINI$  = Log of Gini Coefficient
- $LFREM$  = Log of Foreign Remittances
- $LECOS$  = Log of Economic Stability
- $GOVTS$  = Government Stability
- $LPOP$  = Log of Population Density
- $\mu_t$  = Error Term

## DESCRIPTION OF VARIABLES

### **National Savings and Gini Coefficient**

The first regressor included in the model is Gini coefficient which has been used to measure income inequality. This index ranges from zero to one, zero represents perfect income equality which means that income is equally distributed among all individuals of the society and one means perfect inequality which means that all of the income is held by one individual. This variable may have either positive or negative impact on national savings. If there is high inequality but marginal propensity to save of the rich is higher than the poor then higher inequality may lead to higher savings but if rich have lower propensity to save than poor then higher inequality may reduce savings. If inequality is very low and the poor have higher propensity to save then lower inequality may enhance savings in an economy while if the poor have lower propensity to save than rich, then lower inequality may reduce savings in an economy. This indicates that the coefficient of income inequality may take positive or negative value.

### **National Savings and Foreign Remittances**

Foreign remittances may enhance or reduce the savings, depending upon the circumstances. If recipients of foreign remittances have consumption oriented habits then remittances may be used for consumption purposes so it may not enhance savings while on the other hand if recipients of foreign remittances have investment oriented behaviours then it may increase saving levels in the economy. The sign of the coefficient of foreign remittances may be positive or negative.

### **National Savings and Economic stability**

Economic stability has been measured through an index constructed by Principal Component Analysis (PCA) consisting of per capita income, inflation and unemployment. Economic stability is expected to increase saving levels because if people have higher per capita income and inflation and unemployment are low in the economy then people may have better capacity to save, resultantly it may enhance saving levels. This indicates that the sign of the coefficient of economic stability is expected to be positive.

### **National Savings and Government stability**

Political stability variable is the measurement of government's ability to carry out its announced programmes and the ability to remain in office. The range of this variable is from 0 to 4. The value of 0 represents very unstable

government and 4 represents very stable government. The expected sign of this variable may be positive or negative. On one hand government stability may be considered business friendly and people may choose to save more in order to get better returns on their savings. On the other hand, if there is instability in the economy then it may lead to uncertainty and under uncertain conditions people may choose to save less and prefer to consume.

### **National Savings and Population**

An increase in population is expected to reduce the saving levels. An increase in family size leads to an increase in consumption expenditure of family so the coefficient of population is expected to be negative.

## **IV. ECONOMETRIC METHODOLOGY**

### **UNIT ROOT TESTS**

Most of the macroeconomic variables are non-stationary so the first step in econometric analysis is to determine whether the variables under consideration are stationary or not since they tend to exhibit a deterministic and/or stochastic trend. This study uses two unit root tests namely, Augmented Dickey-Fuller (ADF, 1979) and Kwiatkowski, Phillips, Schmidt, and Shin (KPSS, 1992) for determining the order of integration of the variables included in the model.

### **LAG ORDER SELECTION**

The distribution of a test statistic is sensitive to the order of lags used in estimation process. If the lag order selection is not appropriate, the regression estimates will be biased and the residuals will be serially correlated. This problem can be overcome by employing the Akaike information criterion (AIC) and Schwartz Bayesian Criteria (SBC). This procedure removes arbitrariness in choosing the lag length in statistical tests of causality. After evaluating stationarity of each variable and specifying optimal lag length, the next step is to find out whether they are cointegrated or not using Johansen and Juselius's (1990) framework.

After investigating the cointegrating vectors and long-run coefficients, it is interesting to explore the short-run dynamics of the model. For this purpose Vector Error Correction Model (VECM) is applied.

The study uses Toda-Yamamoto (1995) and Dolado and Lütkepohl (1996) (TYDL henceforth). This procedure is considered to be superior to ordinary Granger causality tests since it does not require pre-testing for the



cointegrating properties of the system and thus avoids the potential bias associated with unit roots and cointegration tests as it can be applied regardless of whether a series is I(0), I(1) or I(2), non-cointegrated or cointegrated of an arbitrary order.

**V. EMPIRICAL RESULTS AND INTERPRETATION**

First step in cointegration analysis is to check whether the variables under consideration are stationary or not. A univariate analysis is carried out to observe the stationarity properties of the data.

TABLE 2  
ADF and KPSS Unit Root

ADF test statistic			KPSS test statistic		
Null Hypothesis Variable is non-stationary			Null Hypothesis Variable is stationary		
Variable	Constant	Constant and trend	Constant	Constant and trend	Order of Integration
<i>LNS</i>	-2.373	-2.636	1.437	0.297	I(1)
$\Delta LNS$	-4.271*	-5.522*	0.321***	0.041***	
<i>LGINI</i>	-2.212	-2.249	0.477	0.264	I(1)
$\Delta LGINI$	-3.892	-3.846**	0.077*	0.055*	
<i>LFREM</i>	-1.868	-1.819	0.627	0.347	I(1)
$\Delta LFREM$	-3.738*	-4.369*	0.325*	0.045*	
<i>LECOS</i>	-2.020	-3.016	1.174	0.131	I(1)
$\Delta LECOS$	-7.640*	-7.494*	0.0284*	0.0280*	
<i>LPOP</i>	-1.486	0.849	1.610	0.402	I(1)
$\Delta LPOP$	-3.456*	-4.509*	0.585*	0.069*	
<i>GOVTS</i>	-1.732	-2.251	0.780	0.231	I(1)
$\Delta GOVTS$	-3.549*	-3.466**	0.088*	0.062*	

\*, \*\*, \*\*\* denote 1%, 5% and 10% level of significance and t-values in parentheses.

Table 2 presents the results from the augmented Dickey-Fuller (ADF) and Kwiatkowski, Phillips, Schmidt and Shin (KPSS) test. The results reveal that all the variables are non-stationary at level. In order to make the data stationary, unit root tests are re-run by taking first difference of the series. Results show that first-difference series are stationary. Having established that all the variables in the study are integrated of order one, *i.e.* I(1), the second step is to test whether they are cointegrated or not. As all the variables included in the model are integrated of order I(1) so the most appropriate technique that can be used for cointegration is Johansen cointegration approach.

To check the white noise and well behaved property of residuals the Lagrange Multiplier (LM) and Auto Regression Conditional Heteroskedasticity (ARCH) tests are employed. The chi square statistic is the Breusch-Godfrey LM test statistic. The results of LM and ARCH tests are presented in Table 3. The results show that the residual terms are pure white noise, that is, they are well behaved. The insignificant values of Chi square reveal that there is no autocorrelation and heteroskedasticity among the residuals.

TABLE 3

The Results of LM and ARCH Tests at First Difference

Variables	LM Test		ARCH Test	
	$\chi^2$	Probability	$\chi^2$	Probability
<i>LNS</i>	0.088	0.916	0.7243	0.403
<i>LGINI</i>	0.109	0.897	0.0247	0.876
<i>LFREM</i>	0.197	0.822	0.155	0.697
<i>LECOS</i>	1.751	0.149	0.106	0.747
<i>LPOP</i>	0.193	0.826	1.517	0.238
<i>GOVTS</i>	0.014	0.986	0.193	0.825

Residuals are proved to be white noise by using LM and ARCH tests.

Before applying Johansen cointegration approach, it is essential to find maximum lag length which can be found by using Akaike information criterion (AIC) and Schwarz information criteria (SIC), which is 2 in present case. The results of the Johansen cointegration approach are presented in

**Table 4.** The results of both trace and eigen value tests reveal that there are four cointegrated vectors. This suggests that there exists long-run relationship among the variables used in the study and there are at least four common trends. The existing relationship among national saving, income inequality, economic stability, foreign remittances, and size of population for Pakistan is not spurious and they move together in the long-run between 1984 and 2014.

TABLE 4  
Johansen Cointegration Test

Hypothesized No. of CE(s)	Trace Statistic	Critical Value (5%)	Maximum Eign Statistic	Critical Value (5%)
None	297.415*	95.754	153.966*	40.078
At most 1	143.448*	69.8181	73.429*	33.877
At most 2	70.019*	47.857	29.968*	27.584
At most 3	40.051*	29.797	27.206*	21.132
At most 4	12.845	15.495	12.623	14.265
At most 5	0.222	3.841	0.222	3.841

\* indicates rejection of the null hypothesis at the 5% level of significance.

**Table 5** exhibits the normalized cointegrating vectors. The estimated normalized equation is presented below:

$$LNS = -0.733 LGINI + 0.685 LFREM + 0.137 LECOS + 3.949 LPOP - 0.105 GOVTS$$

The signs have been reversed for the interpretation purposes. All the variables are statistically significant; the first variable of interest is income inequality which has negative sign which means that an increase in income inequality will reduce saving. It may be an indication that rich have low propensity to save as compared to poor that is why increase in income inequality leads to low national savings. The second variable foreign remittances has positive sign, which indicates that if there is an increase in inflow of foreign remittances to Pakistan, the national savings also rises which means that foreign remittances are mostly used for investment purposes rather than consumption purposes. The next variable is economic

stability which carries positive sign. This indicates that if there is economic stability in Pakistan it leads to higher savings. The next variable, the size of the population has very interesting outcome. It shows positive impact on savings which means if there is an increase in population, saving will increase. It may be due to the reason that people save more in order to meet the demands of growing population which is in line with the existing theories. Government stability has unexpected negative sign. It means if there is improvement in government stability, it will reduce savings. The main reason behind it is that people feel secure and consider themselves comfortable and prefer to spend more in current period and save less.

TABLE 5

## Normalized Cointegrating Coefficients

<i>LNS</i>	<i>LGINI</i>	<i>LFREM</i>	<i>LECOS</i>	<i>LPOP</i>	<i>GOVTS</i>
1.00	-0.733	0.685	0.137	3.949	-0.105
S.E	0.177	0.021	0.071	0.119	0.0029
t-value	-4.141	32.619	1.929	29.32	-36.206

The most important element in the short-run analysis is the error correction term (*ECT*). The sign and statistical significance of this term is highly important in econometric analysis. The negative and statistically significant sign shows that the deviation from the long-run equilibrium is corrected gradually through a series of partial short-run adjustments. The sign and magnitude of the estimated coefficient of *ECT* in each equation reflects the direction and speed of adjustment of the dependent variable to temporary deviations from the long-run equilibrium. A negative and significant *ECT* is an indication of cointegration among the variables and presence of a stable long-run equilibrium path.

The results of VECM are reported in Table 6. The results show that the error correction terms of the equations of savings and income inequality as dependent variable carry negative signs which are also statistically significant. This indicates that there is convergence in these two equations. The speed of adjustment in the first equation (Saving as Dependent variable) is approximately 47 percent per period and the speed of adjustment in second equation (with inequality as dependent) is 15 percent. The error correction term in last equation also have negative sign but it is statistically insignificant, while remaining equations exhibit no convergence.

TABLE 6  
Vector Error Correction Model (VECM)

Variables	D(LNS)	D(LGINI)	D(LFREM)	D(LECOS)	D(LPOP)	D(GOVTS)
Constant	-0.263* (-2.419)	0.011 (0.295)	0.468 (1.719)	-0.124 (-0.559)	0.008* (-2.335)	7.65 (0.550)
D(LNS-1)	-0.360* (-2.376)	0.036 (-0.562)	-0.298 (0.677)	-0.174 (-0.786)	-0.003 (-3.305)	-6.408 (-0.543)
D(LNS-2)	-0.3186* (-2.058)	0.248 (0.577)	-0.184 (-0.476)	-0.184 (-0.787)	0.004 (0.772)	1.683 (0.850)
D(LGINI-1)	1.258* (1.954)	0.583* (2.571)	0.047 (0.029)	0.715 (0.545)	-0.005 (-0.283)	10.078 (1.224)
D(LGINI-2)	1.913* (3.286)	0.211 (1.032)	-1.816 (-1.247)	0.947 (0.797)	0.082* (4.395)	6.027 (0.809)
D(LFREM-1)	-0.221** (-1.854)	-0.031 (-0.732)	-0.001 (-0.003)	-0.052 (-0.214)	0.002 (0.574)	-2.541 (-1.668)
D(LFREM-2)	-0.086 (-0.739)	-0.053 (-1.301)	-0.175 (-0.605)	0.167 (0.707)	0.003 (1.006)	1.195 (0.808)
D(LECOS-1)	0.077 (0.639)	0.025 (0.582)	-0.067 (-0.222)	-0.548 (-2.226)	-0.005 (-1.357)	-1.014 (-0.657)
D(LECOS-2)	-0.313* (-2.902)	0.029 (0.676)	0.278 (1.029)	-0.558* (-2.536)	-1.694 (-1.227)	6.24 (0.018)
D(LPOP-1)	-113.797* (-3.241)	-9.817 (-0.794)	-140.70 (-1.601)	35.816 (0.500)	2.623* (2.330)	-433.48 (-0.965)
D(LPOP-2)	126.641* (3.771)	8.622 (0.730)	119.132 (1.420)	-27.673 (-0.405)	-1.289 (-1.199)	472.294 (1.102)
D(GOVTS-1)	0.032 (1.433)	0.013 (1.672)	-0.041 (-0.723)	0.003 (0.058)	-3.46 (-0.004)	0.563* (1.952)
D(GOVTS-2)	-0.069* (3.279)	0.017* (2.359)	-0.027 (-0.510)	-0.026 (-0.606)	-0.001 (-1.539)	-0.172 (-0.631)
(ECt-1)1t	-0.474* (-4.624)	-0.151* (-4.193)	0.233 (0.909)	0.019 (0.093)	0.004 (1.090)	-0.331 (-0.252)
R <sup>2</sup>	0.831	0.622	0.471	0.518	0.901	0.578
F Statistic	5.283	1.771	0.959	1.156	10.694	1.474

\*\* , \*\*\* denote 5% and 10% level of significance and t-values in parentheses.

The results of Toda-Yamamoto Causality are presented in [Table 7](#). The results indicate that there is bidirectional causality between savings and

TABLE 7  
Toda-Yamamoto Causality Results

Dependent Variable	Sources of Causation					
	<i>LNS</i>	<i>LGINI</i>	<i>LFREM</i>	<i>LECOS</i>	<i>LPOP</i>	<i>GOVTS</i>
	Wald Test $\chi^2$	Wald Test $\chi^2$	Wald Test $\chi^2$	Wald Test $\chi^2$	Wald Test $\chi^2$	Wald Test $\chi^2$
<i>LNS</i>	—	17.617** (0.000)	1.573 (0.455)	24.259** (0.000)	7.114** (0.028)	3.358 (0.186)
<i>LGINI</i>	6.565** (0.038)	—	16.873** (0.000)	18.680** (0.000)	5.564*** (0.061)	2.898 (0.234)
<i>LFREM</i>	14.204** (0.000)	13.087** (0.001)	—	3.962 (0.137)	24.173** (0.000)	3.937 (0.139)
<i>LECOS</i>	3.435 (0.179)	2.367 (0.306)	1.759 (0.414)	—	2.857 (0.239)	2.149 (0.341)
<i>LPOP</i>	1.774 (0.411)	91.062** (0.000)	0.426 (0.808)	6.122** (0.046)	—	66.779** (0.000)
<i>GOVTS</i>	29.669** (0.000)	11.235** (0.003)	20.169** (0.000)	1.177 (0.555)	11.033** (0.004)	—
Critical Values of $\chi^2$						
At 5% = 5.991			At 10% = 4.605			

\*\*, \*\*\* denotes 5% and 10% level of significance and probability values in parentheses.

income inequality. There is unidirectional causality between foreign remittances and savings running from foreign remittances to savings. There is unidirectional causality between savings and economic stability, running from saving to economic stability. There exists unidirectional between savings and population, running from savings to population. The results also show uni-directional causality between the variables running from foreign remittances to savings, between savings and economic stability running from savings to economic stability, between savings and population running from saving to population. There is no causality between economic stability and income inequality. There is bidirectional causality between income

inequality and population size. There is unidirectional causality between population size and economic stability running from population size to economic stability. There is bidirectional causality between government stability and population size. There is no causality between economic stability and foreign remittances. Furthermore, there is unidirectional causality between government stability and foreign remittances, running from government stability to foreign remittances.

## V. CONCLUSION

The objective of the present study is to identify the determinants of national savings in Pakistan and also to analyze the short-run and long-run causal relationship between national savings and its selected determinants using data for the period 1984-2014. Johansen's multivariate approach to cointegration has been used for estimation purpose. The results of the study reveal that national savings, income inequality, foreign remittances, economic stability, political stability and population size are cointegrated. The results of normalized equation show that the income inequality reduces savings, foreign remittances have positive impact on the national savings, economic stability has positive impact on savings, and the population has positive impact on savings. Government stability has negative impact on savings. The short-run coefficients are estimated employing VECM, which shows that there is convergence in the national savings equation and in this case speed of adjustment is forty seven percent. The Toda-Yamamoto Causality test has been applied to check the causality among variables. The results of Toda-Yamamoto Causality test indicate the existence of bidirectional and unidirectional causality between the variables. There is no causality between economic stability and foreign remittances, between economic stability and income inequality.

The study suggests that in order to increase the national savings, there is a need to induce foreign workers to invest in Pakistan. For this purpose there is a need to formulate and implement policies which help in increasing the foreign remittances. Existence of economic and government stability may help in raising the national savings. Furthermore, there is a need to introduce tax reforms in the country which help in reducing income inequality. Government should also chalk out policies which can help in increasing the national savings in the country. For raising the income of the people government should introduce structural reforms in the economy which may help in increasing employment and reducing income inequality.

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