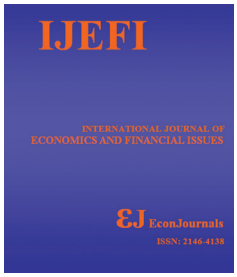

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Components of the Public Budget and their Effects on Public Debt in Jordan

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ABSTRACT

This study aims to identify the role of the main components of the public budget for influencing public debt in Jordan through an econometric study. In particular, the EViews 9 program is applied to the annual time series of public debt, current expenditures, capitalism expenditures, taxes, and external grants from 1990 to 2018. Results are related to the data that served as basis of this study and was issued by the Central Bank of Jordan. This study concludes a set of results, including the presence of a positive and moral effect of capital spending on public debt and the presence of a negative and moral effect of taxes on public debt in short and long terms. Results show a positive and significant effect of the current spending on public debt in the short term and a positive, nonsignificant effect in the long term. In addition, a negative, non-significant influence of external grants on public debt in the short term and a negative moral effect in the long term are found. A set of recommendations is presented. First, mechanisms to reduce waste in public budget should be activated, particularly in the area of current expenditures, through addressing administrative sagging in the public sector. Thus, employment is linked to the level of future productivity. Second, corruption and nepotism should be fought against. Third, transparency should be imposed in state departments.

Keywords: Capital Expenditures, Current Expenditures, External Grants, General Budget, Public Debt, Taxes
JEL Classifications: H6, H63, H72

1. INTRODUCTION

Many countries at various levels of their economy, whether developed or developing, seek to borrow in internal and external terms given that the advanced state fail to discourage borrowing. Therefore, a number of developed countries occupy the top position in public borrowing worldwide. For instance, among the 181 countries with available public debt data worldwide, Japan and Greece are considered the highest countries that are registered for public debt in relation to the gross domestic product (GDP) with the amount of 237.13% and 184.85, respectively (IMF, 2018).

The endeavors of governments to borrow funds are multifaceted, including the achievement of comprehensive and sustainable development in all sectors and economic activities and the fulfillment of the deficit in the general budget of several countries. The increase in public debt, particularly as a percentage of GDP, from a reasonable limit would certainly expose the economies of countries to a set of unsustainable negative effects. Thus, these countries may eventually collapse. A set of internal and external factors govern the volume of borrowing in any country. These factors include but are not limited to the economic and political conditions surrounding the country, the level of the economic growth of the country, the amount of revenues and public expenditures of the state, the current account deficit, and the decline in foreign currency reserves and transfers of workers abroad.

The Jordanian state, which is a developing country, had increased its public debt from 6.1017 billion Jordanian dinars in 1990 to 28.3085 billion Jordanian dinars in 2018. The ratio of public debt to GDP had decreased from 221% in 1990 to 94% in 2018.

However, this ratio remained high throughout the study period, given that it has an approximately 106% average during the study period (Central Bank of Jordan).

The aggravation of the Jordanian public debt remains one of the most important economic problems that concern numerous groups of the Jordanian society who are interested in the economic and financial affairs. The public debt problem is a candidate for expansion over time, given the deteriorating economic conditions that have been witnessed by the country. As the level of domestic production declines and growth rates decrease, chronic poverty, high unemployment rate, which reached 18.5%, imbalances in the public budget represented by the increase in current expenditures, fluctuations in grants and foreign aid, and a significant increase in the tax burden have burdened different sectors of the Jordanian society. Therefore, this study focuses on answering the following question. To what extent can the main components of the public budget affect the public debt of the state of Jordan?

2. LITERATURE REVIEW

2.1. Importance

The value of the study lies in the growing problem of public debt, that is, the spiral of public debts in Jordan, whereby its negative effects may be reflected in several aspects. The most notable aspects include the inability to control public debt, considerable challenges in serving the public debt, and economic and political dependence. In addition, the current study is important by determining the vital role of the general budget components for influencing public debt. Hence, the researchers attempt to construct an econometric mode. Based on the aforementioned problem and importance, the study aims to:

1. Clarify the main components of the general budget and its developments in Jordan.
2. Analysis of developments in the public dept in Jordan during the study period.
3. Build an econometric model to exhibit the role of the main components of the general budget for influencing Jordan's public debt during 1990-2018.

2.2. Objectives

To achieve the desired objectives, the study seeks to test the following hypotheses.

Hypothesis 1: Statistically significant current expenditures fail to positively affect the public debt of Jordan.

Hypothesis 2: Capital expenditures lack positive and statistically significant effect on the public debt of Jordan.

Hypothesis 3: Significant amount of tax lacks negative effect on the public debt of Jordan.

Hypothesis 4: Grants and foreign aid lack negative effect on the public debt of Jordan.

The long-standing issue of public debt has been the focus of many economic and financial researchers worldwide, and a number of theoretical and empirical studies pay attention to it. For example, Belguith and Omrane (2017) identified the determinants of public debt at the macroeconomic level in Tunisia and revealed that inflation and investment reduce the value of public debt, whereas the real interest rate, budget deficit, and trade openness increase public debt. Their study also showed that the budget deficit is the most important determinant of public debt in Tunisia. Uguru (2016) confirmed that current and capital government expenditures positively affect the public debt in the Nigerian economy. Thus, public borrowing in Nigeria is due to the government budget deficit. Lau and Lee (2016) investigated Thailand and Philippines and indicated that the inflation index and real interest rate are important determinants of external debt in Thailand in the short term. Moreover, GDP and money supply in the broad sense are the two most important factors that determine external debt in the short term in the Philippines. Cooray et al. (2016) showed that increasing corruption increases public debt, reduces tax revenues, and increases government spending and thus accumulates debt year. Awan et al. (2015) concluded that a positive relationship exhibits a significant effect between the economic variables, namely, fiscal deficit, nominal exchange rate, and trade openness and foreign debt in Pakistan. A positive relationship exists between foreign aid and external debt, but this relationship is insignificant. Swamy (2015) concluded that the growth of debt is due to government J that stems from the macroeconomic determinants. A study of a world sample revealed that GDP Alhakiqia, foreign direct investment growth, government expenditure, and inflation and population growth negatively affect public debt. By contrast, total fixed capital formation, final consumption expenditures, and commercial openness positively affect public debt. Mwikali (2013) concluded that an increase in the budget deficit increases the public debt in Kenya and that an inverse relationship exists between public debt and total grants. Furthermore, a strong relationship exists between public debt and the determinants including budget deficit, total grants, balance payments, and exchange rates. Bittencourt (2013) It revealed that The economic environment that generates prosperity in economic activity is an important factor in keeping public debt ratios under control in the South American region. The study also concludes that economic activity is the only variable that has been able to strongly reduce government and external debt in the South American countries region. Sinha et al. (2011) which was conducted on a sample of countries of the world included 31 countries, revealed that the indicators of actual economic growth, government spending, long-term interest rates, foreign direct investment, and the inflation rate are negatively correlated with total public debt. In addition, the current account and population density are negatively related to total public debt. Al-Morsi (2005) identified the causes of internal and external borrowing and found that the gaps in economic resources and inflation stagnation are among the most important internal causes of borrowing; by contrast, the most important external causes are the global economic recession, the deterioration of trade conditions, and the high rate interests in international financial markets. Tiruneh (2004) showed that the most important factors that compel developing countries toward external borrowing in the 1980s and 1990s are poverty (savings gap), income instability, and external factors including cheek payments of religion and fled the capital. Gartner (2003) and Menize (2005) confirmed the important role of budget deficit in public debt accumulation in addition to the financing of the budget deficit through external borrowing.

With regard to the level of the Jordanian economy, Al-Fawwaz (2016) investigated the presence of a positive moral effect of the terms of trade exchange on external debt in Jordan in the long term and found that a negative effect exists with statistical significance of the variable per capita GDP on the external debt. Bader and Magableh (2009) indicated that the size of the external debt, resource gap, and actual exchange rate influence the public budget deficit, Where its transactions were statistically significant, but the real exchange rate was the most. Fanek (2005) indicated that the size of the Jordanian public debt rose to 3% on average during 2000-2004, which is the same percentage of the budget deficit to the GDP, and concluded a positive relationship between the two. Tarawneh and Abdalrazaq (2002) found that the trend of external public debt tends to increase due to the decrease in domestic savings and the inefficiency in the use of capital. They also emphasized a positive and direct relationship between the budget deficit and the rise public debt in Jordan.

After previous foreign studies related to public debt are reviewed, we find that these studies sought to determine the extent of the influence of various macroeconomic variables on public debt and external debt. In Jordan in particular, we find that the studies of Al-Fawwaz (2016), Bader and Magableh (2009), and Tarawneh and Abdalrazaq (2002) focused on the overall economic factors affecting external public debt. By contrast, Fanek (2005) paid attention to developments in the size of the Jordanian public debt, which was affected by the deficit of the public budget. This study focuses on the effect of the main public budget components, namely, current expenditures, capital expenditures, taxes, and external grants on the Jordanian public debt and designs a standard economic model. This model provides an applied analytical basis that can be guided by financial and economic policy makers in Jordan to deal with the budget components through setting the appropriate policies that limit the exacerbation of public debt.

Public debt is the money owed by the government or the total debt of all government units, including the state and local governments. Public debt is the total financial responsibilities, which include money owed to individuals, mutual funds, hedge funds, pension funds, and foreign governments, among others, of state agencies of any country. This type of debt considers government obligations, future pension payments, and payments for goods and services that the government has contracted and has not yet paid for. Moreover, it is away to fund government operations; governments can also generate funds to settle their debts and thus avoid paying interest. However, the generation of funds will merely reduce the interest rate and will not cancel the debt itself, thereby potentially increasing inflation, No country in the world is without public debt. Rich countries endowed with natural resources have debts because of its several important benefits in relation to the economy. Those benefits include the process of managing liquidity in the economy because short-term debt instruments are used by the government to absorb liquidity from the economy when high inflation occurs. Moreover, debt is an opportunity to provide increased financial liquidity for the government to implement its financial policies and implement its development plans (Manaf, 2017).

Public debt is a basic reference for pricing other investment assets such as corporate bonds, stocks, and real estate, among others. Given that government bonds carry a low risk, the government should pay bond holders regardless of their financial status except from bankruptcy. Therefore, if the interest rate on government bonds is imposed for 90 days at 3% annually, then other assets must be higher than this rate and proportionate to the high risk. Therefore, government bonds are reference to pricing the return on other financial assets. Public debt is a valuable investment opportunity for financial institutions, pension and insurance institutions, specialized lending institutions, and individuals to diversify their investment assets in addition to buying stocks and real estate.

However, a substantial increase in debt is unhealthy for the economy, given that the government will need additional financing and should raise the interest rate on its bonds, thereby inducing the competition of the government in the private sector in the field of borrowing from the banking system. Hence, banks are reluctant to provide loans to projects and investments in the private sector and promote sufficiency through purchasing government bonds, given that they are guaranteed profit and lack risk ratio for them.

The exacerbation of the debt indicates the high burden of debt service in installments and benefits. This circumstance affects the volume of spending on the investment item and on fields of education, health, wages and other areas related to improving livelihoods and meeting the needs of human development in society, thereby harming citizens and their livelihood (Manaf, 2017).

Economists and policy analysts disagree about the consequences of assuming public debt. For instance, Kenyans consider that state intervention is necessary to achieve economic stability and reduce the class gap among members of the society. Kenyans rejected the idea of automatic balance and perceived that balance at the level of full employment is a special and rare occurrence. Therefore, the state should intervene to direct the economy through the fiscal policy of governments (Al-Ali, 2008), particularly with regard to increasing government spending on capital projects in a recession. A government with financial deficit or additional loans will exhibit positive effects on the growth of the economy, thereby increasing tax revenues and reducing the debt-to-GDP ratio (Al-Mefleh, 2019).

Despite the negative consequences that developing countries had to endure from Kenyan policies and the rise in the amount of debt, new ideas have emerged, such as the Monetary School or the Chicago School. Its ideas were based on addressing the accumulated deficit in the budget through reducing public expenditures of a social nature. Economic reform programs are based on a monetary vision toward public loans (Othman, 2008).

Those who follow the standard approach perceive that the balance of the public budget is performed regularly and annually and thus reflects the economic and political philosophy of the state; that is, they consider the balance between public expenditures and public revenues as a goal that must be achieved under all circumstances

(Arthur and Steven, 1998). They perceive that increasing public revenues means increasing the size of government deductions, thereby exhibiting negative effect on the financial revenues and private investments of individuals and consequently on economic activity (Abdullah, 1998).

3. DATA AND METHODOLOGY

3.1. Data

This study uses annual data to analyze the effect of the main general budget components, namely, current expenditures, capital expenditures, taxes, and external grants on the Jordanian public debt from 1990 to 2018. This period enables researchers to accurately obtain data related to the study variables. Moreover, since the beginning of this period, the Jordanian state began to adopt correction programs in cooperation with the International Monetary Fund in 1989 and 1992. The researchers collect study data on the annual reports of the Central Bank of Jordan.

This study also utilizes statistical and descriptive methods to achieve the desired objectives and examine the hypotheses. In this context, the development of public debt and the main components of the public budget in Jordan are traced and the EViews 9 program is adopted to analyze and measure the effects of the main components of the public budget on the public debt of Jordan from 1990 to 2018.

3.2. Model Specification

This section discusses the experimental analytical framework about the effect of the components of the public budget that affect the Jordanian public debt. Based on economic theory and previous studies, the study model was constructed as follows:

$$TD = F (CUEX, CAEX, TAX, EG) \quad (1)$$

whereas TD signifies public debt; CUEX denotes current expenditures; CAEX represents capital expenditures, TAX: taxes, EG: external grants.

To determine the appropriate mathematical formula for the study model, the following formula is adopted:

$$TD = \alpha + \beta 1 CUEXt + \beta 2\ CAEXt + \beta 3 TAXt + \beta 4\ EGt + \varepsilon t \quad (2)$$

whereas α represents the constant of the pattern; β4, β3, β2, β1 are the model parameters; t signifies time period, and εt denotes the random error limit.

The values of these variables are used as percentage of the GDP, which is the best model for achieving the study hypotheses according to different statistical and economic criteria.

Economic theory assumes a positive relationship between current expenditures (CUEX) and public debt (TD) and between capital expenditures (CAEX) and public debt (TD) because increasing public expenditures entails an increase in the budget deficit and thus increases public debt. Economic literature also assumes that a negative relationship exists between taxes (TAX) and external grants (EG) on the one hand and public debt (TD) on the other hand. This assumption is explained by the notion that increasing public revenues decreases budget deficit, thereby decreasing public debt.

3.3. Analysis of the Evolution of Study Variables

First: Analysis of the development and trends of the general budget components in Jordan from 1990 to 2018.

3.3.1. Analysis of the evolution of public expenditures

Figure 1 illustrates that the total public spending in 2018 amounted to 8567.3 million dinars compared with (1032.7) million dinars during 1990. Therefore, an increase of approximately 729% is evident. The current expenditures in 2018 amounted to 7619.6 million dinars compared with (841.4) million dinars in1990, thereby increasing by approximately 806%. Capital expenditures also increased and reached 947.7 million dinars in 2018 compared with 191.3 million dinars in 1990. Therefore, its amount increased by approximately 395%. The ratio of current and capital expenditures to public spending has reached 81% and 19%, respectively, on average during the study period (Figure 2).

Figure 3 presents that the ratio of public expenditures to GDP has reached an average of (32.8%) during the study period; current expenditures account for 26.5% of them, and capital expenditures reach 6.3%.

3.3.2. Analysis of the development of general revenues

Figure 4 reveals that the total public revenue amounted to 7839.6 million dinars in 2018 compared with 938.2 million dinars in

Figure 1: Evolution of public expenditures, current, and capital expenditures

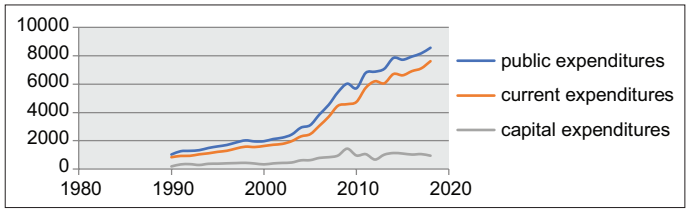


Figure 2: Ratio of current and capital expenditures to public expenditures

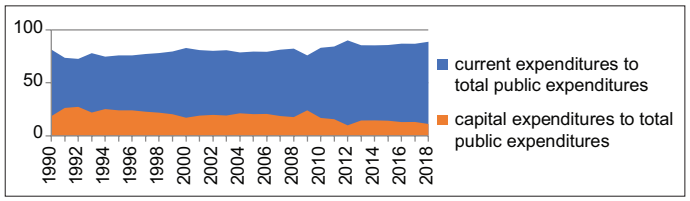
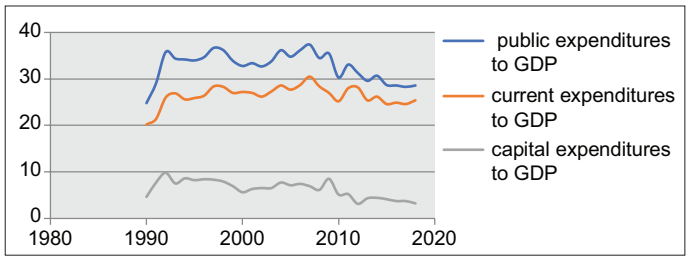


Figure 3: Ratio of expenditures to GDP



1990, thereby increasing by approximately 736%. The percentage of public revenue coverage of public expenditures reached an average of 91% from 1990 to 2018 (Figure 5).

The proportion of public revenues over GDP generated an average of 29.9% during the study period. Figure 6 displays the proportion of public revenues over GDP. The highest percentage was recorded in 1992 (37.6%), whereas the lowest was documented in 1990 (22.6%).

Figure 4 indicates the doubling of tax revenues from 497 million dinars in 1990 compared with 4535 million dinars in 2018. Thus, an increase of 812% in public revenues is evident. Figure 7 reveals that the percentage of tax revenues of GDP reached an average of 18.1% during the study period. The highest percentage was recorded in 2007 (24.7%), whereas the lowest rate was documented in 1990 (11.9%).

Figure 6 illustrates that the percentage of external grants from public revenues reached an average of 13.4% during the study period. The percentage of external grants from GDP reached an average of 4% during the study period. The highest rate at 9.5% was recorded in 2003, whereas the lowest rate at 1.5% was documented in 2012 (Figure 7).

Figure 4: Evolution of public revenues, tax revenues, and external grants

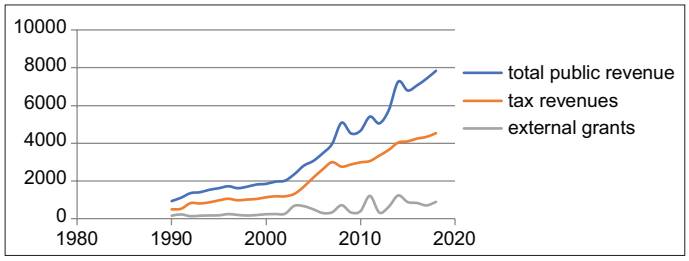


Figure 5: Ratio of public revenues to public expenditures

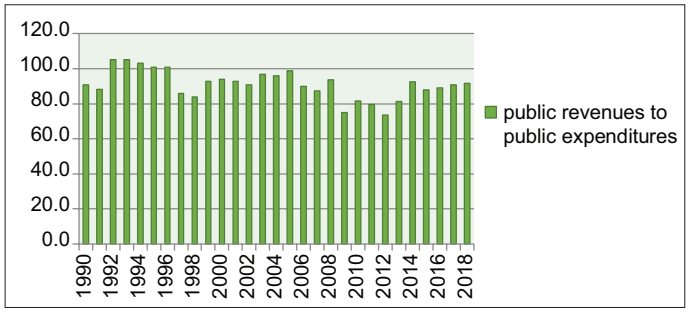
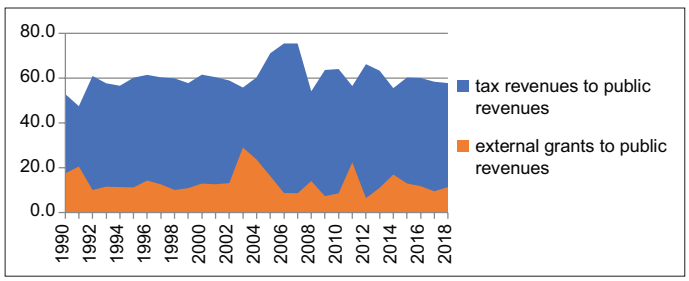


Figure 6: Proportion of tax revenue and external grants over public revenue



Second: Analysis of the development and trends of public debt in Jordan from 1990 to 2018.

Figure 8 indicates that the total of public debt in 2018 amounted to 28,308.5 million dinars compared with 606.8 million dinars in 1990. Thus, the increase in convergence accounts for 364%. Figure 9 reveals that the annual growth rate of Numuddin witnessed a gradual decline in 1990-2001 and decelerate in 2002 until the end of the study period. The average rate of public debt in Numaldine is approximately 6% during the study period. The highest growth rate at 22% was recorded in 2012. The ratio of public debt to GDP has registered an approximately 106% in

Figure 7: Ratio of public revenues, tax revenues, and external grants to GDP

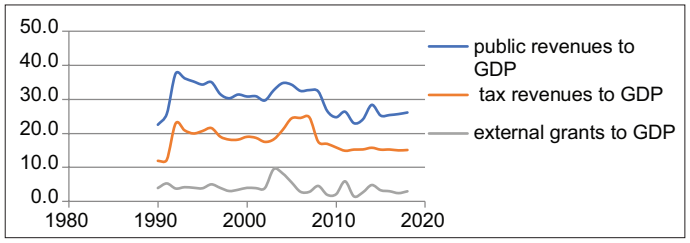


Figure 8: Trend of public debt

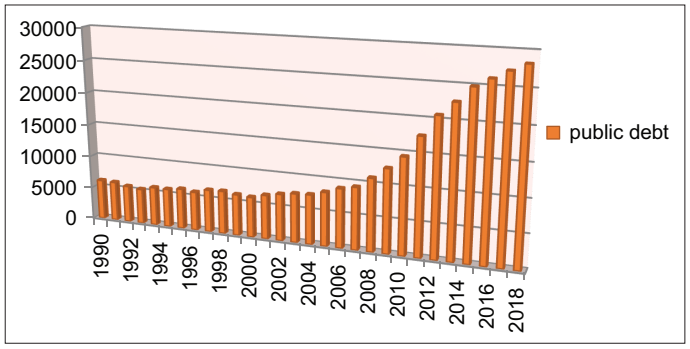


Figure 9: Development of public debt growth

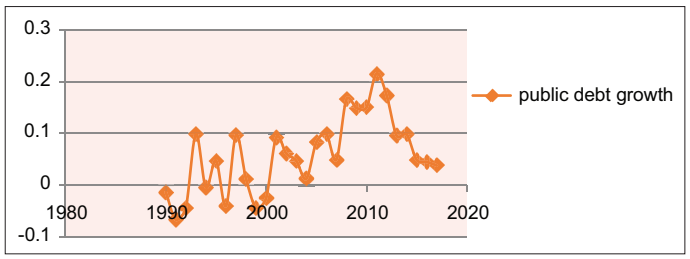
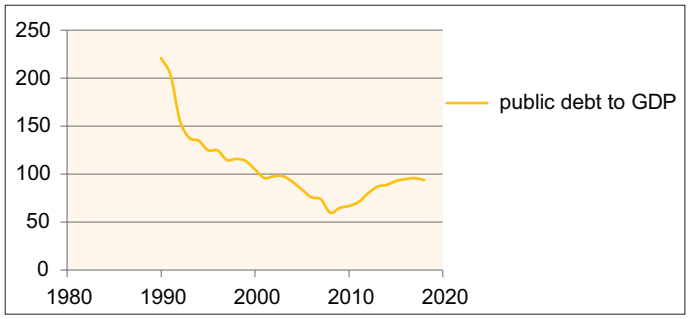


Figure 10: Public debt as a percentage of GDP



the average period of study (Figure 10). This high percentage is considered unacceptable, given the limited resources of the Jordanian economy. The coming years are dreaded to witness a slowdown in the Jordanian economy, a decrease in tax collections, in addition to the fading of external grants linked to political positions imposed on Jordan. Furthermore, budgets of donor countries are suffering from financial hardship for several reasons, including regional conflicts and the fluctuation of oil prices. The Gulf countries that provide the largest percentage of foreign grants to Jordan are mentioned.

4. EMPIRICAL RESULTS

4.1. Test for Unit Root

Time series stability test (Unit Root Test) is conducted using the unit root test (DKF) and assessing the stability of the variables through probability value, value, and values.

Table 1 reveals that TD, CUEX, CAEX, EG were stable at the level where the calculated values of ADF are greater than the tabular absolute values of these variables at different significance levels. Therefore, we add the default and accept the alternative assumption that the root unit is nonexistent. For the variable (TAX), a unit root exists for the unit at the level. To omit the unit root, the first difference is taken after this variable stabilizes. Thus, we can reject the hypothesis of non-acceptance and accept the alternative assumption that the root unit of the variable (TAX) does not exist.

4.2. Auto Regressive Distributed Lag (ARDL)

Given the varying stability of the aforementioned variables, the ARDL model is considered the most appropriate model to use given that the data is not required to be stable at the same stability rate (Pesaran et al., 2001). After the ARDL method is estimated, the results of the joint integration test among the variables is obtained.

4.3. Common Integration Test

Table 2 suggests that the calculated F value of 6.351773 (greater than the upper limit value of 5.06) at the 1% level of significance. The alternative hypothesis (H1: = b1 ≠ b2 ≠ b3 ≠ b4 ≠ b5 6 b6 ≠ 0) is accepted, and the null hypothesis (H0: = b1 = b2 = b3 = b4 = b5 = b6 = 0) is rejected. Therefore, a long-term balance relationship exists between the public debt and the explanatory variables and a common complementary relationship exists among the variables of the study model.

4.4. Form Stability Test (CUSUM) Cumulative Sum of Recursive Residual

After the error correction formula for the ARDL model is estimated, the structural stability of the long- and short-term transactions must be tested. Thus, we followed the test conducted by Al Abdali (2014, 261).

This test indicates that the structural stability of the parameters estimated by the error correction formula for the ARDL model is achieved when the CUSUM statistic line is confined within the critical graphs at the 5% significant level. However, these parameters are unstable in the case of the static graph out of the critical graphs at a level with the same moral. To ensure that the data used in this study lack any structural change and the extent of stability and consistency of long-term transactions with estimates of short-term parameters, the stability test results are shown in the following graph.

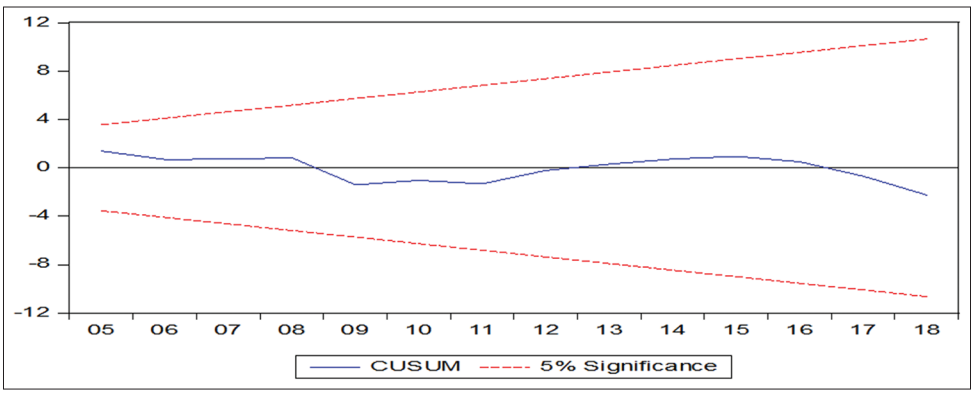
Figure 11 represents the stability test of the model CUSUM and shows that the regression line passes the mean of the critical region boundary lines. Thus, the model is stable at significant limits.

Table 1: Time-series stability test

Variable	Levels		First difference	
	ADF statistics	Result	ADF statistics	Result
TD	−5.715135*	Stationary	-	-
CUEX	−3.669530**	Stationary	-	-
CAEX	−5.075317*	Stationary	-	-
TAX	−3.186521	Non	−5.157791*	Stationary
EG	−3.527464**	Stationary	-	-

Source: The researchers prepared the data on the basis of software outputs (E views 9). The variable was significant at the level 1%*. - The variable was significant at the level 5%**

Figure 11: Model stability test (CUSUM of square)



4.5. Estimated Parameters of the Long- and Short-term Model

After a common integral relationship is confirmed between the dependent and independent variables, the parameters of the ARDL model for the long and short terms are estimated according to Equation (2) on the basis of the number of specified slowdown periods. The criteria of the delay period test is used for all variables. In particular, the Akaike Information Criterion (AIC) of deceleration periods is utilized. This criterion implies an estimation that includes decelerators using the time series included in the model. The following tables show the results of these estimates.

4.6. Long-term Relationship

Table 3 indicates the variables that represent the main components of the public budget, which are chosen based on economic theory and the size of the changes in the Jordanian public debt. Positive and negative components are found. Therefore, the ECM error correction equation takes the following form:

$$\text{Cointeq} = \text{TD} (-8.9819 * \text{CAEX} - 4.6833 * \text{CUEX} - 7.7798 * \text{TAX} - 9.0944 * \text{EG} + 338.7743).$$

4.7. Short-term Relationship

ARDL Co-integrating and Short-term Form.

Table 4 reveals that the estimates of the short-term parameters correspond to a considerable extent in terms of significance and signals with the results of the long-term capabilities. In addition, the values of the parameters differ in varying proportions.

4.8. Evaluating the Economic Capabilities of Model Parameters in the Long- and Short-run

The ARDL model estimation in Tables 3 and 4 indicate the following results.

The CUEX parameter indicates a positive and significant effect of current expenditures on the Jordanian public debt in the short term. By contrast, a negative and insignificant effect is found in the long term. The value of partial flexibility of current expenditures with respect to public debt in the short term is 1.811970. Therefore, current expenditures increase by 1% as the public debt increases by 1.811970. The partial elasticity value for current expenditures in relation to the public debt in the long term is −4.683302. Thus, an increase in current expenditures by 1% leads to an increase in public debt by −4.683302. This result is inconsistent with the economic assumptions that confirm a positive relationship between the expenses with a rate of 1% that increases public debt by −4.683302. Moreover, this finding is inconsistent with the economic assumptions that confirm a positive relationship between current expenditures and public debt and with the study of Uguru (2016). The reason behind this finding may be explained by the influence of Jordan on the exchange rate crisis since the late 1980s. Consequently, the ratio of public debt to GDP has increased. Jordan also adopted economic reform programs since 1992. Thus, the debt size attributable to the GDP decreased from 221% in 1990 to approximately 105% on average during the study period. However, financing has become the largest part of current expenditures at the expense of reducing investment spending and tax revenues.

Table 2: ARDL bounds test

Equation	F-statistic	Prop.	Result
TD (CAEX, CUEX, TAX, EG)	6.351773	0.0009	A common integration
K=4			
Critical value bounds			
Significance	**I(0) Bound**		**I(1) Bound**
10%	2.45		3.52
5%	2.86		4.01
2.50%	3.25		4.49
1%	3.74		5.06

Source: The researchers prepared the data on the basis of software outputs (E Views 9)

Table 3: Long-term coefficients

Variable	Coefficient	Std. error	t-statistic	Prob.
CAEX	8.981895	2.282354	2.282354	0.0386
CUEX	−4.683302	−0.873388	−0.873388	0.3972
TAX	−7.779785	−1.905326	−1.905326	0.0775
EG	−9.094416	−2.300608	−2.300608	0.0373
C	338.774331	3.343831	3.343831	0.0048
R-squared=0.98, F-statistic=83.86, Adjusted R-squared=0.97, Prob. (F-statistic)=0.000000, Durbin-Watson stat=1.67				

Source: The researchers were prepared on the basis of software outputs (EViews 9)

Table 4: ARDL Co-integrating and Short-term Form

Dependent variable D (TD)				
Selected model: ARDL (2, 2, 1, 3, 1)				
Sample: 1990 2018				
Included observations: 26				
Variable	**Coefficient**	**Std. error**	**t-statistic**	**Prob.**
D(CAEX)	1.714632	0.947996	1.808692	0.0920
D(CUEX (−1))	1.811970	0.815399	2.222188	0.0433
D(TAX (−1))	−0.926382	0.450972	−2.054191	0.0591
D(EG)	−0.340361	0.474974	−0.716589	0.4854
Coint Eq (−1)	−0.190899	0.057903	−3.296871	0.0053

Source: The researchers were prepared on the basis of software outputs (E Views 9)

The CAEX parameter indicates that capital expenditures positively and significantly affect the Jordanian public debt in the short and long terms. The public debt increases by 1.714632. The value of partial flexibility for capital expenditures in relation to public debt in the long term is 8.981895. Thus, an increase in capital expenditures by 1% increases public debt by 8.981895. This result corresponds to the economic hypotheses that confirm a positive relationship between capital expenditures and public debt. This finding is consistent with the study of Uguru (2016).

The TAX parameter indicates that taxes negatively affect the Jordanian public debt in the short and long terms. The value of partial flexibility of taxes in relation to public debt in the short term is (−0.926382). Thus, increasing taxes by 1% decreases the public debt by −0.926382. The partial flexibility value of taxes in relation to public debt in the long term is −7.779785. Therefore, increasing taxes by 1% decreases public debt by −7.779785. This result is consistent with economic assumptions that confirm the existence of a negative relationship between taxes and debt year.

The EG factor indicates that external grants negatively affect the Jordanian public debt in the short term and a moral negative in the long term. The value of partial flexibility for external grants

in relation to public debt in the short term is −0.340361. Thus, the increase in external grants by 1% decreases public debt by −0.340361. The partial flexibility value for external grants in relation to public debt in the long term is −9.094416. Therefore, an increase in external grants by 1% decreases public debt by −9.094416. This result is consistent with economic assumptions that confirm a negative relationship between external grants and public debt, as well as with the study of Mwikali (2013).

It is noted from the results in Tables 3 and 4 the validity of the statistically estimated model in general, all the variables are significant according to the test (t) except for the short-term parameter of the external grant variable, and the long-term parameter of the current expenditures variable. It is noted from Table 3that the value of the parameter Adjusted R-squared has reached (97%), and this indicates that the independent variables represented in the model explain a large percentage of the behavior of the dependent variable represented by the public debt. As for the value of DW, the results showed that it is equal to (1.67), which indicates that the model is free from the problem of (auto correlation). Also, the test (F) was statistically significant at the level of significance (1%) and amounting to (83.86), which confirms the significance of the estimated model as a whole. From Table 4 it appears that the parameter for correction of the speech is at a level (1%), and it appeared with a negative signal, whose value is equal to (−0.190899), which confirms the existence of a balanced relationship in the long run between the Jordanian public debt and the independent variables represented in the model, as The long-term imbalance is quickly corrected (19%).

5. RESULTS AND RECOMMENDATIONS

This study achieved certain statistical results regarding the components of the public budget and their effects on public debt in Jordan.

- An upward trend is evident in the growth of public expenditures despite the fluctuations. Current expenditures contribute to controlling investment expenditures in public expenditures, given that the ratio of current expenditures to public expenditures reached approximately (81%) on average during the study period.
- The tax revenue contribution dominates public revenues at an approximately 60.5% average rate during the study period.
- The growth of external grants is volatile due to its influence on the nature of the prevailing economic and political conditions in donor countries during 1990-2018.
- The high ratio of public debt to GDP accounts for approximately 106% on average during the study period. Thus, Jordan may be pressured from the limited resources in its economy.
- The stability characteristic of the dependent variable (TD) and the independent variables (CUEX, CAEX, EG) is achieved at the level I (0). The variable (TAX) is stabilized when the first difference is determined.
- The common integration test according to the ARDL model confirmed the existence of a common integration between the dependent and the independent variables, because the statistical value (F) is greater than the upper and lower limits of its critical values.
- Standard model estimation proved that capital expenditures positively and morally affect public debt in the short term. By contrast, current expenditures negatively and insignificantly affect public debt in the long term. Results also demonstrated that taxes and external grants negatively and morally affect public debt.
- The ARDL error correction model estimation revealed that capital expenditures and current expenditures positively and significantly affect public debt in the short term. Furthermore, taxes negatively and morally affect public debt in the short term, and external grants negatively and insignificantly affect public debt in the short term.
- The error correction parameter is equal to −0.190899 and has a significant level of 1%. It exhibits a negative value, which confirms the existence of a balanced relationship in the long run. In addition, the error correction mechanism is present in the model, and the parameter measures the speed of return to the equilibrium position in the long term. Thus, the long-term imbalance is rapidly corrected (19%).

Following the aforementioned results, the study presents the following recommendations.

- Mechanisms should be activated to reduce waste spending in the public budget, particularly in current expenditures, through addressing administrative slack in the public sector. Thus, employment is linked to the level of future productivity, to fighting corruption and nepotism, and to imposing transparency in the departments of the state.
- Economic feasibility studies should be adopted for estimating the size of capital expenditures. In addition, the implementation of capital expenditure items should be continuously monitored and followed-up.
- Additional studies should be conducted to analyze public debt in Jordan, identify the factors that affect the increasing public debt burden, and estimate the extent of losses to the Jordanian economy as a result of the exacerbation of public debt and serving the public debt. These study objectives should be addressed in addition to developing a scenario that includes specific scenarios on the mechanism of dealing with public debt.
- Tax collection mechanisms should be enabled through developing a database of taxpayers at the Income and Sales Tax Department, fighting tax evasion, and taking necessary measures regarding distortions in the tax reality in Jordan, particularly those related to high tax rates and their multiplicities. These measures should be implemented to a degree that is no longer tolerated by those charged with paying them, thereby exhibiting a negative impact on the national economy.
- Sources of public revenues and work should be diversified to attract various investments. Moreover, necessary attention should be provided to them to compensate for the lost grants and aid as a source of public revenues, given the economic and political conditions facing the donor countries. Thus, foreign grants and the possibility of future fading may sharply reduce.

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