

The Causal Relationship between Sales Tax Revenue and Economic Growth in Jordan

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Abstract

This study aims to examine the causal relationship between economic growth and General sales tax revenue in Jordan using the Granger methodology in order to determine the direction of relationship between the two variables during the period 1998-2015. We use the Johansen cointegration technique proven to be superior to the Engle and Granger approach in assessing the cointegrating of variables. Result of the test shows that there is cointegrating relationship between General sales tax revenue and economic growth for Jordan data. Thus, we find long-run relationship between General sales tax revenue and economic growth. Furthermore, causality is going from the General sales tax revenue to economic growth, and not vice versa. Based on the outcome of causality tests, changes in General sales tax revenue help explain the changes that in economic growth

Keywords: The Causal Relationship, General Sales Tax Revenue, GDP, Granger, Co-integration, Jordan, Economic Growth.

I. Introduction:

Economic growth is one of the most important determinants of economic welfare. The relationship between tax revenue and economic growth is a frequent topic of discussion. Also, tax is a sustainable source of revenue for government and a tool for fiscal policy and macro-economic management. It is a potential tool for economic and social reform as it pervades all aspect of the economy, individual, companies, citizens and foreigners (Eugene and Abigail 2016).

As many of the developing countries including Jordan rely on foreign aids and loans to finance their public expenditures, especially to cover the budget deficit and pay for debts. So, in light of the effects of the global financial crisis and what ails the Arab countries seem that Jordan and the other countries need to rely more on its own domestic revenues, particularly taxes.

Structure of Domestic Revenues in the Budgetary Jordanian Government for the year 2015 consist of General Sales Tax by 47.0%, Taxes on Income & Profits by 14.5%, Taxes on International Trade & Transactions by 5.6%, Other Tax Revenues by 2.2%, Revenues from Selling Goods & Services by 14.4%, Pension Contributions by 0.3% and Other Revenues by 16.0% (Central Bank of Jordan, 2015). We find that General Sales Tax Revenues occupy great importance in the Structure of Domestic Revenues of Jordan.

From the above, the importance of this study can be summarized in that it combines one of the most important components Structure of Domestic Revenues to the Jordanian Government (general sales tax revenues) and one of the most important economic goals (economic growth).

The study aimed to examine the relationship between General sales tax revenue and economic growth in a small developing Economy, Jordan. To achieve this, the study was structured into 3 sections: section I deals with the Hypothesis and Previous studies; section II discusses General sales tax revenue in Jordan; while methodology and analysis of results, conclusion and recommendations are presented in section III.

I.1 Previous Studies

Several studies discuss the importance of tax revenue on economic growth. We summarize some of these studies that addressed the issue of causality between tax revenue and economic growth as follows:

Chigbu, et al., (2012) examined the causality between economic growth and taxation in Nigeria for the period 1970-2009. The data were analyzed using relevant econometric models such as Augmented Dickey-Fuller, Diagnostic Tests, Granger Causality and Johansen Co-integration. The results from the econometric analysis revealed that taxation as an instrument of fiscal policy affects the economic growth and taxation granger cause economic growth of Nigeria. On the basis of the econometric result, the study concluded that taxation is a very important instrument of fiscal policy that contributes to economic growth of any country. On the basis of the conclusion useful recommendations were provided that will improve the generation of revenue from taxation that would stimulate the economy of Nigeria positively.

Canicio and Zachary (2014) attempted demystify the mystery surrounding the belief that, high tax revenue growth rates is a prima facie and a leading indicator for high standards of living as a result of high economic growth rates engineered through the government multiplier process. The effects of economic growth on government tax revenue growth were investigated for Zimbabwe during the period of 1980-2012. Short-run and long-run relationship between the tax revenue and economic growth in Zimbabwe were also investigated. Theoretically and empirically it has been found that taxes affect the allocation of resources and often distort the economic growth. The study applied the Granger Causality test, Johansen's Co- integration test and vector error correction model to serve the purpose. This study clearly showed that there is an independence relationship between economic growth and total government tax revenue with 30% speed of adjustment in the short run towards equilibrium level in the long run. This implies that there is fiscal independence between tax revenue and growth. The empirical analysis also provides the evidence of long-run equilibrium relationship. Based on the findings, they highlighted some of major issues that policymakers should consider for effective taxation policy formulation and implementation in line with the complexity nature of the Zimbabwe economy. Therefore, the outlook was that the economists and policy makers should suggests an ideal, efficient and buoyant tax system so that gross tax revenue of the government would increase substantially thereby leading to optimum mobilization of resources for higher economic growth of the country. This can only be achieved through efficient allocation of collected tax revenue to production sectors of the economy to try to achieve distributive principle through societal welfare maximization.

Iriqat and Anabtawi (2016) aimed to investigate the causality relationship between Gross Domestic Product and its components with Tax revenues in developing countries as a case study Palestine during (1999 - 2014). The findings exposed mainly that the tax revenues does not Granger Cause each of the Palestinian Gross Domestic Product, Government spending, Consumption, Investment and Balance of trade. Moreover, results shows that the impact of macro-economic variables on tax revenues and correlations between dependent and independent variables was changing from one stage to other. The study concludes that the Palestinian authority should motivate investment conditions and improve the tax collection instruments and decrease the tax invasion. In addition, Palestinian government should rationalize the government consumption spending and increase the government expenditure for the development. In Munir and Sulatn (2016) study, an attempt has been made for analyzing the impact of taxes on economic growth of Pakistan for the period 1976 to 2014.

They had disaggregated taxes into direct and indirect tax. Indirect tax had further disaggregated into five categories (excise duty, sales tax, surcharges, tax on international trade and other taxes). By applying autoregressive distributive lag framework, study confirmed the existence of long run relationship between taxes and real GDP of Pakistan. Results indicate that in the long run direct tax, taxes on international trade, sales tax and other indirect taxes had positive and significant impact on real GDP. However, in the short run sales tax, tax on international trade and other tax had positive relationship, while excise duty has negative relation with real GDP of Pakistan. The results confirmed that direct tax, sales tax and tax on international trade are pro-growth taxes. Government should increase direct taxes as they have positive and significant impact on economic growth in the long run.

I.2 Hypothesis

The first hypothesis: Assume that the changes in General sales tax revenue help explain the changes that occur in the economic growth.

The second hypothesis: Assume that the changes in economic growth help explain the changes that occur in the General sales tax revenue

II. General Sales Tax in Jordan

In Jordan the General sales tax started on a narrow scale as government tax in 1926 then consumption tax and then sales tax in its first stage in 1994 which included the importer and the manufacturer, the sales tax in its second stage which added the remaining trading episodes in 2000, then developed into its current form as a sales tax which became into effect on 1-1-2001 under Law No. (36) for the year 2000. Amendments were made to the law in the year 2009 under Temporary Law No. (29) for the year 2009 (Ministry of Finance, Chapter : 1506).

The rates of General sales tax are:

- 16% as a general rate for goods and services
- 4% for specified agricultural products, fruits, meat, vegetables and live animals
- zero rate for a list of specified products like energy-saving products and pharmaceutical industry inputs (Ministry of Finance, 2016).

A government initiative to promote industrial growth provides sales tax exemption and defers the payment of the tax payable on goods and services at importation. Export sales and trading within qualified Free Zones are sales tax exempted transactions in Jordan (PKF Worldwide Tax Guide, 2013).

III. Data and Methodology

III.1 Data

The data used for this study are basically time series data for Jordan covering the period 1998- 2015. The two economic variables included in this study are the General sales tax revenue of goods and services GS and the Real Gross Domestic Product at Market Prices (GDP) is an indicator to measure economic growth. Data were sourced from The Central Bank of Jordan. It is worth mentioning that we used natural logarithm of the data.

Table 1: GDP & General Sales Tax revenue in period 1998-2015

Year	General Sales Taxes	GDP
1998	350.3	5026.7
1999	372.5	5198.
2000	464.5	5998.6
2001	502.7	6363.7
2002	510.7	6794.
2003	596.3	7228.8
2004	827	8090.7
2005	1023.4	8925.4
2006	1219.1	10675.4
2007	1464.5	12131.4
2008	1671.6	15593.4
2009	1682.5	16912.2
2010	1987.3	18762.
2011	2033.2	20476.6
2012	2274.7	21965.5
2013	2532.9	23851.6
2014	2811.4	25437.1
2015	2780	26637.4

From Figure1 shows us that the General Sales Tax revenues have risen dramatically. Since nineties with an average amount of 1395JD million as a result of the continuous changes in the General Sales Tax law, which we mentioned earlier.

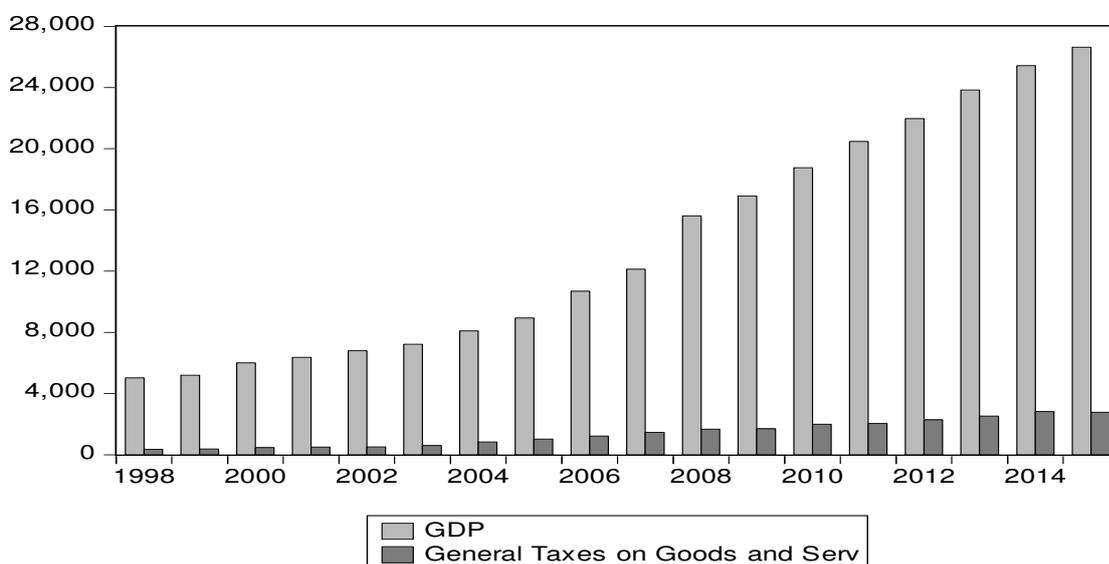


Figure 1: General Taxes on Goods and Service & GDP

The total general sales tax revenues in 2015 amounted to 2780 JD million distributed as follows: 1031.6 JD million from Sales Tax on Imported Goods, 598.6 JD million from Sales Tax on Domestic Goods, 447.3 JD million from Sales Tax on Services and 702.5 JD million from Sales Tax on Commercial Sector show figure 2

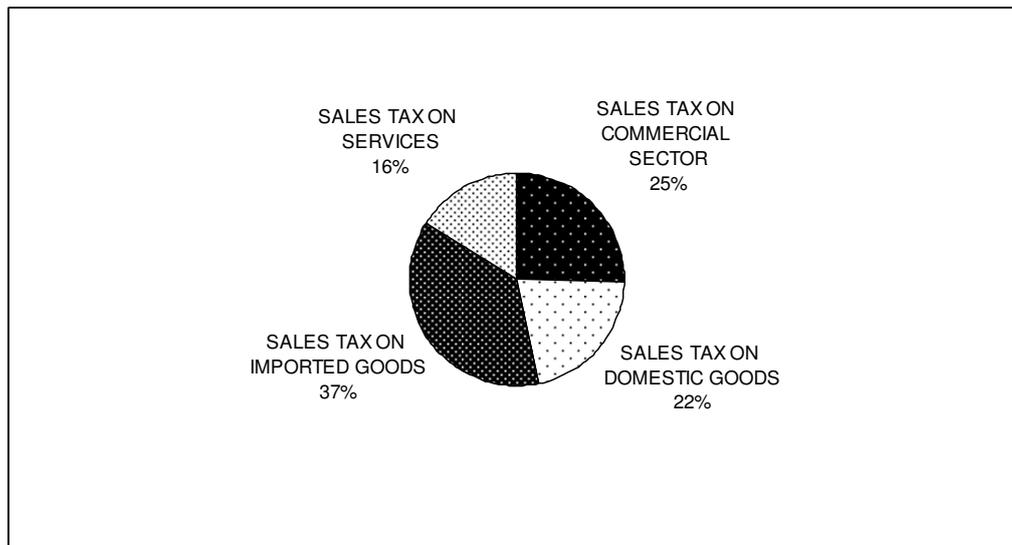


Figure 2: General Taxes on Goods and Service in 2015

III.2 Descriptive analysis of the variables of the study

Table (2) shows descriptive statistics for the variables of the study, the table shows that the variables do not far from the normal distribution using the test (Jarque-Bera), and to accept the null hypothesis that the data follow a normal distribution. As shown us from the results of the sprain values and through review of mean and median values, we find its close, so this indicating the absence of sharp fluctuations in the fluctuation of the economic growth data. In the other hand the general sales tax revenue is not normal distribution using the test Jarque-Bera .

Table (2): Descriptive Analysis

	GS	GDP
Mean	1394.700	13670.47
Median	1341.800	11403.40
Maximum	2811.400	26637.40
Minimum	350.3000	5026.700
Std. Dev.	861.7938	7584.911
Skewness	0.284699	0.405698
Kurtosis	1.704543	1.664102
Jarque-Bera	1.501818	1.832241
Probability	0.471937	0.400068
Observations	18	18

III.3 Method

For the analysis of causal relationship between the General sales tax revenue and economic growth we used the following steps, first, The Unit Root Test was tested by using the Augmented Dickey-Fuller (ADF). Second, Cointegration was testing for the existence of a long-run equilibrium relationship between General sales tax revenue and economic growth. Third, Granger causality test was utilized to determine the directional causality between variables.

III.4 The Unit Root Test

Macroeconomic time series data are generally characterized by a stochastic trend which can be removed by differencing. Some variables are stationary on levels, others become

stationary after one differentiation, and some may become stationary by more than one differentiation. To test for the stationary of the variables, the Augmented Dickey-Fuller (ADF) technique was utilized. The ADF equation was performed for the case when it includes intercept only in addition to the case when it includes both intercept and time trend.

Table 3 reports the results of the unit root tests. The results indicate that both variables, ln(GS) and ln(GDP), are not stationary on their levels. In other words, they have a unit root. Then, we repeated the unit root test for the first difference for both variables. The results point out that the ln(GS) and ln(GDP) became stationary after the first difference. Since the computed absolute values are greater than the critical absolute values at a 5% level of significance, the null hypothesis of nonstationary variable can be rejected. This implies that these variables are integrated of order one or I(1),

Table 3: Augmented Dickey-Fuller Test (with intercept only)

Variable	Critical values 1%	Critical values %5	Level	First difference
			ADF	ADF
ln(GDP)	-3.8	-3.05	-0.3	-3.45
ln(GS)	-3.9	-3.06	-1.3	-2.98

III.5 Cointegration

If the time series (variables) are non-stationary in their levels, they can be integrated with integration order 1, when their first differences are stationary. These variables can be cointegrated as well, if there are one or more linear combinations among the variables that are stationary. If these variables are being cointegrated, then there is a constant long-run linear relationship among them (Anastassiou, 2005). The Johansen cointegration test is used and the results are as presented below.

Table 4: Johnson Cointegration Test
 Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.768415	28.26245	20.26184	0.0032
At most 1	0.261841	4.857546	9.164546	0.2994

The findings for trace and maximum Eigen value cointegration tests are presented in Table 4. These findings show both trace statistic and maximum Eigen value statistic indicated there is cointegration at the 1% level of significance, suggesting that there is long run relationship between General sales tax revenue and Economic Growth. Since the null hypothesis was rejected, we can examine the causality between variables.

III.6 Granger Causality Test

The Granger causality test was developed by Granger and according to him, a variable (in this case General sales tax revenue) is said to Granger cause another variable (GDP) if past and present values of sales tax revenue help to predict GDP.

A simple Granger causality test involving two variables, General sales tax revenue and GDP is written as:

$$GDP_t = \sum_{i=2}^n \alpha_i GS_{t-i} + \sum_{j=1}^n \beta_j GDP_{t-j} + U_{1t}$$

$$GS_t = \sum_{i=2}^n \eta_i GS_{t-i} + \sum_{j=1}^n \delta_j GDP_{t-j} + U_{2t}$$

Testing null hypothesis: $H_0: \alpha = 0$, this hypothesis mean that General sales tax revenue does not Granger cause economic growth against the alternative hypothesis $H_1: \alpha \neq 0$, this hypothesis mean that General sales tax revenue does Granger cause economic growth.

Similarly, testing $H_0: \delta = 0$, this hypothesis means that economic growth does not Granger cause General sales tax revenue against $H_1: \delta \neq 0$, which means that GDP does Granger cause GS.

The below table show that there is a causal relationship between General sales tax revenue and economic growth but in one direction so that changes in General sales tax revenue have effects on economic growth and not vice versa, where tests showed causal there was no effect of changes in economic growth on General sales tax revenue.

Table 5 Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
GDP does not Granger Cause GS	16	1.23785	0.3274
GS does not Granger Cause GDP		10.3620	0.0030

This means that an increase or a decrease in the General sales tax revenue can affect and causes economic growth at 1% significant level. On the other hand, economic growth does not seem to Granger Cause General sales tax revenue. This suggests that information about economic growth in past periods cannot explain the behavior of General sales tax revenue in the present time.

IV. Conclusion

This paper has examined the role of General sales tax revenue in the economic growth process in Jordan using causality tests for data over the period 1998 to 2015. Granger causality was applied to test the causal relationship between General sales tax revenue and economic growth. The results show that there is evidence of uni-directional causality between General sales tax revenue and economic growth in Jordan and the direction of causality runs strictly from General sales tax revenue to economic growth. Finally, for the case of Jordan this paper lifts a suggestion for policy makers that the general sales tax substantially affect the economic growth and must do more detailed studies on the relationship between the General Sales Tax rates and economic growth in Jordan.

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