

The Causal Relationship between Savings and Investment in Jordan (A prospective study for the period 1980-2013)

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Abstract

This study aimed to discuss concerning the link between savings and investment, and highlight on most of the past studies concerning this relationship are cross-sectional in nature. The obvious difficulty with such studies is the homogeneity assumption that is usually made across the countries under investigation.

In light of this, the study tried to fill this gap in some ways by attempting to investigate the causal relationship between savings and investment in Jordan using relevant econometric techniques, like Augmented Dickey-Fuller (ADF) test in a regression & Johansen co integration test.

The evidence arising from the study suggests that, savings and investment are co-integrated. In other words, there is no reason to suspect either a long-run or equilibrium relationship between these two variables.

This could also be interpreted to imply the existence of high capital mobility. Furthermore, a unidirectional causal relationship between savings and investment in Jordan running from savings to investment was observed, and the main findings in this study were: Johansen co-integration test result shows evidence of co-integration implying that there is a long run relationship between GDP and savings, investment and FDI in Jordan. Savings and domestic investment have long run positive and significant impact on the Jordanian economy while FDI has negative but insignificant impact on the economy

Keywords: Investment, Savings, Time series macroeconomic data, FDI, GDP, Augmented Dickey-Fuller (ADF) test, Johansen co-integration test

1. Introduction

This study made a logical attempt to contribute to the literature on savings and investment nexus in Jordan by relying upon econometric methods. Conventional thinking holds that savings is an essential element in promoting investment and therefore, economic growth. Thus, there is plentiful evidence in the literature suggesting that countries that achieved high rates of economic growth also experienced corresponding high savings and investment rates. While raising savings is not a sufficient condition for achieving sustained growth, however, it does appear to be a necessary condition for higher sustained growth.

Economic research, both theoretical and applied, cites that the development problem and lack of economic growth has been shown to be conditioned by inadequate savings. Given that these macroeconomic indicators are key requirements for growth and development, by implication lack of investments is common in developing countries like Jordan, although the level of national saving is considered high. Low domestic savings level is a common problem in developing nations, because of poor performance of the economies, poor financial sector development, low wages and salaries and high unemployment levels. Concomitantly, the lack of adequate domestic investment requires the encouragement of foreign savings via unrestricted capital flows. Therefore, appreciating the causal relationship between savings and investment is relevant for policy implications, especially for a country belonging to a Common Monetary Area (CMA). If savings causes investment in Jordan, then promoting domestic savings should be a high priority to boost investment and economic growth cum development. Alternatively, if causation is from investment to savings, savings-promoting policies are likely to be unsuccessful and economically inefficient. If this is the case, then policy emphasis should concentrated on removing the barriers to investment hence, promoting investment. Given these facts, causality issues regarding savings and investment are of great interest for Jordan as a member of the CMA.

One of the points that emerge from the discussion is that while saving is undeniably an important part of the economic process that gives rise to new investment and economic growth, the precise relationship between saving and investment is somewhat complex. This helps to explain why there are differences of judgments as to what is a satisfactory national saving rate.

There are two views of the topic titled Savings and Investment. One is considered to apply to real physical macroeconomic activity, the "Keynesian", or National Accounts view. The other is considered to apply to money and banking, the "Monetarist" view. They primarily differ slightly in definitions of terms, which consequently lead to different discussions about very different subject matter. The two views actually are different subject areas, making it the historical debate difficult to collate, let alone reconcile.

Keynesians start with accounting definitions, where Savings = Investment, by construction, and tend to emphasize the nonproductive (zero sum) nature of all vehicles by which savings eventually ends up as capital. Monetarists tend to focus on technical distinctions of how savings is transformed from money balances, eventually into capital, and emphasize the value of those components in selecting which capital to invest in.

In a Keynesian sense, savings is whatever is left over after income is spent on consumption of goods and services, investment is what is spent on goods and services that are not 'consumed', but are durable. Since Income = Output, Savings = Investment for the total world's economy (or for a hypothetical 'closed' economy with zero foreign trade).

In a Monetarist sense, savings is the total rate at which units of account exceed expenditures, and are accumulated as unit of account (e.g. JD) balances with financial intermediaries, or sometimes hoarded as currency. Investment is the rate at which financial intermediaries and others expend on items intended to end up as capital that directly creates value, i.e. physical capital, durable goods, human capital, etc. In general, savings does not equal investment, but differs slightly at all times, the differences constituting a behavioral relationship, rather than an accounting one, as in the Keynesian view.

1.1. The Components of Aggregate Saving

For this purpose it is helpful to introduce the concept of the Gross Domestic Product (or GDP), and some elementary associated national accounting relationships. The GDP is simply a measure of the country's aggregate rate of production of final goods and services over a specified period. (It is from changes in GDP that we calculate the national rate of economic growth that is so often cited by politicians). The millions of commodities included in the GDP may be classified in various ways.

A widely used system of classification distinguishes between consumption goods and services, C (which includes such things as food, clothing, cars, refrigerators and haircuts purchased by households); private sector investment goods, (which includes such things as plant and equipment and inventories purchased by the business sector, as well as residential housing purchased by households); goods and services purchased by the government sector, G; and net exports, NX (the difference between exports and imports of goods and services). We may consider net exports a proxy for the balance of current account in the balance of payments.

On this basis, then, it can represent the (real) GDP for any period as a sum of these components:

$$\mathbf{GDP = C + I + G + NX..... (1)}$$

The process of production generates not only a flow of outputs of goods, but also a flow of incomes to those participating in the process. Since, in general, every Dinar of production generates a Dinar of income, it follows that the real GDP of a country reflects a corresponding flow of aggregate real income in that country.

The incomes received by households may be categorized into the part that they spend on consumption goods, the part that they save, and the part that they are required to pay in taxes. Thus aggregate income may be represented as a sum of consumption (C), saving (S) and taxation (T). Bearing in mind that we can represent aggregate income by GDP, we can summarize the components of income as:

$$\mathbf{GDP = C + S + T..... (2)}$$

Now it may combine the definitions of aggregate output and aggregate income in equations (1) and (2), to get:

$$\mathbf{C + I + G + NX = C + S + T..... (3)}$$

This may be rearranged as:

$$\mathbf{I = S - (G - T) - NX (4)}$$

This important national accounting relationship gives us the key to much of the discussion in 'The Paradox of Thrift' concerning the macroeconomic significance of the national saving rate. For it defines, in the three terms on the right hand side, the sources of saving from which aggregate investment can be financed.

The first is domestic private sector saving, S (that is, saving by households and business enterprises). The second is public sector saving, represented by the government budget deficit, or the difference between government expenditure and tax revenue, (G-T).

The third source of saving is the foreign sector. By the logic of our international economic relationships any net borrowing from the rest of the world implies a corresponding current account deficit. Thus the utilization of foreign saving is represented here by net exports, NX. It is important to note that, in principle, any of these saving flows may be positive, zero, or negative.

1.2. Saving, Investment and Foreign Debt

It is clear now that some of the confusion about the relationship between saving and investment derives from the fact that there are several kinds of saving to be taken into account. Total saving is made up of a domestic component and an international component, either of which may be positive, zero or negative. Domestic, or national, saving comprises the saving of the private sector, S, and the saving of the government sector (G-T).

If the government sector is in deficit, as in Australia it typically has been over the period since the Second World War, then the government is Dis-saving and contributing negatively to aggregate domestic saving. It can see then that under those conditions if indeed the national saving rate is thought to be too low, the government itself must share the responsibility for this, and any attempt to correct the problem can have important budgetary implications.

2. Definition of Saving (from the Concise Encyclopedia of Economics)

Saving means different things to different people, to some it means putting money in the bank. To others it means buying stocks or contributing to a pension plan. But to economists, saving means only one thing—consuming less in the present in order to consume more in the future.

3. Definition of Investment (from the Concise Encyclopedia of Economics)

Although in general parlance investment may connote many types of economic activity, economists normally use the term to describe the purchase of durable goods by households, businesses, and governments. Private (nongovernmental) investment is commonly divided into three broad categories: residential investment, which accounts for about a quarter of all private investment (25.7 percent in 1990); nonresidential, or business, fixed investment, which accounts for most of the remainder; and inventory investment, which is small but volatile. Indeed, inventory investment is often negative (it was in 1990, and in three years during the eighties). Business fixed investment, in turn, is composed of equipment and nonresidential structures. Equipment now makes up over three-quarters of business investment.

4. Literature Review

- 4.1.** Cyril Ayetuoma Ogbokorm, Oscar Andiya Musilika (2014): **Investigating the Relationship between Aggregate Savings and Investment in Namibia: A Causality Analysis**, Research Journal of Finance and Accounting, Vol.5, No.6.

The discussion concerning the link between savings and investment in the literature is quite extensive. Most of the past studies concerning this relationship are cross-sectional in nature. The obvious difficulty with such studies is the homogeneity assumption that is usually made across the countries under investigation. Therefore, country specific studies are necessary to shed light on the savings-investment nexus. For Namibia, such studies are very scarce. In light of this, the study tried to fill this gap in some ways by attempting to investigate the causal relationship between savings and investment in Namibia using relevant econometric techniques. The evidence arising from the study suggests that, savings and investment are not co integrated. In other words, there is no reason to suspect either a long-run or equilibrium relationship between these two variables. This could also be interpreted to imply the existence of high capital mobility. Furthermore, a unidirectional causal relationship between savings and investment in Namibia running from savings to investment was observed. In light of these results, some policy measures were put forward.

- 4.2.** Imoughelle, Lawrence Ehikioya. (2014): **An Econometric Analysis of the Determinants of Private Domestic Savings in Nigeria (1981 -2012)**, International Journal of Humanities and Social Science, Vol. 4 No. 5.

This paper empirically evaluates the determinant of private savings in Nigeria (1981- 2012). The study used co integration and Error Correction Mechanism to determine the relationship between private savings and internal and external factors. The result was robust. Our results show that income per capital, inflation rate, term of trade and financial deepening are significant determinants of private savings in Nigeria. The study recommended that there is need for proper financial market development and government should retain tight monetary and fiscal policies in order to fight inflation in the Nigerian economy. Finally, Government expenditure should be tied to specific viable economic projects in the economy. All non-viable projects should not be sourced through deficit financing and adequate machinery should be put in place by all sectors of government to arrest corruption and penalize those perpetrate it. This will make fiscal policy to have positive and significant impact on private savings in Nigeria.

- 4.3.** Victor E. Oriavwote, Dickson O. Oyovwi (2013): **Modeling Private Investment Behavior in Nigeria: A Co integration Approach**, Accounting and Finance Research Vol. 2, No. 3;

This study was aimed at investigating the behavior of private investment in Nigeria. Using data covering the period between 1980 and 2011, the result of the parsimonious ECM indicates that the huge government expenditure on infrastructure has been beneficial to private investors in Nigeria. The result also indicates that private investment has been influenced by the international competitiveness of Nigeria as indicated by the significance of the Real Effective Exchange Rate. The high rate of inflation has however been detrimental to the development of private

investment in Nigeria. The Johansen co integration test supports the existence of a long run relationship among the variables and the negatively signed and significant ECM insinuates a satisfactory speed of adjustment. Government should thus intensify efforts to tackle the high rate of inflation and further increase the competitiveness of the economy.

- 4.4. Kalu Ebi Uma, Joseph Chukwudi Odionye, Hyacinth N. Aniagolu, Ezeoke C Obiora (2014): **AN INVESTIGATION OF THE EFFECTS OF INVESTMENT AND SAVINGS IN NIGERIA ECONOMY**, 8-10 September 2014- Istanbul, Turkey Proceedings of SOCIOINT14- International Conference on Social Sciences and Humanities.

The study examined the influence of investment and saving in Nigeria economy using time series data ranging from 1980-2012. Augmented Dickey-Fuller test was used to ascertain the time series property of the data. Based on the order of integration, long run relationship was tested using Johansen co integration. Vector error correction model was employed in the data analysis. Impulse response function was used to trace the transmission of periodic shocks between gross domestic product (GDP) and savings, investment and foreign direct investment while Cholesky forecast error variances decomposition was used to forecast error variance decomposition between gross domestic product and savings, domestic investment and foreign direct investment (FDI). The results revealed, among others that the response of GDP to savings is oscillatory implying that there is no definite pattern of response of GDP to savings in Nigeria; FDI and savings seem to be the driving force behind GDP variance in Nigeria, and savings and domestic investment have long run positive and significant impact on the Nigerian economy while unexpectedly, FDI has negative but insignificant impact on the economy. Consequently, among the recommendations made were: inflation adjusted interest rate policy should be put in place in order to reduce the cost of borrowing and thus increase investment in the country and there is the need for proper maintenance of restrictive monetary, fiscal, and exchange rate policies.

- 4.5. Dennis Tao Yang (2012): **Aggregate Savings and External Imbalances in China**, Journal of Economic Perspectives—Volume 26, Number 4—fall 2012—Pages 125 146.

The high savings and investment rates in China have been a major driving force behind its rapid economic growth. During the 1980s and 1990s, behind its rapid economic growth, During the 1980s and 1990s, China's high savings rates in the range of 35 – 40 percent of GDP were not china's high savings rates in the range of 35–40 percent of GDP were not accompanied by external imbalances; its current account balance fl accompanied by external imbalances; its current account balance fluctuate within actuated within 2 percent of GDP in most of the years. However, starting around 2001, China's percent of GDP in most of the years. However, starting around 2001, China's already high savings rate soared further, and the current account surplus also raised already high savings rate soared further, and the current account surplus also rose along a steep trajectory. In 2008, China's aggregate savings rate reached 53 percent long a steep trajectory. In 2008, China's aggregate savings rate reached 53 percent of GDP, whereas the current account surplus exceeded 9 percent of GDP. Although f GDP, whereas the current account surplus exceeded 9 percent of GDP, although the current account surplus moderated during the current account surplus moderated during the financial crisis, it remained at financial crisis, it remained at a lofty 5.2 percent of GDP in 2010.

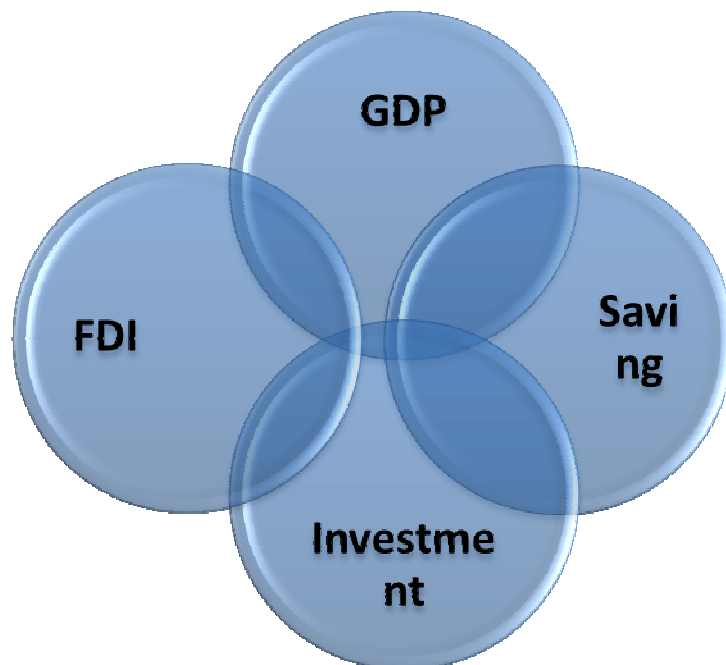
- 4.6. Ahmed Salami, Mohammed Sheikhi (2013): **Causality Testing and Co-integration between Savings and Investment** in the Algerian Economy during (1970-2011), Journal of researcher, Vol 13, 2013, PP: 121-134.

This Study aimed to examine the relationship between the savings rate and the investment rate in the Algerian economy during the period (1970-2011). In order to improve whether the time-series variables stable or not, it is required the use of certain statistical tools, in addition to the unit root tests, were also identified integration rank each variable separately. It turns out that the variables integrated first-class, and in the light of this, Co-Integration test was used for each of the joint method Engle - Granger and Johansen method, in addition to our use of the methodology of Granger causality, in order to verify the existence of a long-term relationship between the two. It was evident from the analysis the lack of equilibrium relationship between savings and investment in the Algerian economy during the period of the study. The probably explanation for this is due to the nature of the national economy, which is heavily based on the hydrocarbon sector as a major source of the national income and the foreign exchange, and lack of diversity of economic activity and the structure of exports on one hand, and to weakness capacity of the national economy on the other.

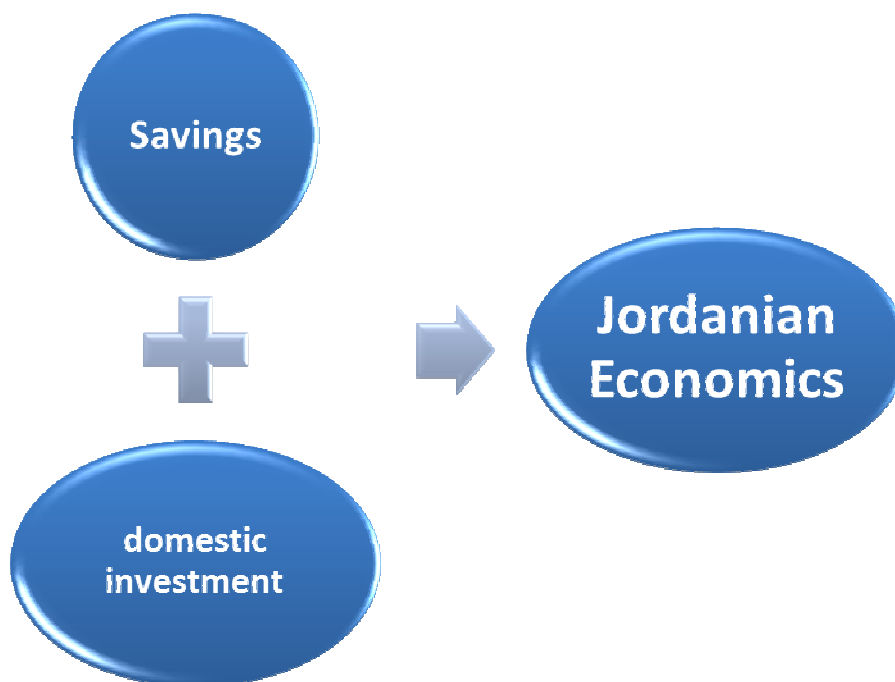
5. Data and methodological Issues

5.1. The study hypotheses:

- The 1st Hypothesis: there is no relationship between GDP, savings, investment and FDI in Jordan.



- The 2nd Hypothesis: there is no effect in the long run for the Savings and domestic investment on the Jordanian Economics.



5.2. Methodology:

Annual data series from 1990 to 2014 have been used. These series were sourced from Central Bank of Jordan Statistical Bulletin (2014). To fully explore the data generating process, examine the time series properties of the model variables using Augmented Dickey-Fuller (ADF) test in a regression with a drift:

The ADF test regression equations with constant are:

$$\Delta \text{GDP}_t = \alpha_0 + \alpha_1 * \text{GDP}_{t-1} + \sum_{j=1} \alpha_j \text{GDP}_{t-1} + \epsilon_t \dots\dots\dots (5)$$

$$\Delta \text{SAV}_t = \beta_0 + \beta_1 * \text{SAV}_{t-1} + \sum_{j=1} \beta_j \text{SAV}_{t-1} + \epsilon_t \dots\dots\dots (6)$$

$$\Delta \text{INV}_t = \gamma_0 + \gamma_1 * \text{INV}_{t-1} + \sum_{j=1} \gamma_j \text{INV}_{t-1} + \epsilon_t \dots\dots\dots (7)$$

$$\Delta \text{FDI}_t = \lambda_0 + \lambda_1 * \text{FDI}_{t-1} + \sum_{j=1} \lambda_j \text{FDI}_{t-1} + \epsilon_t \dots\dots\dots (8)$$

Where Δ is the first difference operator, ϵ_T is random error term. In equations (5) through (8), where: $\alpha_i \neq \beta_i \neq \gamma_i \neq \lambda_i < 1$ (level stationary). The long run equilibrium relationship between savings, investment and economic development was investigated using Full Information Maximum Likelihood (FIML) Multivariate Johansen co-integration procedure. The Johansen co-integration test is given as:

$$Y_t = A_1 Y_{t-1} + \dots + A_p Y_{t-p} + B X_t + \epsilon_T \dots\dots\dots (9)$$

Where Y_t is a vector of non stationary $I(1)$ variables; X_t is a vector of deterministic variables and ϵ_T is a vector of innovations, and may rewrite this as in VAR form as:

$$\Delta Y_t = \pi Y_{t-1} + \sum_{j=1} \alpha_j Y_{t-p} + A_p Y_{t-p} + B X_t + \epsilon_T \dots\dots (10)$$

The Vector Autoregressive (VAR) model was employed. The choice of a VAR model to be transformed into a vector error correction mechanism (VECM) is made because it is one of the models that are not vulnerable to simultaneity bias. It offers an easy solution in explaining, predicting and forecasting the values of a set of economic variables at any point in time. It has the ability to test for weak exogenous and parameter restrictions. It also assumes there is no priory direction of causality among variables. A good attribute of the VAR model is that it obviates a decision as to what contemporaneous variables are exogenous with only lagged variables on the right-hand, and all variables are endogenous.

6. Empirical Results and Discussions

6.1. Augmented Dickey Fuller (ADF) Test:

In this study, the Augmented Dickey Fuller (ADF) unit root test was used to test for the time series properties of model variables.

The null hypothesis is that the variable under investigation has a unit root against the alternative that it does not. The decision rule is to reject the null hypothesis if the ADF statistic value exceeds the critical value at a chosen level of significance (in absolute term). These results are presented in table (1) below.

Table (1) Unit Roots Test Result

Variable	ADF statistics			ADF statistics		
	Level	Critical values		1st difference	Critical values	
SAV	-0.2217	1%	-4.3341	-4.5521	1%	-4.3341
		5%	-3.6652		5%	-3.6652
		10%	-3.5562		10%	-3.5562
INV	-0.08543	1%	-4.5783	-4.7651	1%	-4.5551
		5%	-3.7745		5%	-3.7665
		10%	-3.5762		10%	-3.5341
FDI	-2.1753	1%	-4.6784	-5.7761	1%	-4.6793
		5%	-3.5866		5%	-3.5871
		10%	-3.5891		10%	-3.5895
GDP	0.1734	1%	-4.6822	-4.8861	1%	-4.6834
		5%	-3.5921		5%	-3.5944
		10%	-3.5993		10%	-3.5998

The results of table (1) above show that all the variables are non-stationary in level form since their ADF values are less than the critical values at 5%, the null hypothesis of a unit root was accepted for all the variables but was rejected in 1st difference. Thus, we conclude that the variables under investigation are integrated of order one. Since the variable are integrated of the same order. And therefore, examine their co-integrating relationship using Johansen co- integration procedure.

6.2. Co-integration Test Result

A necessary but insufficient condition for co-integrating test is that each of the variables be integrated of the same order. The Johansen co-integration test uses two statistics test namely: the trace test and the likelihood Eigen-value test. The first row in each of the table test the hypotheses of no co-integrating relation, the second row test the hypothesis of one co-integrating relation and so on, against the alternative of full rank of co-integration. The results are presented in table 2 below. Table 2: Co-integrating Test Result between the Variables: GDP SAV INV FDI

Table (2) Co-integration Test Result

Eigen value	Likelihood Ratio	5% critical value	1% critical value
0.88501	95,236	48.22	53.21
0.50172	27.661	30.69	35.69
0.18831	6.2210	16.44	21.43
0.00573	0.1917	3.760	8.670

Interpretation of co-integrating results from table (2) above, the likelihood statistics indicates the presence of one co integrating equation at 1% significance level which implies that savings (SAV), investment (INV), FDI and GDP are co-integrated. This shows that there is a long-run relationship between savings, investment, FDI and GDP in Jordan.

Result: the researcher Reject the 1st Null Hypothesis: there is no relationship between GDP, savings, investment and FDI in Jordan & Accept that there is relationship between GDP, savings, investment and FDI in Jordan

6.3. Vector Error Correction Model (VECM) Result

Since there is co-integration, the vector error correction model (VECM) is estimated. The results are presented in table (3) below:

Table 3 Variables included in the VECM: GDP SAV INV FDI

Variable	α 's	ECM
GDP	1.0000	-(0.568)
SAV	8.6541	-(3.778)
INV	11.845	
FDI	-(22.765)	
C	515401.1	

And after Interpretation the VECM result above the researcher can formulates the equation below:

$$\text{GDP} \cdot 1 = 515401.1 + 8.6541 \cdot \text{SAV} + 11.845 \cdot \text{INV} - 22.765 \cdot \text{FDI}$$

From equation above, the VECM result shows that there is a significant positive long-run relationship between savings (SAV) and gross domestic product (GDP) suggesting that an increase in savings impacts positively on gross domestic product (GDP) in Jordan. Specifically, one JD increase in domestic savings will lead to about 8.65 JD rise in Jordanian GDP. This is in line with “a priori” expectation implying that increase in savings will boost capital formation in the country which in turn will enhance investment and thus increase in national income.

Similarly, domestic investment has positive and significant impact on the Jordanian economy by GDP. This suggests that an increase in domestic investment will lead to increase in GDP in the country; one JD increase in investment will increase GDP by 11.84 JD. This is consistent with theory postulates. But FDI has a negative but insignificant impact on GDP in Jordan. This is inconsistent with economic theory but suggests that activities of foreign investors in the host country have adverse effect on the economy. This is in line with many studies on FDI on economic growth.

Result: the researcher Reject the 2nd Null Hypothesis that there is no effect in the long run for the Savings and domestic investment on the Jordanian Economics, and Accept that there effect in the long run for the Savings and domestic investment on the Jordanian Economics

7. Conclusion

The main findings in this study were: Johansen co-integration test result shows evidence of co-integration implying that there is a long run relationship between GDP and savings, investment and FDI in Jordan. Savings and domestic investment have long run positive and significant impact on the Jordanian economy while FDI has negative but insignificant impact on the economy.

The study investigated the causal relationship between savings and investment in Jordan in the growth and development of Jordan over the years (1980 -2013). The degree of investment in any economy really affect on the extent of saving. Savings and investments are imperative for development given that they play significant role in bringing about capital required to increase production process, harnessing and transforming the resources of the country. It is obvious that the level of saving required to raise enough capital for investment is yet to be achieved due to myriad of bottlenecks, among which includes improper mobilization of saving by the banking sector, poor banking habits of many Jordanian, insecurity of lives and property which have for sometime retarded smooth economic operation and consequently low income generation, which in turns adversely affect capital accumulation. Although, the study shows a significant impact of saving and investment at the period of study, but more is expected to be achieved if and only if most of the difficulties in the environment are sufficiently controlled.

8. References

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9. Appendix

9.1. Appendix (A) : Data Collected:

Series Name	GDP	INV	FDI	SAV
Series Code	NY.GDP.MKTP.CD	NE.GDI.TOTL.ZS	BX.KLT.DINV.CD.WD	NY.GDS.TOTL.CD
1980 [YR1980]	3909708819	37.17376374	33830643.46	-302760761.9
1981 [YR1981]	4384247336	46.02747291	140813771.7	-388883676.9
1982 [YR1982]	4680673604	39.44481484	59432045.57	-665830713.9
1983 [YR1983]	4920692191	33.01242584	34864661.93	-616394779.1
1984 [YR1984]	4967162160	29.91045714	77487832.89	-524365026.7
1985 [YR1985]	4993512829	21.05309898	24948927.46	-776268609.4
1986 [YR1986]	6402001909	19.83425003	22754208.38	-345796448.8
1987 [YR1987]	6756417469	22.55015731	39498588.02	-141316082.6
1988 [YR1988]	6277331602	22.66195088	23731746.2	89649257.8
1989 [YR1989]	4221121314	23.23597989	-1349805.313	206334758.2
1990 [YR1990]	4159928734	30.7966779	37646775.31	42329534.5
1991 [YR1991]	4344467193	24.96619337	-11887398.04	107950756.8
1992 [YR1992]	5311188450	33.47604565	40722566.98	122091395.1
1993 [YR1993]	5606237931	36.6270514	-33548530.15	381852682.5
1994 [YR1994]	6237650243	33.29273195	2854731.793	666572645.1
1995 [YR1995]	6727446669	32.96359758	13308089.21	795376708.3
1996 [YR1996]	6928359295	30.52395958	15514809.59	362059292.7
1997 [YR1997]	7244402975	25.73262284	360930888.6	250775854.2
1998 [YR1998]	7910621093	21.82350989	310014104.4	184767496.3
1999 [YR1999]	8147494329	21.57475343	157968970.4	301525204.5
2000 [YR2000]	8457923945	22.36867598	913258110	-367415597.6
2001 [YR2001]	8972965061	21.06246465	273628171.3	-357917034.1
2002 [YR2002]	9580161951	20.10067827	238222874.7	84195770.12
2003 [YR2003]	10193023726	20.845483	546967559.9	-14762060.61
2004 [YR2004]	11407566660	27.39390467	936812411.8	-330044863.9
2005 [YR2005]	12588665456	34.14914173	1984485190	-925479418.8
2006 [YR2006]	15056937136	28.34000584	3544005642	-852045144.3
2007 [YR2007]	17110609939	30.26767933	2622144779	-1241607913
2008 [YR2008]	21971835283	29.89467699	2826744496	-244046780.3
2009 [YR2009]	23818322958	26.30180092	2413098592	738450704.2
2010 [YR2010]	26425379437	24.02105394	1650845070	850753239.4
2011 [YR2011]	28840263380	25.45404417	1473521127	-216310563.4
2012 [YR2012]	31015239545	26.89721995	1497323944	-347634400
2013 [YR2013]	33678500148	28.03447387	1798450704	-270004475.6

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