THE IMPACT OF FDI AND REAL EFFECTIVE EXCHANGE RATE ON SAVING AND ECONOMIC GROWTH NEXUS IN PAKISTAN: AN EMPIRICAL ANALYSIS

Choudhry Sohail Ahmad[1]

Abstract

This study attempts to investigate the saving-growth nexus linking it with FDI inflows and real effective exchange rate in Pakistan for the period 1982-2015. The methodology used is Johansen co-integration approach to verify if a long-run association exists between savings and other selected variables. Co-integration results show that national savings is co-integrated with these variables and thus have stable long-run equilibrium association. The GDP rate of growth has significant impact on national savings which support the Keynesian assumption that growth is necessary for savings i.e. savings depends on the level of output. Real exchange rate also has a positive significant impact on national savings. Furthermore, empirical outcome shows that FDI-coefficient is positive with small magnitude but has insignificant shock on national savings in both the short and the long-run cases. This implies that national savings is non-responsive to FDI. These results suggest formulating policies that mobilize domestic resources, improving infrastructure facilities and capital development to generate savings which would in turn enhance economic growth.

Keywords: FDI, Real Exchange Rate, Saving, Economic Growth.

JEL Classification: F210

Introduction

In economics, national savings has received a great deal of attention, especially in developing countries. National savings can be used to exploit domestic resources to finance capital formation in order to augment the productive capacity of economy. An economy with higher national savings becomes less dependent on foreign resources (both foreign capital and foreign ownership of domestic assets) and helps to create new investment opportunities which in turns promote economic growth.

---

[1] Senior Lecturer, Department of Economics, Institute of Business Management (IoBM). Email: sohail.ahmed@iobm.edu.pk

Incompetency in generating sufficient savings by a country results in creating a macro environment which depends upon foreign capital inflows or foreign funds. Developing countries like Pakistan also faces the problem of borrowing private capital for their development programs. Other major problems that lead to borrowing include: speculative attack on currency valuation, exchange rate fluctuations, decelerate in exports, fall in asset prices, high external debt, law and order situation which further dent the investors' confidence and leads to capital flight from the economy (Ahmad & Marwan, 2003).

Keynesian approach emphasizes that saving rate is certainly positively related to the growth of national income. On the other hand, empirical studies of Harrod-Domar, Romer (1986), Lucas (1988), Rebelo (1991) found that saving rate is a key determinant of economic growth. World Bank (2012) also advised the developing nations the adopt policies which enhance savings for economic growth (Sinha, 1998). Moreover, studies by Blomstrom (1994), Xu Wang (2007) , Gursoy (2013) identified positive impact of FDI on GDP. The significance of FDI inflows in emerging economies has increased significantly since 1990s. Zhang (2001) argued that FDI inflows tend to promote economic growth by significant infrastructure development and concluded that FDI is beneficial in countries where there is a well developed domestic infrastructure, political stability, liberal trade and FDI policies (Zhang,2001).

It is a well known fact that small open economies which have limited international capital but enjoy higher domestic savings can utilize these savings for higher investment to boost economic growth. Concerning the exchange rate, there are number of channels in which exchange rate influences the economic growth and savings. Policy makers view savings as transmission channel and they asserted that depreciated real exchange rate raises the domestic savings to stimulate growth. This is done through increased capital accumulation.

According to the Economic Survey Pakistan (2015-16), national savings were increased to 14.6 % of GDP in FY16 against 14.5% in previous year. Domestic savings, witnessed 8.3 % of GDP, compared to 8.4% of GDP last year. Net FDI inflows are used to finance the saving-investment gap. Private investment reached Rs. 2,896 billion in FY16 compared to Rs. 2,793 billion in last year, which reflected the confidence of private investors' on government policies.

This study explores that whether FDI and effective exchange rate play any role in the saving-growth nexus for a small open economy like Pakistan. In case of Pakistan, FDI can have a key role for investment process due to the openness, and liberalization of financial sectors. A number of studies are there which have examined savings, FDI with growth relationship independently. But there are not many studies which investigated the role of FDI inflows with real effective exchange rate on saving-growth nexus. The results of this study will be helpful for further research to determine the significant role of FDI and exchange rate for national savings in Pakistan.

The rest of the paper comprises five sections. Section II, consists of literature review on

related topics. In section III we discuss about data sources, description of the variables and their measurement, model specification and theoretical framework and research methodology. In section IV and V, the results of the empirical findings and conclusion along with policy implications are discussed.

Literature Review

The role of national savings is always considered as an important part in developing economies. To determine what factors play a major role for increasing national savings, a set of research work has been passed out by economists. They agreed that not any single factor but numerous factors, like per capita income, GDP growth rate, urban population rate, interest rate, inflation, exchange rate, FDI, financial liberalization and trade, etc, all these factors collectively influencing national savings. There is vast research work as a literature review available to have an understanding on the pattern of national savings and its determinants in various nations. Some of these studies are discussed in this section.

Sothan (2014) attempted to test predictable wisdom that the causality runs from savings to growth. He found causality direction between these variables for Cambodia via Granger causality test for the period 1989 to 2012. The findings show that savings do not Granger cause GDP. These findings suppose to be the opposite of that "economic growth causes saving" (Solow-1956), as it is in line with result found by Misztal (2011), whereas the evidence of reverse causality does not appear.

Nwanne's (2014) study aimed to evaluate the theoretical framework of implications of saving and investment on economic growth, during 1981 to 2014 in Nigeria. The ADF/ PP unit root, Johansen and Juselius multivariate co-integration test were applied. Regression results indicate (1) change in savings movements on change in economic growth had negative but significant effect, whereas, (2) change in investment causes an affirmative result on economic growth in Nigeria. He emphasized on the development of policies promoting savings which in turn affect economic growth.

Turan and Gjergji (2014) examined the saving and growth casual relationship for Albania during the period 1992 and 2012, i.e. after the fall of communism, by employing ADF and J-J test. The complementary role of FDI was also investigated and results showed long-run affiliation in the said variables. Furthermore outcome suggested not only a positive relationship but also an FDI's complimentary role in the growth of economy (Turan & Gjergji, 2014).

Najarzadeh et al. (2014) explored the connection between savings and total (oil & non-oil sector) GDP growth in Iran during 1972 - 2010 (at 1998 constant prices). They used ARDL technique of long-run relationship between these variables taking in log form. They apply Banerjee-Dolado-Master statistic for lag selection. For determining the direction of causality they use ECM and Wald Test. Results show the impact of savings on total growth significantly positive for

both sectors in which the direction of causality mutually exists (Najarzadeh et al., 2014).

Oladipo (2009) conducted a study for Nigeria examining causality direction for savings and growth in both bivariate, and multi-variate system during 1970-2006, employing TYDL methodology. This study explored the shortcoming of omission in bias variable by introducing FDI in saving-growth nexus. He used (ADF) and P-Perron unit-root tests for the long-run relationship Johansen and Juselius (1990) test was used. The findings revealed unidirectional causality along with the complementary role of FDI (Oladipo, 2009).

Ajide (2014) studied the empirical evidence on saving- growth relationship under two different financial regimes: financial repression, and liberalization in Nigeria for the period 1970-2010. The paper highlighted the inter-temporal aspect and showed that they constitute complementary rather than competing theories. Also the results of ARDL model evidently showed that savings both in the long and the short runs had positive and significant impacts but found to be more pronounced under financial liberalization than repression thus validating McKinnon-Shaw liberalization Hypothesis (Ajide, 2014).

Yilmaz (2014) produced a research work for emerging Asian economies. In this study he included GD savings and FDI inflows. He viewed their impact on the economic growth during 1982-2012. He applied Pedroni, Kao, Johansen-F test of panel co-integration, and VECM model. The connection between GDP growth and GD savings, GD investments and FDI was investigated in Asian economies. For empirical testing he had used, the unit root process for panel data by Levin (2002), individual unit root by Im(2003), and ADF stationarity test. The results established the existence of the long-run association. Results through dynamic OLS method for FMOLS and DOLS demonstrated that GD savings, GD investments, FDI inflows positively impacted the GDP growth for the long-run. GDI had an added effect on GDP growth relatively than the GDI and FDI inflows had on both FMOLS nd DOLS (Yilmaz ,2014).

Sajid and Sarfraz (2008) conducted a research study for Pakistan. The reason for study was to inspect causal relationship for savings to GDP growth. They employed quarterly data on these variables from 1973:1 to 2003:4 by applying co-integration and VECM model. The results showed bi-directional relationship between them. However, from public savings to GNP and GDP, unidirectional long-run causality was found. Unidirectional causality was found between private savings to GNP only. For the short run, there also exists mutual relationship between GDP and domestic savings. For short run, causality runs only from national savings to GDP. Finally, results favored Keynesian analysis that "savings depend upon the level of output" (Sajid & Sarfraz,2008).

Ilyas, et al. (2014) investigate the interrelationship between the economic growth, saving and inflation for Pakistan during 1973-2010. They used simultaneous equations 2SLS model between main macro variables. Results showed bi-directional causality, in the long term behavior with

negative effect between inflation and growth. In results indirect taxes were absolutely related to prices. Unemployment and real interest rate exposed negative correlation to inflation. Also they observed real interest rate's negative impact on growth; whereas, the rate of depreciation indicate affirmative impact on GDP growth. Results findings explained uni-directional causality in GDP & savings. Following the results it was found that GDP growth, Dependency ratio, FDI positively affect savings. There isn't significant association existed among inflation & saving rates. Chandio, et al (2015) attempted to inspect the savings and growth association in Pakistan, during 1977 - 2013. Results identified long-run relationship between them in Pakistan. This study provided empirical evidence, which in fact strongly suggested that"Gross Domestic savings played an important role in the economic growth and development of Pakistan in the long-run (Chandio, et al., 2015).

Ahmad and Haider (2013) conducted a research for the factors of national savings in Pakistan from 1974-2010. They applied (ARDL) bound testing for co-integration with ECM as they are known for the long and short run. Findings showed inverse association in per capita income with national saving rate for the short & long run. Also in national savings, both exchange and inflation rate comprise a negative impact. Lagged exchange rate has significantly impacted national saving. Another variable MS is positively linked to national saving because of seigniorage effect. Income growth level negatively related with national savings. According to this study "Keynesian and permanent income hypothesis" was not valid in Pakistan due to the inverse function of both per capita income and GDP growth (Ahmad & Haider, 2013). Abaidoo (2012) in his empirical study examined the dynamic causal relationship for key macroeconomic variables. He employed trivariate causality test approach on Sub-Sahara African data from 1977-2010. It is found that joint unidirectional causality existed between FDI, Gross Savings'growth on GDP regionally. Furthermore uni-directional and joint causal relationship stems in GDP growth, Gross Regional Savings to FDI growth in this region (Abaidoo , 2012).

Saltz (1999) found causality direction between real GDP and savings growth (1999). It was stand on the hypothesis "higher growth rates of real GDP cause increased savings and this higher growth rate of income boost the rate of savings which attract more foreign savings". He conducted this study for the period from 1960 to 1991. He conducted this study for 18 Latin American newly industrialized countries by employing ADF and PP unit root test, Granger causality test, Breusch-Godfrey Lagrange-Multiplier test in serial correlation between the variables. Based on empirical results, four countries (Colombia, Jamaica, Peru, Philippines) observed no causality. The remaining showed direction of causality. Eight countries showed GDP growth rate, positively affecting the rate of savings. Rate of saving for Argentina and Taiwan, caused GDP growth rate. Finally for Republic Dominican and Mexico, bi-directional causality existed (Saltz, 1999).

Edeme and Ifelunini (2015) observed the linkages among macro variables, like savings, inflation, economic growth, interest, exchange, and unemployment rate, domestic and foreign domestic investment in Nigeria using 2SLS method. The results of the study showed causality as

two-way between inflation and economic growth but negatively affected in the long run. Also analysis showed, indirect taxes and prices were positively related. Both the unemployment rate and real interest rate had negative correlation with inflation. Moreover, GDP & FDI had affirmative effect on savings whereas exchange rate decrease the savings (Edeme & Ifelunini, 2015).

Iqbal, et al. (2012) evaluated savings and credit impact on economic growth. The analysis was done through ADF(unit root), ARDL in long-run & ECM approach in short run between 1973 to 2007 in Pakistan. The model developed had Real GDP as dependent and explanatory variables as: ratios of all "Domestic Credit in Private sector to GDP; National Savings to GDP, Total Export to GDP, Import to GDP". Result findings showed that 5.59 % increase in real GDP due to 1% boost in credit to private sector". National saving's coefficient showed 1.015 % increase in real GDP due to1% increase in national savings. Short run result showed private sector's coefficient with 5.7 and was significant. This means that, both short & long run, this credit had significant force on economic growth (Iqbal, et al., 2012).

Zahir and Asma (2012) conducted a research on the globalization and saving behavior impact in Pakistan using data from 1972 - 2010. Three models for each saving (National, Private, and Public) were taken as dependent variables which were regressed on explanatory variables such as govt. deficit, CPI, deposit rate, workers' remittances, trade openness and FDI. Empirical results showed significant positive effect of CPI, interest rate, govt. deficit, and remittances savings. FDI's impact, both on national and private saving, have been negatively significant in Pakistan. Insignificantly Public savings are influenced, whereas trade openness positively insignificant shock on national saving but negative insignificant shock on private and public savings in Pakistan (Zahir & Asma, 2012).

Data Sources and Methodology

Data Source & Model Specification

Data employed for study as annual time series data for Pakistan during 1982 to 2015 obtained from World Development Indicators (WDI) database. The variables used are net national savings, real GDP growth rate, FDI inflows and real effective rate of exchange. All the data are taken on constant prices. According to theory there will be positive significant impact of these variables on savings especially in developing countries like Pakistan.

Model

Based on previous studies discussed in the literature review, we developed saving-growth model interlinking FDI and real exchange rate as follows:

NNS = f (GDPR, FDI, REER)

The model in logarithmic form is given below

$$LNNS_t = \beta_0 + \beta_1 LGDPR_t + \beta_2 LFDI_t + \beta_3 LREER_t + \varepsilon_t \dots\dots\dots\dots(1)$$

Where

$LNNS_t$	=	Net Adjusted National Saving
$LDGPR_t$	=	Real Gross Domestic Product Growth Rate (annual %)
$LFDI_t$	=	Foreign Direct Investment inflows
$LREER_t$	=	Real Exchange Rate Index (2000 = 100)
E_t	=	White noise error term.

Empirical Methodology:

The methodology is based on the standard steps used for the analysis of time series data in econometrics which are as follows:

Unit Root

In a multivariate model, to find the long-run relationship we employed Johansen-co integration technique, but before finding this cointegration relationship, it is necessary to check whether variables series included in the model are stationary or not. For this we employed ADF test.

The ADF unit root test following the equation as

$$\Delta Y t = \alpha + \beta 1\, Yt\text{-}1 + \rho t + \Sigma\, \theta k \Delta\, Y\, t\text{-}k + \mu t \dots\dots\dots\dots(2)$$

Where Yt shows the time series, α is a constant, Δ shows the first difference operator, t is used to show a linear trend, and μ is an error term. The null hypothesis" there is existence of unit root is β = 0".

Co-integration Technique

The Johansen and Juselius (J-J) (1990) co-integration test is used for determining co-integration vector among the variables. Accordingly when two or more series resulted in linear combination (stationary), so that they become co-integrated to each other (Engle & Granger, 1987). This linear along stationary combination provides co-integrating vectors. The vector indicates long-run equilibrium in these variables (Gujarati, 2003). This technique provides two known statistics, Trace statistics (TS) and Maximum Eigen value (ME) statistics for determining number of co-integrating vectors. The (TS) and (ME) statistics values are compared to its t-statistics values. As a result, null hypothesis (i.e. co-integration, r = 0) rejected, If their values are greater than their respective t-statistics. This provide indication of existence of long term co-integration. For long-run relationship, lag length selection is important. Choosing proper lag length is important because co-integration tests are responsive to it in VAR model. There are various criterion for optimal lag length selection. Most common criteria are (i) Akaike information criterion (AIC). (ii) Schwarz

information criterion (SC). (iii) Hannan-Quinn information criterion (HQ).

Empirical Results

Unit Root Test Results

　　　Results of ADF unit root test for four time series namely, GDP growth rate, national savings, FDI's and real exchange rate reveals that they are not stationary al level, whereas these variables are stationary at first difference i.e. they are integrated of order 1, or I(1).

Table 1
Stationary Test Results

Variable		At Level Constant, Linear Trend		At 1st Difference Constant, Linear Trend	
		t - statistic	Prob	t - statistic	Prob
ADF test statistic →		**-1.910745**	**0.6257**	**-4.624449*****	**0.0044**
LFDI	**1 %**	-4.273277		-4.284581	
	5 %	-3.557759		-3.562882	
	10%	-3.212361		-3.215267	
ADF test statistic →		**- 3.77315**	**0.3385**	**-3.90438**	**0.0125**
LRGDP	**1 %**	-3.646342		-3.69987	
	5 %	-3.580621		-2.97626	
	10%	-3.225330		-2.62742	
ADF test statistic →		**-2.500036**	**0.3259**	**-6.440016*****	**0.0011**
LNNS	**1 %**	-4.283730		-4.296729	
	5 %	-3.562871		-3.568379	
	10%	-3.218382		-3.212361	
ADF test statistic →		**-0.712106**	**0.9635**	**-5.048769****	**0.0015**
LREER	**1 %**	-4.273277		-4.284581	
	5 %	-3.557759		-3.562882	
	10%	-3.212361		-3.215267	

***1% significance,**5% significance,*10% significance

　　　After finding the stationary series, our next step will be employing test for co-integration between net national savings, GDP growth rate, FDI, real exchange rate.

Co-integration Test Results

As all the variables are I (1), therefore Johansen and Juselius (J-J) (1990) co-integration test is applied to stationary series. This co-integration test is used to check the existence of the long run relationship across dependent and independent variables. As mentioned earlier, that before finding long runs relationship among variables, the determination of optimal lag length is necessary. The results on different criteria for determining lag length are presented in Table 2.

Table 2
Values form Optimal Lag Length Criteria

Lags Criterion	Log L	LR	FPE	AIC	SWC	HQ
0	10.04769	NA	7.63E-06	- 0.431978	-0.241663	-0.3738
1	146.6603	244.4351*	1.41E-09	- 9.047186	8.095593*	8.756262*
2	159.8879	17.95168	1.85E-09	- 8.849136	-7.136302	-8.32551
3	174.1954	15.32941	2.59E-09	- 8.72824	-6.254146	-7.97189
4	198.734	19.28034	2.25E-09	-9.338141*	-6.102787	-8.34906

* indicates lag order selected by the criterion

From the above results of Table 2, using Schwarz Criterion, on the basis of which optimal lag length is 1. After finding results of unit root that they are co-integrated of order one, and from lag length selection, we move to co-integration test to determine long run relationship between dependent and independent variables i.e LNNS, LGDPR, LFDI, and LREER in our model. With the presence of co-integration means that all variables are sharing a common trend and long run equilibrium. The results of Johansen and Juselius multivariate co-integration test are shown in Table 3 below.

Table 3
Co-integration Test Results

Variables : LNNS LGDPR LFDI LREER					
Tests		**Max-Eigen Statistic**		**Trace Statistic**	
Ho	Ha	λ –max	Critical Value*	Trace	Critical Value*
r= 0 *	r =1	31.59221*	27.58434	60.43555 *	47.85613
r≤ 1	r =2	6.18893	21.13162	28.84334	29.79707
r≤ 2	r =3	9.10179	14.2646	12.65441	15.49471
r≤ 3	r =4	3.552611	3.841466	3.552611	3.841466

Trace test and Max-Eigen Statistics indicates 1 cointegration equation at 0.05 level
*Denotes rejection of the hypothesis at the 0.05 level.

From results of co-integration, using both Trace and Maximum Eigen value statistics, we can say that in case of Pakistan, there is long run relationship between net national savings and GDP

growth rate, FDI and real exchange rate during 1982-2015. These results verify for the existence of one co-integrating equation. So we can say that, at least one sided causality between these variables would exist. In this way we can conclude that explanatory variables can have reliable long-run relationship among them with dependent variable coefficient of normalized co-integration of 1.000000. This means that a stable long run relationship exists between net savings, GDP growth rate, FDI, real exchange rate and it implies they move together in the long run. For the extent of the long run relationship among these variables, the long-run coefficient are extracted by normalization process, and long-run normalized coefficients are shown in Table 4.

Table 4
Long-run Normalized Cointegration Coeffients

Variables	Coefficient	Standard error	t-statistics
LNNS	1.00000	0.0000	-
LRGDP	- 2.110765	-0.4417	- 4.7787*
LFDI	- 0.111735	-0.12035	- 0.92 *
LREER	- 4.027813	-0.57852	- 6.96*

*t-values at 5%

The normalized cointegrating coefficients of one cointegrating equation are derived below. The negative sign of coefficients are reversed in forming the model equation. These coefficients show the strength as well as direction of causality between dependent and independent variables in the long run.

From the above results the long-run equation can be as follows

LNNS   = 2.1107 LRGDP + 0.1117 LFDI + 4.0278   LREER
         (- 4.778)   (- 0. 92)   (- 6. 96)   t-values in parenthesis

        The test results show that there is a long-run relationship between net national savings with GDP growth rate, and real exchange rate at 5% level of significance. Moreover results also show that in the long run, net national savings has statistically positively significant with GDP growth rate, and real effective exchange rate in case of Pakistan. This indicates that both macroeconomic variables play a significant role to enhance savings in Pakistan.

        In the case of FDI, empirical results show that it has positive but insignificant relationship with national savings (t-value = 0.92) in case of Pakistan. This insignificant t-value shows that FDI is not influencing national savings and is not playing a complementary role to national savings, i.e it shows non-responsiveness of FDI to national savings i.e FDI does not play a major role to have an impact on national savings in Pakistan.

Short- Run ECM Results

Having examined the long run relationship, the short run dynamics of national savings is also estimated through ECM model. For ECM analysis, lagged residuals of long run regression equation are used as error term in the model. The size and sign of the (ECM) error correction term is important. For short-run dynamics, it should be negative and significant. Its significance decides the extent and tendency of each independent variable. The magnitude of the ECM term shows that how quickly they return back to its long-run equilibrium position. In the analysis, endogenous variables are lagged explanatory variables, with one lagged ECM term. The value of R^2 and F-statistics provides their joint significance on dependent variable. The importance of independent variables in order to predict dependent variable (national savings) becomes valuable if the coefficients of lagged explanatory variables are significant.

The Error Correction Model results are shown in Table 5.

Table 5
Results of Error Correction Model

Variable	Coefficient	Standard Error	t-Statistic	Prob.
D(LNNS(-1))	-0.162563	0.157922	-1.029389	0.3132
D(LRGDP(-1))	-4.505087	1.519461	-2.964925	0.0066
D(LFDI(-1))	0.00029	0.084846	0.003417	0.9973
D(LREER(-1))	-1.956072	0.62462	-3.131618	0.0044
ET(-1)	-1.73E-03	4.20E-09	-4.103222	0.0004
R – squared	0.456107	F- Statistic	12.99	
Durbin- Watson Stat	2.25781			

From the results of Table 5, ECM in our model is significant with the expected negative sign, and hence validating the significance of the earlier co-integration long run relationship which is deduced by Johansen test. This term shows the speed of adjustment towards long-run equilibrium. The estimated coefficient of ECM (0.00173) have a low value, but significant in the saving function. This low value is showing a very weak speed of adjustment from short run to long run. That is it takes a long time for adjustment from short to long run.

The general short run dynamic model is represented as follow :

Δ LNNS = $\alpha 0 + \sum\alpha 1i$ Δ LRGDP t- i $+ \sum\alpha 2i$ Δ LFDI t- i $+ \sum\alpha 3i$ Δ LREER t- i $+ \alpha 4$ ECM t-1 + error term

From our empirical results in Table 5, we found that the short-run ECM equation at first lag is

Δ LNNS = -4.505087 Δ LRGDP (-1) + 0.00029 Δ LFDI (-1) - 1.956072 Δ LREER (-1) - 0.00173 ECM (-1)

                      (-2.9649)   (0.0034)   (-3.1316)   (-4.1032)

          R^2 = 0.45   DW = 2.25   F – stat = 12.99   t-values in parenthesis

The size of coefficient of ECM shows a vey week or low convergence from short-run to long-run adjustment, which means that in case of Pakistan national savings, is weakly adjusted on average from short-run to long run, i.e. it will take long time to eliminate the disequilibrium in the system.

From above results both for real GDP growth rate and real effective exchange rate,t -values are significant at first lag. Therefore national savings are affected by both variables in the short run. The first lag of real GDP growth rate and real exchange rate affects national savings negatively in the short-run. However in the case of FDI, which value is insignificant, which means national savings is non-responsive to FDI of previous period during the period 1982 to 2015 in case of Pakistan.

Conclusion

The main purpose of this study is to reexamine the saving-growth nexus linking to foreign direct investment inflows, real effective exchange rate in Pakistan during 1982-2015. The study used time series data on net national saving, GDP growth rate, FDI inflows, and real effective exchange rates during the period 1982 to 2015.

We employed ADF unit root, Johansen's co-integration approach to check the robustness in favor of the long run relationship, and Error Correction Model (ECM) to find the short run dynamics among the variables. The findings suggest that there exist, both the short run and the long-run relationship between national savings and macro variables included in the model. The ECM term, which is significant, has a very small coefficient. This shows very week or low convergence from the short-run to the long-run adjustment, i.e. national savings are weakly adjusted on average from the short-run to the long run. It will take a long time to eliminate the disequilibrium in the system. GDP growth rate and real effective exchange rate both have significant effects on national savings. In the long-run they have positive impact whereas in the short-run they have negative impact on national savings. The positive relationship of real exchange rate means, in the long-run, national saving can increase by appreciating the exchange rate, which is beneficial for export growth in the country. The results also show the role of FDI in saving-growth nexus. Results show that FDI has positive but insignificant impact on national savings in case of Pakistan. FDI does not play complementary role

both in the short and the long run. This implies that national savings is non-responsive to FDI both in short and long run during the period 1982 to 2015. This suggests formulating policies that mobilize domestic resources, improving infrastructure facilities and capital development to generate savings which in turn enhance economic the growth of the country.

References

Abaidoo, R. (2012). Economic Growth, Regional Savings and FDI in Sub-Saharan Africa: Trivariate Causality and Error Correction Modeling Approach. *International Journal of Economics and Finance, 4*(11), 40-50.

Ahmed, K., & Mahmood, H. (2013). Determinants of National Savings Revisited: A Small Open Economy of Pakistan. *World Applied Sciences Journal, 21*(1), 49-57.

Ajide, K. B. (2014). Determinants of economic growth in Nigeria. *CBN Journal of Applied Statistics, 5*(2), 147-170.

Baharumshah, A. Z., & Thanoon, M. A. (2003). Determinants of gross national saving in Malaysia: A macroeconomic analysis 1960-2000. Savings and Development, 421-440.

Bayar, Y. (2014). Savings, Foreign Direct Investment Inflows and Economic Growth in Emerging Asian Economies. *Asian Economic and Financial Review, 4*(8), 1106-1122.

Chandio, A. A., Wei, F., & Yuansheng, J. (2015). Role of Savings in Economic Growth of Pakistan. Macroeconomic. *Asian Journal of Empirical Research, 5*(12), 243-251.

Edeme, R. K., & Ifelunini, I. (2015). Savings, Inflation and Economic Growth Linkages: A Re-Examination with Nigeria Data. *Journal of Investment and Management, 4*(5), 180-185.

Faridi, M.Z., Arif, A.,Zahir. (2012). Globalization and Saving Behavior of Pakistan: An Empirical Analysis. *Pakistan Journal of Social Sciences, 32*(1), 77-91.

Ilyas, M., Sabir, H. M., Shehzadi, A., & Shoukat, N. (2014). Inter-relationship among economic growth, savings and inflation in Pakistan. *Journal of Finance and Economics, 2*(4), 125-130.

Iqbal, M. Z., Ahmad, N., & Hussain, Z. (2012). Impact of savings and credit on economic growth in Pakistan. *Pakistan Journal of Social Sciences (PJSS), 32*(1), 39-48.

Najarzadeh, R., Reed, M. & Tasan, M. (2014). Relationship between Savings and Economic Growth: The Case for Iran. *Journal of International Business and Economics, 2*(4), 107-124.

Nwanne, T. F. I. (2014). Implication of Savings and Investment on Economic Growth in Nigeria. *International Journal of Small Business and Entrepreneurship Research, 2*(4), 74-86.

Oladipo, O. S. (2009). Does saving really matter for growth in developing countries? The case of a small open economy. *International Business & Economics Research Journal, 9*(4), 87–94.

Sajid, G. M., & Sarfaraz, M. (2008). Savings and Economic Growth in Pakistan: An Issue of Causality. *Pakistan Economic and Social Review, 46*(1), 17-36.

Saltz, I. S. (1999). An examination of the causal relationship between savings and growth in the third world" *Journal of Economics and Finance, 23*(1), 90-98.

Sinha, D., & Sinha, T. (1998). Cart before the horse? The saving–growth nexus in Mexico. Econom ics Letters, 61(1), 43-47.

Sothan, S. (2014). Causal Relationship between Domestic Saving and Economic Growth: Evidence from Cambodia. *International Journal of Economics and Finance, 6*(9), 213-220.

Solow, R. M. (1956). A contribution to the theory of economic growth. *The Quarterly Journal of Economics, 70*(1), 65-94.

Turan, G. & Gjergji, O. (2014). What is the Impact of Savings on Grrowth? The Case of a Small Open Economy (Albania). *Mediterranean Journal of Social Sciences, 5*(13), 360-368.

Zhang, K. H. (2001). How does foreign investment affect economic growth in China? *Economics of Transition, 9*(3), 679-693.