# Measuring the Impact of Direct Taxes on the Economic Performance of a Selected Group of Arab Countries for the Period (2000-2021)

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## Abstract

*Despite the pride of financial literature in many writings that dealt with the subject of taxes, there is still an urgent need to know many aspects related to taxes and their impact on economic performance, especially direct taxes, in light of the economic and financial challenges facing the global economy as a reflection of international developments accompanied by the fragility of financial conditions and tightening Monetary policy by raising interest rates to mitigate the high global inflation rates, and in order to enrich the knowledge dimension thereof.*

## Introduction

Taxes are one of the main fiscal resources adopted by most countries of the world, and their relative importance varies from one country to another in terms of whether the country is oil productive or non-oil productive or developed or developing. By returning to the components of the tax structure of each country, it is found that there are direct taxes affecting income and capital, and indirect taxes affecting spending and circulation. The importance of direct taxes varies in developed and developing countries. Thus, the focus is on this type of tax as it is characterized by progressive tax rates which achieves this principle of justice. Because of its tax bases, it achieves dimensions of these (direct) financial, economic and social taxes. The imposition of direct taxes works to contain and confront supportive inflation rates and stimulate economic growth rates because these taxes generate abundant financial returns and are an important aspect of the state's revenue sources.

Statement of the Problem;

The study attempts to answer the following question:

Did direct taxes in a group of Arab countries, i.e. the study sample, achieve its goals in stimulating economic growth?

 Hypothesis;

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The study starts from the hypothesis that there is a direct effect relationship between direct taxes and economic growth.

Aim of the Study

The study aims at estimating and analyzing the effect of direct taxes on economic performance, expressed as economic growth, in a selected group of Arab countries.

 Significance of the Study:

Global interest in enabling direct taxation has increased over other taxes. This is due to the fact that it achieves the principle of justice because of its progressive tax rates that affect most of the disparate incomes according to the cost-effectiveness of individuals or economic units. This in turn contributes to achieving justice in addition to achieving large financial returns at the same time.

Methodology:

The study adopted the descriptive-quantitative analysis method in validating the hypothesis of the study. The analytic part was used in analyzing the data of the study variables. As for the quantitative part, it was an attempt to measure the economic effect of direct taxes on the economic performance of a selected group of Arab countries using the panel method, which is the integration of time series data and cross sections into one (the panel data method).

1.1 The Nature of Direct Taxes

1.1.1 The Concept of Tax;

Tax is a major resource approved by the state and has a leading position among the rest of the state's general revenues. The concept of tax refers to the imposition of compulsory taxes on individuals or entities by the government to maximize its revenues in order to finance its public expenditures, although it aims to achieve other goals (Kadenge, 2021,4). It is also a monetary contribution that is imposed on those charged with it according to their ability to contribute, which is through the authority to transfer the funds collected permanently and free of charge towards achieving the goals set by the ruling authority (Abdullah, 2019, 6). Tax is also defined as a financial and monetary imposition that the state borrows from individuals compulsorily without charge in order to finance its public expenditures and achieve the goals stemming from the content of its political philosophy (Al-Ali, 2002, 83). Moreover, it is defined as "a financial obligation that the individual pays forcibly to the state or one of its public and local bodies permanently, as a contribution from him/her in financing public costs and burdens, without accruing to him/her a special benefit in return for paying the tax" (Amara, 2015, 99).

1.2 Implications of the theoretical relationship between taxes and economic growth;

Taxes affect economic growth, and some disagree that taxes negatively affect economic growth since they discourage investments. While others believe that taxes are important and necessary to stimulate the economic and institutional environment in the country, and that tax revenues finance infrastructure, education and public services. Entrepreneurs and innovators depend heavily on these services, and increased taxes can boost growth if directed mainly to support the provision of public goods, because this raises the expected returns for entrepreneurial efforts (Aghion et al., 2016). Economic theory believes that the relationship between taxes and economic growth can be direct or inverse, with its impact on investment, employment and exports, and this has been confirmed by previously mentioned studies, as the effect is subject to the way in which these revenues are spent (Shiyad, 2022: 8) .

In the financial literature, there are many theories and frameworks used which are discussed by various academics and researchers to investigate the relationship between taxes and economic growth. Among the theories are:

1.2.1    Optimal Tax Theory:

It involves designing and imposing a tax that minimizes distortion and inefficiency in market equilibrium under given economic conditions. The basic theory of optimal taxation involves choosing the tax that maximizes the welfare function of society given a set of constraints. In addition, if the first best outcome is not feasible and you have to search for the second best outcome, designing and implementing the optimal tax requires knowing how to increase the number of outcomes from the heterogeneous population using the socially optimal method (Maganya, 2020:207).

1.2.2    Exogenous Growth Theory:

The exogenous (external) growth theory is also known in the financial literature as the neoclassical theory for assessing the relationship between taxation and growth. This theory is a mirror image of endogenous (internal) growth also known as the new growth theory, and the Solow model is one example of the exogenous theory. One of the pioneers of this theory is Robert Solow (1956).   According to this theory, the action of fiscal policy by the government has no effect on the long-run growth of the economy (Maganya, 2020: 207), but it implies that any changes in economic growth occur due to the main factors of production such as labor, capital, and technological progress that are determined outside the model (Solow, 1965). However, in the neoclassical framework, taxation imposed by the government can have an effect in those countries in aiding and ensuring good governance, by enhancing the accountability of states to their citizens and by achieving macroeconomic stability.

The mobilization of fiscal resources is the main factor that the economy can control and operate. Tax revenues, regardless of the prevailing economic system, are a very important tool for the government to meet planned expenditures and help achieve growth targets set over the years. The nature of direct or indirect taxes present in the economy can help in predicting a growth pattern for future planning and policy implementation. The total tax burden is important in explaining differences in economic growth (Romer and Romer, 2010 :765).

1.2.3    Endogenous Growth Theory:

Endogenous growth models (EGMs) consist of a variety of theories that represent economic growth mediated by technological discoveries and advances that emerged in the 1980s. In the neoclassical growth model as described, economic growth is determined by rates of savings and capital accumulation. In this growth model, technological progress is viewed as an external variable, that is, it is taken as given and is determined outside the model. Technological progress is seen as the main determinant of long-run economic growth that the neoclassical growth model cannot explain (Maganya, 2020: 207).

1.2.4    Supply-Side Economic Theory:

The Supply-side economics theory is a macroeconomic theory which posits that economic growth can be most effectively promoted by lower taxes and less regulation (Lucas, 1990). According to supply-side economics, consumers benefit from the increased supply of goods and services at lower prices, and employment increases. Demand-side economics opposes this theory.

The basis of supply-side economics is the Laffer curve, which is a theoretical relationship between tax rates and government revenue. The Laffer curve indicates that when the tax level is very high, lower tax rates boost government revenue with higher economic growth (Kadenge, 2021 :21).

1.3 Measuring the impact of direct taxes on the economic performance of a selected group of Arab countries for the period (2000-2021)

1.3.1 Selecting the study indicators and identifying their data sources

Many previous studies were reviewed, surveys were conducted on their variables, and the largest number of indicators, which express economic performance as a dependent variable, as well as explanatory variables that have a greater impact on economic performance indicators, were calculated. As for the data sources for these variables, they were collected from the publications of the International Bank for Reconstruction and Development (IBRD) and the publications of the International Monetary Fund (IMF). Table (1) shows the variables of the study and its data sources, as follows:

Table 1. Description of the study variables and data sources

| | | | |
|---|---|---|---|
| **dependent variable** | Economic Growth Rate, Annual Growth x (%)GDP | GDP | **IBRD** |
| **Explanatory variables of the model** | Total direct tax revenue (% of total public revenue( | TAX | **IMF** |
| | Gross fixed capital formation (% of GDP) | GCF | **IBRD** |
| | Total government spending (% of GDP) | EXP | **IMF** |
| | | | |

Source: Prepared by the researcher based on previous studies and official publications.

1.3.2 Temporal and spatial limits of the study

To estimate and analyze the aforementioned mathematical formula, and since the panel data method is to be used, i.e., the method of merging time series data and cross-sections into one, the temporal and spatial limits of the study must be defined.

As for the temporal limits of the study, the study relied on time series data spanning (22) years for the period (2000-2021).

1.3.3 Spatial Limits

The study selected Iraq, Jordan, Morocco, Egypt and Tunisia, which show the extent of the long and short term effects of some financial and macro variables on economic performance indicators. Therefore, the study included selected countries which can be described in the table below, as follows:

Table 2. Description of the Arab countries selected in the study

| | | |
|---|---|---|
| **1** | Iraq | IRQ |
| **2** | Jordan | JOR |
| **3** | Morocco | MAR |
| **4** | Tunisia | TUN |
| **5** | Egypt, Arab Republic | EGY |

Source: Prepared by the researcher based on (World Bank, 2022).

Based on the foregoing, the number of observations used in the analysis depends on cross sections (N) i.e. the number of countries, and on time series (T) i.e. years of study. Since the cross-sections in our study for both selected groups of countries are (N = 5), and the duration(time) of the study is (T = 22), the number of observations in the countries is to be as follows:

Observations = N*T = 5*22 = 110

The method used in the process of measurement and analysis is the method of data collection, the so-called panel data method, i.e., the integration of time series data into cross sectional data, and is regarded as one of the most used methods in recent studies. Since it takes into account the effect of the change in time (T) and the effect of the change in the cross-sectional views (N), this method gives better efficiency, an increase in degrees of freedom, and less linear multiplicity between the variables used in the study. In addition, this method enjoys more informational content compared to the use of individual data time series. This has been applied with the newly adopted software (Eviews 12) in econometric analysis.

1.4 Measuring the impact of direct taxes on the economic growth of selected Arab countries

1.4.1 Cross-Section Dependence Test

Table 3: Cross-Section Dependence Test of the Economic Growth Model in selected Arab countries

| Cross-Section Dependence Test | | |
|---|---|---|
| Sample: 2000 2021 | | |
| Periods included: 21 | | |
| Cross-sections included: 5 | | |
| Total panel observations: 110 | | |
| | | |
| Test | Statistic | Prob. |
| Pesaran CD | 1.789089 | (0.0736 )*** |
| : level of significance 5%, (***): level of significance 10%, (n.s) non-significant(**), %1: level of significance(*) | | |

Source: Prepared by the researcher using the Eviews 12 software.

Table (3) shows that the value of the Cross-Section Dependence Test for detecting the correlation between the cross-sections of the economic growth rate model according to the Pesaran CD Test reached (0.0736) with a significant level greater than 5%. This indicates the acceptance of the null hypothesis, which states that there is no correlation between the cross-sections of all the explanatory variables. Therefore, the unit root tests of the first generation are to be resorted to, in which the most important and most common in recent studies is the Levin-Lin and Chu Test.

1.4.2 Unit Root Test for Panel Data

Table 4. The unit root test for the economic growth model data in selected Arab countries

| Levin, Lin and Chu Test | | | | |
|---|---|---|---|---|
| Variables | At Level | | At First Difference | |
| | Intercept | Trend and Intercept | Intercept | Trend and Intercept |
| | | | | |
| GDP | -2.75647 | -6.35757 | ------- | ------- |
| prob. | (0.0029)* | (0.0000)* | ------- | ------- |
| | | | | |
| TAX | -10.5760 | -9.19330 | ------- | ------- |
| prob. | (0.0000)* | (0.0000)* | ------- | ------- |
| | | | | |
| GCF | -1.13644 | -2.20523 | -11.9628 | -12.5907 |
| prob. | (0.1279) [n.s] | (0.0137)[**] | (0.0000)* | (0.0000)* |
| | | | | |
| EXP | 0.15958 | -2.85478 | -9.66887 | -8.88585 |
| prob. | (0.5634) [n.s] | (0.0022)* | (0.0000)* | (0.0000)* |

| : indicates that the variables are stable at level(----) |
| --- |
| :level of significance 5%, (***): level of significance 10%, (n.s) non-significant(**), 1% : level of significance(*) |

Source: Prepared by the researcher using the Eviews 12 software.

Table (4) shows the unit root and static test for the panel data. It is noted that the two explanatory variables (gross fixed capital formation and total government spending) are not static at the level, i.e. they have a unit root. This indicates the acceptance of the null hypothesis, which states that these two variables have a root unity. Thus, at first difference is to be taken. As for the dependent variable (economic growth rate) and the first explanatory variable (total direct tax revenue), they appeared to be static at level, meaning that they do not have a unit root. It is possible to note the dormancy of the dependent variable and the first explanatory variable at the level and the signs of dormancy for the other explanatory variables after taking the first difference for them.

### 1.4.3 Determining the Optimal Lag period

Table 5. The determined optimal Lag period for the economic growth model in selected Arab countries

| VAR Lag Order Selection Criteria | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| Lag | Log L | LR | FPE | AIC | SC | HQ |
| 0 | -890.9770 | NA | 1497447. | 25.57077 | 25.69926 | 25.62181 |
| 1 | -664.6307 | 420.3574 | 3678.811 | 19.56088 | 20.20331* | 19.81606* |
| 2 | -643.2903 | 37.19341 | 3173.243 | 19.40829 | 20.56466 | 19.86762 |
| 3 | -619.9216 | 38.05761 | 2601.110 | 19.19776 | 20.86807 | 19.86123 |
| 4 | -598.7007 | 32.13450 | 2290.876* | 19.04859 | 21.23284 | 19.91620 |
| 5 | -590.1719 | 11.94027 | 2941.581 | 19.26205 | 21.96025 | 20.33381 |
| 6 | -578.1647 | 15.43785 | 3485.406 | 19.37613 | 22.58827 | 20.65203 |
| 7 | -553.0569 | 29.41196* | 2911.165 | 19.11591 | 22.84199 | 20.59595 |
| 8 | -533.3838 | 20.79728 | 2931.510 | 19.01097* | 23.25099 | 20.69515 |
| (*):  represents the Optimum Lag degree specified for the model. | | | | | | |

Source: Prepared by the researcher based on Eviews 12 software.

Table (5) shows the number of optimal Lag periods for the variables of the economic growth model in selected Arab countries, using the vector autoregressive (VAR) model. By adopting the Schwarz criterion, the specified number of optimal Lag periods for the model, which eliminates the model from the problem of autocorrelation of the residuals, is (1). Therefore, the lag periods for the model that are to be chosen in the estimation process, according to the selection of the Schwarz criterion (SC), are (1, 1, 1, 1). The Lag length that gives the lowest value for this criterion is to be chosen.

### 1.4.4 The Panel Co-integration Test

Table 6. Results of the panel co-integration test of the economic growth model in selected Arab countries

| Pedroni Residual Cointegration Test | | | | |
|---|---|---|---|---|
| Series: GDP TAX GCF EXP | | | | |
| Sample: 2000 – 2021 | | | | |
| Included observations: 110 | | | | |
| Cross-sections included: 5 | | | | |
| **Alternative hypothesis: common AR coefs. (within-dimension)** | | | | |
| | Statistic | Prob. | Weighted Statistic | Prob. |
| Panel v-Statistic | -2.206201 | (0.9863) [n.s] | -0.845346 | (0.8010) [n.s] |
| Panel rho-Statistic | -1.328663 | (0.0920) [n.s] | -0.820539 | (0.2060) [n.s] |
| Panel PP-Statistic | -8.476295 | (0.0000)* | -4.916194 | (0.0001)* |
| Panel ADF-Statistic | -7.550589 | (0.0000)* | -4.880373 | (0.0004)* |
| **Alternative hypothesis: individual AR coefs. (between-dimension)** | | | | |
| | Statistic | Prob. | | |
| Group rho-Statistic | -0.041551 | (0.4834) [n.s] | | |
| Group PP-Statistic | -4.491292 | (0.0000)* | | |
| Group ADF-Statistic | -4.112893 | (0.0004)* | | |
| : level of significance 5%, (***): level of significance 10%, (n.s) non-significant(**), %1: level of significance(*) | | | | |

Source: Prepared by the researcher using the Eviews 12 software.

Table (6) shows the cointegration relationships between the dependent variable (economic growth rate) and the explanatory variables (total direct tax revenues, total fixed capital formation, total government spending). It is noted in the results of the mentioned table that there are four tests out of a total of seven tests which confirm the presence of co-integration between the variables of the study at a significant level of less than 1%. This indicates the existence of a long-run relationship between these variables

1.4.5 Estimating and interpreting the results of the long and short runs and the error correction parameter using the combined group mean times (PMG) in the (ARDL) model environment.

Table 7. Long and short run results and error correction parameter of the economic growth model in selected Arab countries

| **Method: Panel ARDL-PMG** | | | | |
|---|---|---|---|---|
| Dependent Variable: D (GDP) | | | | |
| Model selection method: Schwarz criterion (SC) | | | | |
| Dynamic regresses (1 lag, automatic): (TAX) (GCF) (EXP) | | | | |
| Selected Model: ARDL (1, 1, 1, 1) | | | | |
| **Long Run Equation** | | | | |
| Variables | Coefficient | Std. Error | t-Statistic | Prob. |
| TAX | -0.298470 | 0.072035 | -4.143373 | (0.0001)* |

| | | | | |
|---|---|---|---|---|
| GCF | 0.279600 | 0.072181 | 3.873565 | (0.0002)* |
| EXP | 0.007395 | 0.069657 | 0.106162 | (0.9157)[n.s] |
| **Short Run Equation** | | | | |
| ECM | -0.803461 | 0.145647 | -5.516495 | (0.0000)* |
| D(TAX) | 0.445949 | 0.290849 | 1.533269 | 0.1291 |
| D(GCF) | 0.303501 | 0.184761 | 1.642665 | 0.1043 |
| D(EXP) | -0.179246 | 0.225096 | -0.796309 | 0.4282 |
| C | 2.446513 | 0.606733 | 4.032270 | 0.0001 |
| :level of significance 5%, (***): level of significance 10%, (n.s) non-significant(**), 1% : level of significance(*) ECM: error correction coefficient value. | | | | |

Source: Prepared by the researcher using the Eviews 12 software.

Table (7) shows the results of the relationship in the long and short run and the error correction limit parameter of the model. Thus, the following is concluded:

1.5 results

1.5.1    The results of the relationship in the long run:

1.       There is an inverse and significant relationship between total direct tax revenues as a rate of public revenues and the growth rate of GDP at a significant level less than (1%), meaning that an increase in direct tax revenues by (1%) leads to a decrease in the economic growth rate by    (-0.298 %) according to economic theory.

2.       There is a direct and significant relationship between gross fixed capital formation as a rate of GDP and the growth rate of GDP at a significant level less than (5%), meaning that an increase in gross fixed capital formation by (1%) leads to an increase in the economic growth rate by (0.279%) according to economic theory.

3.       Lack of a significant relationship between government spending as a rate of GDP.

1.5.2 The results of the relationship in the short run:

The growth relationship showed that the value of the error limit correction coefficient was (-0.803461), which is a negative value and less than the correct one, and statistically significant at a significant level of less than (1%). This indicates the possibility of correcting the errors of the model, i.e. the validity of the long-run equilibrium relationship. This means that (80%) of the imbalances occur in the short-run balance between the rate of economic growth as the dependent variable and the explanatory variables (total direct tax revenues as a percentage of public revenues, Gross fixed capital formation as a percentage of GDP, gross government spending as a percentage of GDP) over a period, corrected after approximately one year and two months $\{\frac{1}{0.803461} = 1.24 \cong 1.2\}$

1.6 Estimating the short-run relationship at the level of one country

In this step, the short-run relationships are estimated for each of the cross-sections separately, i.e., for one country, as follows:

1.       Iraq

It is noted from Table (7), that the value of the error correction coefficient reached (-1.239889), which is a negative and significant value, but greater than the correct one. This indicates that there is no short-run equilibrium relationship between the variables of the study towards the long-run equilibrium relationship in Iraq.

Table 8. The results of the short-run relationship of the economic growth model in Iraq

| Variables | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| ECM | -1.239889 | 0.015675 | -79.10116 | (0.0000)* |
| D(TAX) | 1.604539 | 0.067232 | 23.86569 | 0.0002 |
| D(GCF) | -0.317114 | 0.044034 | -7.201558 | 0.0055 |
| D(EXP) | 0.490723 | 0.027811 | 17.64502 | 0.0004 |
| C | 1.824159 | 18.49351 | 0.098638 | 0.9276 |
| : level of significance 5%, (***): level of significance 10%, (n.s) non-significant(**),  %1: level of significance(*) | | | | |
| ECM: error correction coefficient value | | | | |

Source: Prepared by the researcher using the Eviews 12 software.

2. Jordan

It is noted from Table (8), that the value of the error correction coefficient was (-0.607846), which is a negative and significant value and less than the correct one at a significant level of less than (1%). This indicates the possibility of correcting the errors of the model, i.e., confirming the validity of the long-run equilibrium relationship. This means that (61%) of the imbalances that occur in the equilibrium of the growth model in Jordan require approximately one year and seven months to be corrected $\left\{\frac{1}{0.607846} = 1.65 \cong 1.7\right\}$.

Table 9. The results of the short-run relationship of the economic growth model in Jordan

| Variables | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| ECM | -0.607846 | 0.046786 | -12.99201 | (0.0010)* |
| D(TAX) | 0.110028 | 0.041791 | 2.632804 | 0.0781 |
| D(GCF) | 0.149008 | 0.011973 | 12.44559 | 0.0011 |
| D(EXP) | -0.068174 | 0.020502 | -3.325275 | 0.0449 |
| C | 0.412499 | 2.964964 | 0.139124 | 0.8982 |
| : level of significance 5%, (***): level of significance 10%, (n.s) non-significant(**),  %1: level of significance(*) | | | | |
| ECM: error correction coefficient value | | | | |

Source: Prepared by the researcher using the Eviews 12 software.

3.      Morocco

It is noted from Table (9), that the value of the error correction coefficient amounted to (1.029135), which is a negative and significant value, but greater than the correct one, and this indicates that there is no short run equilibrium relationship between the variables of the study towards the long run equilibrium relationship in Morocco.

Table 10. The results of the short-run relationship of the economic growth model in Morocco

| Variables | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| ECM | -1.029135 | 0.020900 | -49.24046 | (0.0000)* |
| D(TAX) | 0.153488 | 0.016495 | 9.304964 | 0.0026 |
| D(GCF) | 0.413050 | 0.036254 | 11.39337 | 0.0015 |
| D(EXP) | -0.749048 | 0.032408 | -23.11283 | 0.0002 |
| C | 3.901023 | 12.01161 | 0.324771 | 0.7667 |
| : level of significance 5%, (***): level of significance 10%, (n.s) non-significant(**),  %1: level of significance(*) | | | | |
| ECM: error correction coefficient value | | | | |

4. Tunisia.

It is noted from Table (10), that the value of the error correction coefficient was (-0.703996), which is a negative and significant value and less than the correct one, at a significant level of less than (1%). This indicates the possibility of correcting the errors of the model, i.e. (70%) ) of the proportion of imbalances that occur in the equilibrium of the model estimated in Tunisia, require approximately one year and four months to be corrected $\left\{\frac{1}{0.703996} = 1.42 \cong 1.4\right\}$.

Table 11. The results of the short-run relationship of the economic growth model in Tunisia

| Variables | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| ECM | -0.703996 | 0.027276 | -25.80995 | (0.0001)* |
| D(TAX) | 0.253622 | 0.208165 | 1.218371 | 0.3102 |
| D(GCF) | 0.778086 | 0.032682 | 23.80783 | 0.0002 |
| D(EXP) | -0.605162 | 0.070886 | -8.537124 | 0.0034 |
| C | 3.039130 | 4.472297 | 0.679546 | 0.5455 |
| : level of significance 5%, (***): level of significance 10%, (n.s) non-significant(**), %1: level of significance(*) ECM: error correction coefficient value ||||

Source: Prepared by the researcher using the Eviews 12 software.

5. Egypt

It is noted from Table (11) that the value of the error correction coefficient reached (-0.436440), which is a negative and significant value and less than the correct one at a significant level of less than (1%). This indicates the possibility of correcting the errors of the model, meaning that (44%) of the imbalances that occur in the balance of the model assessed in Egypt require approximately two years and three months to be corrected: $\left\{\frac{1}{0.436440} = 2.29 \cong 2.3\right\}$.

Table 12. The results of the short-run relationship of the economic growth model in Egypt

| Variables | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| ECM | -0.436440 | 0.014029 | -31.11065 | (0.0001)* |
| D(TAX) | 0.108069 | 0.005020 | 21.52961 | 0.0002 |
| D(GCF) | 0.494473 | 0.013520 | 36.57416 | 0.0000 |
| D(EXP) | 0.035432 | 0.008974 | 3.948228 | 0.0290 |
| C | 3.055755 | 1.910197 | 1.599706 | 0.2080 |
| : level of significance 5%, (***): level of significance 10%, (n.s) non-significant(**), %1: level of significance(*) ECM: error correction coefficient value ||||

Source: Prepared by the researcher using the Eviews 12 software.

1.7 Panel Causality Tests

Table (13) shows the results of the pairwise panel causality relationship test of (Dumitrescu - Hurlin) between the study variables of the economic growth rate model in selected Arab countries for the period (2000-2021), as follows:

Table 13. The panel causality test relationship between the variables of the economic growth model in selected Arab countries

| Pairwise Dumitrescu Hurlin Panel Causality Tests | | | |
|---|---|---|---|
| Sample: 2000-2021 | | | |
| Lags: 1 | | | |
| Null Hypothesis: | W-Stat. | Zbar-Stat. | Prob. |
| | | | |
| TAX does not homogeneously cause GDP | 2.93478 | 2.30826 | (0.0210)** |
| GDP does not homogeneously cause TAX | 1.77954 | 0.83482 | (0.4038)n.s |
| | | | |
| GCF does not homogeneously cause GDP | 0.47214 | -0.83267 | (0.4050)n.s |
| GDP does not homogeneously cause GCF | 1.76697 | 0.81879 | (0.4129)n.s |
| | | | |
| EXP does not homogeneously cause GDP | 2.81858 | 2.16005 | (0.0308)** |
| GDP does not homogeneously cause EXP | 1.22560 | 0.12830 | (0.8979)n.s |
| | | | |
| .4GCF does not homogeneously cause TAX | 0.93285 | -0.24508 | (0.8064)n.s |
| TAX does not homogeneously cause GCF | 3.13581 | 2.56464 | (0.0103)** |
| | | | |
| EXP does not homogeneously cause TAX | 0.21535 | -1.16019 | (0.2460)n.s |
| TAX does not homogeneously cause EXP | 5.05755 | 5.01570 | (0.0000)* |
| | | | |
| EXP does not homogeneously cause GCF | 3.81097 | 3.42577 | (0.0006)* |
| GCF does not homogeneously cause EXP | 1.02328 | -0.12974 | (0.8968)n.s |
| : level of significance 5%, (***): level of significance 10%, (n.s) non-significant(**), %1: level of significance(*) | | | |

Source: Prepared by the researcher based on Eviews 12 software.

It is noted from Table (13) the following:

1.      The presence of a one-way causality relationship between (EXP TAX) and (GDP). This indicates that each of the total direct tax revenues and total government spending cause the economic growth rate to be at a significant level of less than (5%).

2.      The presence of a one-way causality relationship between (TAX) and between (GCF) and (EXP). This indicates that the total direct tax revenue causes both gross fixed capital formation and total government expenditure to be at a significant level less than (5%, 1%), respectively.

3.      The presence of a one-way causality relationship between (EXP) and (GCF), which indicates that total government spending causes gross fixed capital formation to be at a significant level of less than (1%).

1.8 Analysis of the Components of Variance:

Table (14) presents an analysis of the components of variance for poverty rate in selected Arab countries for the period (2000-2021). The results of the analysis are as follows:

Table 14.  Analysis of the Components of Variance for the Economic Growth Rate in Selected Arab Countries for the Period (2000-2021)

| Cholesky Ordering: GDP TAX GCF EXP | | | | |
|---|---|---|---|---|
| Period | S.E. | GDP | TAX | GCF | EXP |
| 1 | 5.543860 | 100.0000 | 0.000000 | 0.000000 | 0.000000 |
| 2 | 6.542057 | 75.99834 | 2.628307 | 19.77833 | 1.595022 |
| 3 | 7.533923 | 65.15906 | 2.321123 | 30.78670 | 1.733117 |
| 4 | 7.632662 | 64.39379 | 2.751362 | 31.16238 | 1.692469 |
| 5 | 7.652535 | 64.06788 | 3.079105 | 31.14952 | 1.703498 |
| 6 | 7.665695 | 63.99013 | 3.239074 | 31.04811 | 1.722682 |

| 7 | 7.674237 | 63.85032 | 3.286779 | 31.08515 | 1.777753 |
|---|----------|----------|----------|----------|----------|
| 8 | 7.680535 | 63.76336 | 3.331116 | 31.08389 | 1.821630 |
| 9 | 7.683314 | 63.72028 | 3.359546 | 31.07233 | 1.847840 |
| 10 | 7.685073 | 63.69113 | 3.385775 | 31.05907 | 1.864027 |
| 11 | 7.686579 | 63.66617 | 3.410985 | 31.04767 | 1.875173 |
| 12 | 7.687959 | 63.64368 | 3.437261 | 31.03667 | 1.882390 |
| 13 | 7.689230 | 63.62335 | 3.461306 | 31.02719 | 1.888154 |
| 14 | 7.690365 | 63.60484 | 3.483877 | 31.01804 | 1.893244 |
| 15 | 7.691393 | 63.58822 | 3.503929 | 31.00995 | 1.897902 |
| 16 | 7.692296 | 63.57357 | 3.521563 | 31.00271 | 1.902160 |
| 17 | 7.693085 | 63.56072 | 3.536791 | 30.99642 | 1.906065 |
| 18 | 7.693773 | 63.54952 | 3.550034 | 30.99090 | 1.909553 |
| 19 | 7.694371 | 63.53977 | 3.561510 | 30.98610 | 1.912624 |
| 20 | 7.694892 | 63.53128 | 3.571523 | 30.98190 | 1.915297 |
| 21 | 7.695346 | 63.52386 | 3.580276 | 30.97825 | 1.917615 |
| 22 | 7.695744 | 63.51738 | 3.587958 | 30.97505 | 1.919619 |

Source: Prepared by the researcher based on the outputs of Eviews 12.

It is clear from Table (14), that the rate of variation in the prediction error of the economic growth rate is self-explanatory and explained by its own shocks with the shocks in the explanatory variables represented in (total direct tax revenues, gross fixed capital formation, total government spending). This analysis covers the time period for the study, which is (22) years, in order to ascertain the effects when the explanatory variables are allowed to affect the rate of economic growth for a relatively longer period.

It is noted from the results that the standard error (S.E) of the prediction error of the economic growth rate in the first period is equal to (5.544), then increases with the passage of time to reach (7.696) at the end of the period.

The reason for the high value of the standard error is due to its inclusion of the effects of uncertainty in predicting the rate of economic growth in the previous periods.

In the short run (the future second year), as (75.998%) of the variance in the prediction error of the rate of economic growth return to its own shocks, while the total direct tax revenue contributes by (2.628%), the total fixed capital formation by (19.778%), and the total government spending by (1.595%) in explaining the variation in the prediction error of the economic growth rate.

In the medium run (the future eleventh year), (63.666%) of the variance in the prediction error of the rate of economic growth return to its own shocks, while the total direct tax revenues contribute by (3.411%), the total fixed capital formation by (31.048%) and the total government spending by (1.875%) in explaining the variation in the prediction error of the economic growth rate.

Finally, in the long run (future twenty-second year), (63.517%) of the variance in prediction error for the rate of economic growth return to its own shocks, while total direct tax revenues contribute by (3.588%), total fixed capital formation by (30.975%), and total government spending by (1.920%) in explaining the variation in prediction error of the economic growth rate.

1.9 Conclusions and Suggestions

1.9.1 Conclusions

1-      In its theoretical aspect, the study sought to highlight the role of direct taxes in stimulating economic growth and reducing inflation rates. This role depends on the importance of the role of direct taxes and the relative importance they constitute in the tax structure and the consequent obligations of the tax administration towards individual or unit taxpayers. This would be a reason to stimulate investments by providing tax

exemptions on most development projects, thus reducing investment costs and stimulating economic growth.

2-       Investment according to the trends of the study variables in Morocco is the highest, which is expressed in fixed capital formation, and is the lowest is Egypt.

3-       In the tax revenue index for the proportion of government revenues, Iraq is the highest throughout the study period.

4-       In the economic growth index, Iraq is the highest, while Tunisia is the lowest country during the study period.

5-       On the applied side, the results of the assessment in the Arab countries, i.e. the study sample, in the long run were as follows:

A-       The results indicate that the effect of direct taxes on long-run growth rates for a sample of Arab countries is (significant and positive).

B-       Formation of fixed capital (investment) is (significant and positive) in the Arab countries.

C-       Total government spending (non-significant and positive).

D-       The results indicate that the effect of direct taxes on inflation was (non-significant and positive).

1.9.2 Suggestions

1-       The necessity for Arab regimes to rely on direct taxes in their structures due to its great impact in containing inflation on the one hand and achieving the principle of justice on the other hand. Moreover,  it enjoys progressive tax rates that enable the tax authority to contain the financial surpluses of the taxpayers and identify the reality of their financial position.

2-       There are many tax bases that were not covered by direct taxes in several countries. This explains the decline in the relative importance of direct taxes from total taxes and total public revenues. There is the possibility of imposing progressive taxes such as taxes on pollution, education, companies and professions.

3-       The need to support and stimulate economic growth with direct taxes. This is achieved by supporting investment, for which the state is keen to provide a package of facilities, including tax exemptions and allowances as an incentive to attract investments.

4-       Adopting the method of digitizing tax work, especially in Iraq, which is based mainly on traditional methods. These use traditional paper accounts based on records and files. This necessitates computing the tax work, which gives much accuracy in estimation and prediction, especially in direct taxes that affect income and capital. This is far from the arbitrary technical estimate which at times do not reflect the fact that the amount of tax withholding is appropriate for the income of the taxable individual or the economic unit.

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