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Abstract

The present paper aims to investigate the impact of tax policy on economic growth in Tunisia over the period 1995 - 2020, by using cointegration analysis and Autoregressive Distributed Lag (ARDL). To explain tax policy, we use tax revenue and degree of fiscal freedom. Empirical results mark that in the long run tax revenue and degree of fiscal freedom has a positive impact on economic growth, while the impact of tax revenues is positive. Our findings provide evidence that tax policy is seen as a source of growth in Tunisia. From these results, we extract several basic policy conclusions.

Keywords: tax policy, economic growth, Tunisia, ARDL Model.

JEL Classification: C22, E62, O40, O55.

1. Introduction

Economic growth is the source of increased income and employment, the fight against poverty, the reduction of unemployment and the improvement of social and economic well-being. For this reason, it is still often sought after these different causes and determinants. Several economists and researchers have sought and tried to clearly define the determinants of economic growth in several cases, in several periods and in several situations. They found that the determinants of economic growth are complex and fickle. The different countries and time periods selected, the econometric method used in the causal analysis and the differences in the selection of data showed different results. {See: Bakari (2021a)}.

For example, Romer (1986); Lucas (1988); Barrow (1991); Fischer (1993); Bakari (2017a); Bakari et al (2019a); Bakari (2021b) found that domestic investments are a source of economic growth. On the other hand, other economists like Umar-Gingo and Demireli (2018); Raboloko (2019); Bakari et al (2019b); Fakraoui and Bakari (2019); Bakari (2020a); Bakari et al (2020a) Mkadmi et al (2021) found that domestic investments are not a source of economic growth.

Likewise, researchers like Abdullahi et al (2013); Alavinasab (2013); Chatterji et al (2014); Bakari (2016a), Bakari and Mabrouki (2016a); Bakari and Krit (2017); Bakari and Mabrouki (2017a); Bakari (2017b) examined the impact of exports on economic growth, they found that exports emerge as a key determinant of economic growth. So, Olubiyi (2014); Ulaşan (2015); Berasaluce and Romero (2017); Bakari (2017c); Bakari (2017d); Bakari (2017e) have shown the reverse.

Otherwise, Bakari (2017f) found that imports are a source of economic growth. On the other hand, Bakari (2017g); Bakari and Saadia (2017); Bakari et al (2019c) Bakari and Tiba (2021) have shown that imports have an unfavorable effect on economic growth. Bakari and Tiba (2019a) have shown that foreign direct investment is a source of economic growth. On the other hand Bakari et al (2018a); Bouchoucha and Bakari (2019); Bakari and Tiba (2019b) have shown the reverse. For work, this is presented in the majority of theoretical models as a source of economic growth. Several economists like Dasgupta (2000); Drèze and Murthi (2001); Huang and Xie (2013) and Yao et al (2013) have shown that the labor force is a source of growth. But, despite its importance, other economists such as Galor and Weil (2000)

and Li and Zhang (2007) have confirmed that the labor force has a negative effect on economic growth.

In terms of the diversification and structure of macroeconomic variables, several economists have explored its impacts on economic growth. For example Bakari (2017h); Bakari (2020b); Bakari and Mabrouki (2017b); Bakari and Mabrouki (2018); Bakari and Abdelhafidh (2018); Abdelhafidh and Bakari (2019); Bakari and Tiba (2019c); Bakari and Tiba (2019d); Bakari (2020c); Bakari et al (2020b); Bakari et al (2020c); Bakari (2016b) have shown that the agricultural sector is an essential determinant of economic growth, and especially in developing countries. On the other hand, other economists like Bakari (2018a) have shown that agriculture does not stimulate economic growth. For the industrial sector, Bakari (2018b) showed that industry is an essential factor to improve economic growth. On the other hand, Bakari (2018c); Bakari et al (2018b); Bakari et al (2018c) have shown that industry does not have a positive effect on economic growth, and it presents itself as a source of pollution. Likewise, in the service sector, Bakari (2021c); Bakari et al (2020d) confirmed the importance of services in enhancing economic growth. On the other hand, other economists have shown the opposite such as Bakari and Tiba (2020); Bakari (2021d).

At a time when cyclical policies become less effective and are subject to constraints limiting their use (stability and growth pact and autonomy of the Central Bank) interest in fiscal policy has increased as new concerns for which the fiscal instrument seems relevant and the externalities which must be combated or on the contrary encouraged have emerged.

Tax policy is the set of decisions taken by public authorities in matters of taxation. It aims to modify tax law according to specific objectives. In fact, tax revenue is the main resource of states. The initial objective of fiscal policy is therefore to guarantee minimum budget revenues. But once the financial sustainability of the state is assured, other objectives have been assigned to fiscal policy. Tax policy contributes to the economic policy of each country, by contributing to the financing of public expenditure and to the redistribution of income.

Tax policy can have more than one objective at the same time. It can thus seek to modify the tax effort required of taxpayers, such as the methods of tax collection and their distribution. Tax policy can also aim to reduce the tax burden in order to boost consumption and stimulate growth. A large number of tax incentive mechanisms have been implemented: encouraging energy savings, preventing pollution or rewarding donations to charities.

The legal corporate tax rate in Tunisia is 30 percent (with the exception of 35 percent for banking, insurance, fuel and telecommunications companies). As for suppliers, they pay no income tax for the first ten years of operation, while they pay 50% income tax thereafter. As for the profits of the agricultural and fishing sectors, they are subject to taxes at the rate of 10 percent.

But the taxation of legally registered small businesses, which make up the vast majority of businesses, is relatively low if not trivial. Even these companies can opt for a “fine” system, whereby they pay 2 to 2.5% of the proceeds instead of income tax. Also, those small businesses that have a tax identification number do not keep commercial books, and reduce the size of their income, and therefore, the appropriate rate for these businesses of direct and indirect taxes is estimated to be 4.85 percent of profits (National Institute of Statistics 2007).

Total taxes and charges imposed on wages are the heaviest taxes in the country, as overhead costs paid by the employee can reach 28.5% in companies that do not benefit from tax offsets or exemptions. These taxes include the sum of social security and health insurance (16.5%), professional training taxes (1 to 2% of the total salary) and a contribution to the financing of the employee's housing program (1%). As for income taxes, there are multiple exemptions from wage charges, in sectors such as agriculture, exports, and companies that invest in priority areas. The contribution of employees constitutes 9.18% of wages, while the total of taxes and social charges related to employment amounts to about 38% in companies operating in the land sector. In addition to the value added tax, at 18%, imposed on household consumables and services in Tunisia, with a low rate for certain products: 12% (such as the transport of goods or certain products and services to support the tourism), and 6 percent (such as services provided by doctors). , pharmaceuticals and medical laboratory analyzes).

Based on the simulated tax burden imposed on medium-sized national industrial enterprises in Tunisia, and on the basis of tax payment information from the World Bank, these enterprises would pay more than 64% in taxes on profits, wages, salaries and resource usage. However, a company facing similar constraints cannot achieve financial equilibrium or make an investment without circumventing tax charges, especially with regard to social charges.

On the other hand, declared employees in the public and private sectors contribute 80% of total personal tax income due to withholding laws, while business owners and self-employed

employees (accountants, lawyers, doctors and pharmacists) contribute 3% of total personal income and income taxes.

Indeed, the objective of this article is to exploit the impact of fiscal policies on economic growth in Tunisia during the period 1995 - 2020. According to our extensive research, it is the first that tries to empirically examine the impact of fiscal policies on economic growth in the Tunisian context. Likewise, and on the scale of other international work, it is confirmed that this is the first work that uses the degree of fiscal freedom among the indicators of fiscal policy. In fact, the following section presents a review of recent literature that speaks about the link between fiscal policies and economic growth. The third part describes our research methodology, as well as the model that will be retained in the empirical analyzes. These are presented in the fourth section. The last section denotes our conclusions which will be interpreted and explained.

2. Literature Survey

Empirical studies on the link between taxation and economic growth have also shackled various results. Some studies have exhibited this relationship to be positive, while other studies have shown this relationship to be negative. At the same time, other studies assume that there is no relationship between these two factors. For example, Koch et al (2005) investigated the incidence of tax policy on economic growth in South Africa for the period 1960 -2020. By using Three- Stage Least Squares, they found that there is a positive relationship between tax policy and economic growth. Also, Karras and Furceri (2009) searched the effect of tax policy on economic growth in OECD countries during the period 1965-2003. Panel analysis indicated that there is a negative relationship between tax policy and economic growth.

Equally, Dackehag and Hansson (2012) investigated the impact of tax policy on economic growth but in the case of 25 rich OECD countries during the period 1975-2010. They found that tax policy has a negative impact on economic growth. For the case of Nigeria, Worlu and Nkoro (2012) proved that there is no relationship between tax revenues and economic growth. In their analysis, they applied two stages least squares technique and annual data for the period 1980 - 2010. Takumah and Iyke (2017) applied the Toda Yamamoto test instead of the traditional Granger causality in the case of Ghana over the period 1986 - 2014. Empirical results show that taxes cause economic growth. Amin et al. (2018) searched the impact of

personal income tax on economic growth in Pakistan and in China from 1986 to 2015. By applying ARDL Model, The results marked that there is a positive relationship between the personal income tax and economic growth of the two countries in the long run and in the short run. In the other hand, Bakari (2019) carefully designed the effect of tax revenue on economic growth in France for the period 1972 – 2016. By operating VECM model, he discovered that tax revenue has a negative incidence on economic growth. As commendations, his etude marked that strategies of tax policy in France is not foolproof for economic growth and domestic investment.

Bakari and Tiba (2019b) explored the impact of tax revenue on economic growth in USA for the period 1970 – 2016. They affirmed that tax revenue is not seen as a source of economic growth in the short run and in the long run. The same case is studied by Romer and Romer (2010) over the period 1947 – 2007. They used multivariate analysis to detect the impact of tax revenue on economic growth. In their analysis, they found that tax revenue has a negative effect on economic growth. Gurdal et al (2020) inspected the tie between tax revenue and economic growth for the G7 countries taking on annual data from 1980 to 2016. They discovered that there is no relationship between taxation and growth in the short run and the long run. Bakari et al (2020e) looked for the effect of tax revenue on economic growth in Germany during the period 1972 - 2016. They observed that tax revenue involve positively economic growth. Mkadmi et al (2021) studied the incidence of tax revenues on economic growth in Tunisia over the period 1976 – 2018. Their study is based on co-integration analysis and Vector Error Correction Model. Empirical findings pointed out that in the long run tax revenues have a positive impact on economic growth. Also, results indicate that economic growth influence positively tax revenues.

3. Empirical methodology

3.1. Empirical strategy

We use the ARDL approach of Pesaran et al (2002) because it has several advantages. It is more suitable for testing the existence of long-term relationships in small samples, and it allows them to be tested between variables with different orders of integration. However, they should not be integrated in order 2. Our empirical methodology would be based on 4 main steps:

- ✓ Determining the stationarity of variables ;

- ✓ Checking for cointegration between model variables ;
- ✓ The estimation of the ARDL model ;
- ✓ Analysis of diagnostic tests.

3.2. Model and specification of ARDL

We will use specifications inspired by the neoclassical model in which the gross domestic product is the variable to be explained, and which designates economic growth. On the other hand, capital, labors, degree of fiscal freedom and tax revenues are presented as explanatory variables. Therefore, we will start from the following equation:

$$\mathbf{Y = F[(K, L); DLF, T]} \qquad \mathbf{(1)}$$

$$\mathbf{Y = A\ K^{\alpha 1}\ L^{\alpha 2}\ DLF^{\alpha 3}\ T^{\alpha 4}} \qquad (2)$$

With:

- ✓ **K** designates the capital ;
- ✓ **L** denotes Labor ;
- ✓ **DLF** denotes the degree of fiscal freedom ;
- ✓ **T** denotes tax revenues ;
- ✓ α_1 denotes the elasticity of capital ;
- ✓ α_2 denotes the elasticity of the working population ;
- ✓ α_3 denotes the elasticity of the degree of fiscal freedom ;
- ✓ α_4 denotes the elasticity of tax revenues.

Linearization of equation (2) by a logarithmic transformation leads us to equation (3) below:

$$\mathbf{Log\ Y = Log\ A + \alpha_1 Log\ K + \alpha_2 Log\ L + \alpha_3 Log\ DLF + \alpha_4 Log\ T + \varepsilon_t} \quad (3)$$

After having the constant technology, the final linear model for our estimation can be written as follows:

$$\mathbf{Log\ Y = \alpha_0 + \alpha_1 Log\ K + \alpha_2 Log\ L + \alpha_3 Log\ DLF + \alpha_4 Log\ T + \varepsilon_t} \quad (4)$$

With ε is an error term and (t) is a time index.

3.3. Estimate period and data source

To examine the impact of fiscal policies on economic growth in Tunisia, we will use data covering the period 1995 - 2020, and collected annual reports from the World Bank. All variables are at constant prices. After having identified our estimation model and the variables included in our estimation, the following section presents an empirical validation that studies the impact of capital, labor force and tax policies (Degree of tax freedom and tax revenues) on economic growth in Tunisia.

4. Estimation results

4.1. Descriptive analysis of variables

Before showing the empirical results and analyzing the interpretations, there are some pre-tests of data which are generally considered very necessary. For this reason, the descriptive statistics table is one of the pre-tests of the data tool which provides the few prerequisites or information regarding the relevance of the compressed variables. Table 1 contemplates the descriptive statistics of the variables massed. According to the statistics in Table 1, the mean and standard deviation of Y are respectively 3.87E + 10, 9.77E + 09, with a probability of refusal of about 0.00%. All these statistics show that Y is a considerable variable. In addition, the standard deviation of the variables takes into account the variation and volatility of the statistics during the investigation period. Y examines the highest volatility, i.e. changes of 5.46E + 10 and 2.22E + 10 over the duration of the study.

Table n ° 1: Results of descriptive analyzes

	Y	K	L	DF	T
Mean	3.87E+10	8.65E+09	3601208.	72.25385	2.85E+09
Median	4.05E+10	8.39E+09	3601665.	73.30000	2.56E+09
Maximum	5.46E+10	1.34E+10	4115301.	76.50000	5.33E+09
Minimum	2.22E+10	4.45E+09	2934787.	68.70000	1.24E+09
Std. Dev.	9.77E+09	2.99E+09	392566.5	2.617973	1.14E+09
Skewness	-0.147220	0.118805	-0.118646	-0.130915	0.462153
Kurtosis	1.718123	1.508495	1.545023	1.535776	2.119334
Jarque-Bera	1.874062	2.471132	2.354371	2.396883	1.765740
Probability	0.391789	0.290670	0.308145	0.301664	0.413594
Sum	1.01E+12	2.25E+11	93631400	1878.600	7.40E+10
Sum Sq. Dev.	2.39E+21	2.23E+20	3.85E+12	171.3446	3.22E+19
Observations	26	26	26	26	26

Source: Authors' calculations using Eviews 10 software

Skewness individually evaluates the deviation from symmetry, in other words, it measures the power of an outlier. All the variables given are positively biased. Regarding catharsis, it scales the peak or flatness of the targeted variables relative to the normal distribution. The overall skewness and kurtosis coefficients claim that the variables follow the normal distribution.

4.2. Analysis of stationary tests

Before any empirical analysis in the context of time series, it is necessary to check the order of integration of the variables. For this reason, we used the ADF and PP unit root tests. The null hypothesis for the ADF and PP tests assumes that the series has a unit root. If the series is not stationary at the level, the first difference transformations of the series must be taken to make the series stationary. The basic model of ADF and PP testing is specified as follows:

$$\Delta y_{t-1} = \alpha_0 + \lambda y_{t-1} + \alpha_1 t + \sum_{i=2}^{p} \beta_j \Delta y_{t-1+1} + \omega_t$$

Or :

- ✓ **y** reflects the dependent variable ;
- ✓ **t** is the trend ;
- ✓ **α** is the intersection ;
- ✓ ***ω*** represents a Gaussian white noise ;
- ✓ **p** is the offset level.

Table 2: Results of the stationarity analyzes of the PP test

		LOG(Y)	LOG(K)	LOG(L)	LOG(DF)	LOG(T)
	At Level					
With Constant	t-Statistic	-3.3702	-1.0201	-2.1986	-1.0956	-0.8477
	Prob.	0.0221	0.7299	0.2116	0.7011	0.7876
With Constant & Trend	t-Statistic	-1.7195	-1.7789	-0.4277	-1.7388	-2.8975
	Prob.	0.7122	0.6844	0.9804	0.7033	0.1798
Without Constant & Trend	t-Statistic	6.9553	4.2185	5.3802	0.8507	2.7530
	Prob.	1.0000	0.9999	1.0000	0.8879	0.9976
	At First Difference					
With Constant	t-Statistic	-3.6590	-4.2740	-2.1796	-4.9249	-4.3423
	Prob.	0.0119	0.0029	0.2181	0.0006	0.0025
With Constant & Trend	t-Statistic	-4.2186	-4.3261	-2.7459	-4.8281	-4.1339
	Prob.	0.0145	0.0116	0.2287	0.0039	0.0174
Without Constant & Trend	t-Statistic	-1.4185	-2.7419	-1.7569	-4.8664	-3.7077
	Prob.	0.1415	0.0083	0.0750	0.0000	0.0007

Source: Authors' calculations using Eviews 10 software

Table 3: Results of the stationary analyzes of the ADF test

		LOG(Y)	LOG(K)	LOG(L)	LOG(DF)	LOG(T)
	At Level					
With Constant	t-Statistic	-3.2997	-1.0201	-1.5153	-1.1000	-0.5862
	Prob.	0.0258	0.7299	0.5089	0.6994	0.8547
With Constant & Trend	t-Statistic	-1.7195	-1.6270	-0.7319	-1.5807	-3.7494
	Prob.	0.7122	0.7528	0.9579	0.7717	0.0381
Without Constant & Trend	t-Statistic	8.5513	4.4226	1.6490	0.8296	2.9732
	Prob.	1.0000	1.0000	0.9721	0.8843	0.9984
	At First Difference					
With Constant	t-Statistic	-3.6922	-4.2740	-2.3543	-4.9247	-5.1700
	Prob.	0.0111	0.0029	0.1645	0.0006	0.0004
With Constant & Trend	t-Statistic	-4.2186	-4.3261	-2.8276	-4.8284	-4.9983
	Prob.	0.0145	0.0116	0.2017	0.0039	0.0031
Without Constant & Trend	t-Statistic	-1.1908	-2.7419	-1.6527	-4.8664	-3.6890
	Prob.	0.2067	0.0083	0.0919	0.0000	0.0007

Source: Authors' calculations using Eviews 10 software

The stationarity of the series was further inspected with two different unit root tests: the Augmented Dickey-Fuller test (ADF) and the Phillips Perron test (PP). Table 2 and Table 3 present the results of these tests for the variables at the levels and at the first differences.

Indeed, the two tests give similar stationarity results. The variables which respectively designate economic growth (Y), capital (K), tax revenues (T) and the degree of fiscal freedom (DLF) are stationary in first difference. On the other hand, the variable which designates the labor (L) is stationary in level.

Since all the variables included in our model are stationary and integrated in different order (in level and in first difference). In this case, Fisher's Bounds test will be used to detect cointegration between the variables.

4.3. Cointegration analysis

In addition, our initial model specification can be written in the ARDL cointegrating regression format of the ARDL model. For the time series frame, the ARDL model is specified as follows:

$$\Delta \mathbf{Y_{(t)}} = \mathbf{C} + \sum_{\mathbf{i=1}}^{\mathbf{m}} \boldsymbol{\beta}_{\mathbf{1i}} \Delta \mathbf{Y_{(t-i)}} + \sum_{\mathbf{i=0}}^{\mathbf{n}} \boldsymbol{\beta}_{\mathbf{2i}} \Delta \mathbf{K_{(t-i)}} + \sum_{\mathbf{i=0}}^{\mathbf{o}} \boldsymbol{\beta}_{\mathbf{3i}} \mathbf{L_{(t-1)}} + \sum_{\mathbf{i=0}}^{\mathbf{p}} \boldsymbol{\beta}_{\mathbf{4i}} \Delta \mathbf{T_{(t-1)}} + \sum_{\mathbf{i=0}}^{\mathbf{p}} \boldsymbol{\beta}_{\mathbf{5i}} \Delta \mathbf{DLF_{(t-1)}} \ \boldsymbol{\delta}_{\mathbf{1}} \mathbf{K_{(t-1)}} + \boldsymbol{\delta}_{\mathbf{2}} \mathbf{L_{(t-1)}} + \boldsymbol{\delta}_{\mathbf{3}} \mathbf{T_{(t-1)}} + \boldsymbol{\delta}_{\mathbf{4}} \mathbf{DLF_{(t-1)}} + \boldsymbol{\varepsilon}_{\mathbf{(t)}} \quad \mathbf{(3)}$$

Where :

- ✓ **C** reflects the constant;
- ✓ **m, n, o** and **P** represent the order of the shifts;
- ✓ Δ is the difference operator; and describes the error terms in the equation.

The null hypothesis of no cointegration is as follows: **H0: δ1 = δ2 = δ3= δ4 = 0** against the alternative hypothesis **H1: δ1 ≠ δ2 ≠ δ3 ≠ δ4 ≠ 0**.

Table 4: Results of the cointegration analysis

ARDL Bounds Test		
Test Statistic	Value	K
F-statistic	5.745177	4
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

Source: Authors' calculations using Eviews 10 software

The empirical exercise provides a different order of integration for the variables I (1) and I (0). This dissimilarity leads to a justification for the application of the ARDL limit testing approach to co-integration developed by Pesaran et al. (2001). The value of the F statistics was compared to the upper or lower limit reported by Pesaran et al. (2001).

If the value of the F statistic is greater than the upper limit, we reject the null hypothesis and if it is less than the lower limit, we accept the null hypothesis and if the value of the F statistic is between the lower limit and above, the test will be inconclusive.

Since the calculated value of the F statistics is greater than the upper limit of this critical value, Table 4 indicates that there is a long-term relationship between the variables included in the model.

4.4. Long-term ARDL model estimation

To ensure an estimate based on the long-term ARDL model, a two-step approach is applied. The first is to explore the relationship of long-term equilibrium. And the second step examines the significance of the long-run equilibrium equation. In fact, the realization of the

estimate by the method of the maximum likelihood accounts for the relation of sequential cointegration.

4.4.1. The long-term equilibrium equation

The long-term equilibrium relation is introduced as follows:

$$\mathbf{Y = 0.0976\,K - 0.0963\,L + 0.3363\ DLF + 0.0242\,T + 1.4832}$$

The long-term relationship equation of the ARDL model shows that:

- ✓ The variable denoting capital (K) has a positive impact on economic growth (Y); that is, a 1% capital increase results in a 0.0976% increase in economic growth.
- ✓ The variable denoting labor (L) has a negative effect on economic growth (Y); that is, a 1% increase in labor results in a 0.0963% decrease in economic growth.
- ✓ The variable which designates the degree of fiscal freedom (DLF) has a positive impact on economic growth (Y); that is, a 1% increase in the degree of fiscal freedom leads to a 0.3363% increase in economic growth.
- ✓ The variable which designates tax revenues (T) has a positive impact on economic growth (Y); that is, a 1% increase in tax revenues leads to a 0.0242% increase in economic growth.

To certify that this long-term relationship is fair or not, it is necessary to test the significance of these variables by estimating the ARDL model.

4.4.2. The significance of the long-term equilibrium equation

We can say that the equilibrium cointegration equation is significant and that there is a long term relationship between the variables when the error correction term has a negative coefficient and a negative probability.

Table 5: The significance of the long-term equilibrium equation

Formulaire de cointégration ARDL à long terme				
Variable indépendante: DLOG(Y)				
Modèle sélectionné: ARDL(2, 0, 0, 1, 0)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG(Y(-1), 2)	0.270670	0.179015	1.511999	0.1513
DLOG(K, 2)	0.154229	0.070665	2.182545	0.0454
DLOG(L)	-0.152216	0.043391	-3.508016	0.0032
DLOG(DF, 2)	0.225566	0.197162	1.144065	0.2705
DLOG(T, 2)	0.038211	0.022414	1.704793	0.1089
ECT	-1.580478	0.261681	-6.039716	0.0000

Source: Authors' calculations using Eviews 10 software

Table 6 shows that the error correction term has a negative coefficient (-1.580468) and a probability less than 5% (0.0000) in this case, we can say that the equilibrium cointegration equation is significant and that there is a long-term relationship between the variables.

It can therefore be shown that capital (domestic investment), tax revenues and the degree of fiscal freedom have a positive effect on long-term economic growth. On the other hand and according to the results of the estimation of the ARDL model, work has a negative effect on long-term economic growth.

According to the results of the long-term estimate, it can be noted and confirmed that domestic investments, tax revenues and the degree of fiscal freedom are a source of economic growth in Tunisia in the long term. As soon as the long-term ARDL model is estimated, we move on to the next step, which consists of studying the directions of causality between the explanatory variables and the variable to be explained in the short term.

4.5. Short-term short-term ARDL model estimation

To determine the impact of tax revenues and the degree of tax freedom on short-term economic growth, we use the WALD test.

Table 6: Results of the estimation of the ARDL model

Test WALD		
Dependent Variable: Y		
Variable	Coefficient	Prob.
K	0.154229	0.0454
L	-0.152216	0.0032
DF	0.225566	0.2705
T	0.038211	0.1089

Source: Authors' calculations using Eviews 10 software

Table 6 shows the results of estimating the short-term ARDL model using the WALD test. From Table 6, we note that the variables that designate fiscal policies in Tunisia have no effect on short-term economic growth in Tunisia.

4.6. Analysis of diagnostic tests

Finally, the diagnostic tests (serial correlation and heteroskedasticity tests) are all derived from a sensitivity analysis to establish the authenticity of the data used for the variables involved in our model.

Table 7: Results of diagnostic tests

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	1.238197	Prob. F(7,15)	0.3425
Obs*R-squared	8.422975	Prob. Chi-Square(7)	0.2968
Scaled explained SS	3.982259	Prob. Chi-Square(7)	0.7818
Heteroskedasticity Test: Harvey			
F-statistic	2.169996	Prob. F(7,15)	0.0985
Obs*R-squared	11.57236	Prob. Chi-Square(7)	0.1155
Scaled explained SS	10.27543	Prob. Chi-Square(7)	0.1735
Heteroskedasticity Test: Glejser			
F-statistic	1.232234	Prob. F(7,15)	0.3453
Obs*R-squared	8.397218	Prob. Chi-Square(7)	0.2989
Scaled explained SS	6.107452	Prob. Chi-Square(7)	0.5273
Heteroskedasticity Test: ARCH			
F-statistic	0.432035	Prob. F(1,20)	0.5185
Obs*R-squared	0.465189	Prob. Chi-Square(1)	0.4952
Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	2.323405	Prob. F(2,13)	0.1372
Obs*R-squared	6.056427	Prob. Chi-Square(2)	0.0484

Source: Authors' calculations using Eviews 10 software

Table 7 denotes the results of diagnostic tests. The probabilities of diagnostic tests are all above 5%, this means that our model is acceptable and well processed.

4.6.1. Quality testing analyzes

Likewise, the purpose of quality testing is to analyze the quality of our model. These tests are based on the test of normality, the coefficient of determination, the adjusted coefficient of determination and the probability of the Fisher test.

Table 8: Quality test results

Test de Normalité	0.133699
Probabilité de Jarque-Bera	0.935336
R^2	0.718110
R^2 Ajusté	0.586561
Test de Fisher	5.458890
Probabilité de Fisher	0.002866
Test de Durbin-Watson	2.052486

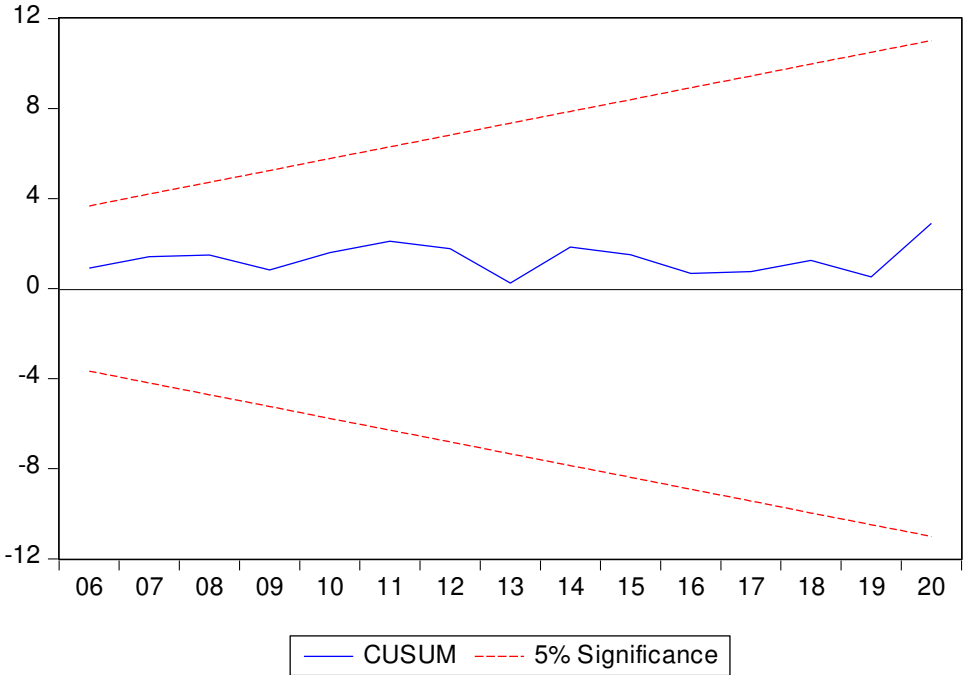
Source: Authors' calculations using Eviews 10 software

Table 8 shows the results of the quality tests. The normality test has a probability greater than 5%, which means that the quality of our model is quite acceptable. Likewise, the coefficient of determination and the adjusted coefficient of determination have values greater than 50%, which means that the quality of our estimate is very robust. In addition, the probability of the Fisher test is less than 5%, which also proves the credibility of our estimate. Finally, we notice that the Durbin-Watson test has a value between 1.6 and 2.4, which confirms the efficiency of the quality of our model.

4.6.2. Stability test analyzes

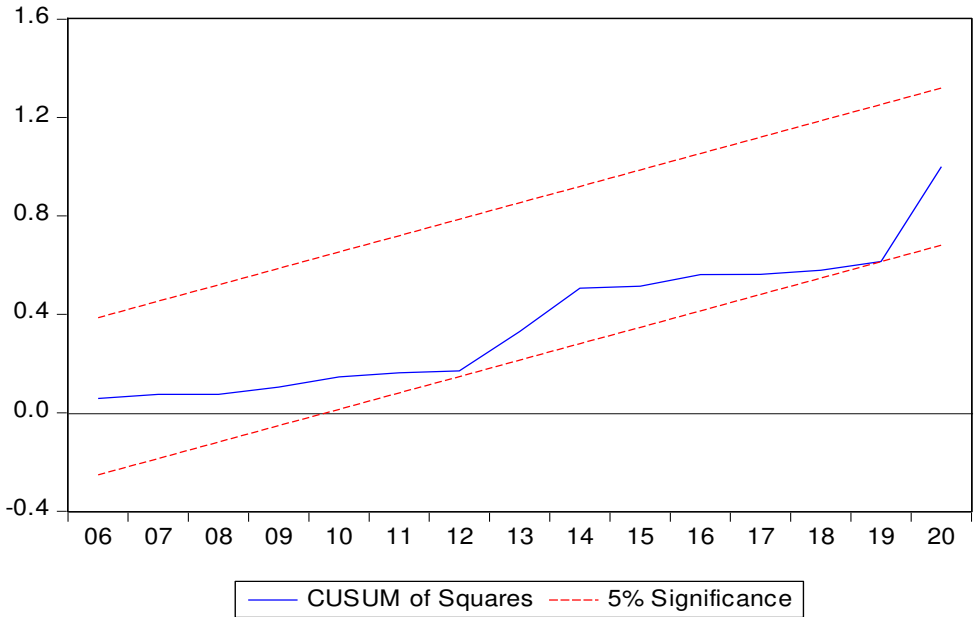
Brown et al. (1975) suggested that the stability of the parameters can be examined with a CUSUM test and a square CUSUM test. These indicate the stability of the parameters in the long term.

Figure n ° 1: Graphical presentation of the CUSUM stability test



Source: Authors' calculations using Eviews 10 software

Figure n ° 2: Graphical presentation of the CUSUM square stability test



Source: Authors' calculations using Eviews 10 software

Figure 1 and Figure 2 show the results of the CUSUM test and the CUSUM square tests, which indicate that the ARDL model used in the study is well established. Therefore, the model is stable and the estimated results are well respected for political practices.

5. Conclusion

Fiscal policy pursues various political goals. For this reason, taxes should not only create resources for public spending, but also contribute to income redistribution, economic stability and resource allocation, while supporting economic growth at the same time. The aim of a well-designed tax system is to achieve the desired fiscal objectives as effectively as possible, namely by reducing undesirable biases, lowering tax collection costs and promoting economic growth. Tax efficiency plays an important role in securing the tax structure, economic growth and fiscal consolidation.

According to traditional economic theory, taxes create distortions and have a negative impact on economic growth. Looking at a simple production function, it is clear that taxes can influence growth through their effects on physical and human capital as well as on total factor productivity. Some studies have found that corporate and income taxes are the most damaging to growth, while consumption, environmental and property taxes are the least damaging (OECD, 2009).

This article, which is one of the most recent studies empirically examining the effects of tax revenues on economic growth in developing countries, has attempted to identify the drivers of economic growth in Tunisia in the light of conscious government action through taxes. Tunisia should look for new strategies to improve the balance between tax revenues and economic growth through administrative simplification and financial stability in order to increase investment and encourage investors to expand their investments.

In this work we have empirically examined the link between fiscal policies and economic growth in Tunisia during the period 1995 - 2020. To achieve our objective, we have divided this work into three sections. The first section concerns a review of the literature which includes the various empirical works related to our research theme to inspire our empirical methodology. The latter is presented in the second section, where we decided to use an estimate based on the ARDL model. The last section denotes our empirical results. Indeed, the results of the long-term estimate indicate that capital (domestic investment), tax revenues and the degree of fiscal freedom have a positive effect on long-term economic growth. On the other hand and according to the results of the estimation of the ARDL model, work has a negative effect on long-term economic growth. Also, the Wald tests indicate that tax policies in Tunisia have no effect on short-term economic growth in Tunisia.

In this context, we suggest some mindsets to restore fairer and more inclusive tax systems and domestic investment systems to foster economic growth:

- ✓ Invest heavily in research to determine income levels and the extent of penetrations. Significant investments in tax administration services have enabled the fight against tax fraud and tax evasion;
- ✓ Restoration of a progressive system with more tax brackets to relieve the middle class and make higher tax brackets pay more (Maxime and Toussaint (2019));
- ✓ Align capital tax with wage tax. Make a plan to identify these policies and review various "tax incentive" measures in order to keep only the most profitable ones;
- ✓ Implementation of protectionist policies by taxing products from countries where we have a trade deficit;
- ✓ Only countries based on intervention and redistribution can build a just and united society, a country that allows everyone to pay according to their abilities and to give according to their needs;
- ✓ The government should pay more attention to the structure of tax revenue;
- ✓ The state should develop good governance policies to reduce institutional deficits;
- ✓ The government should develop new strategies to remove the risks and uncertainties associated with investing;
- ✓ Good taxes should be less destructive (Villieu, 2011), that is, they should not unduly disrupt the economy. Therefore, taxes should focus more on goods that have a limited impact on supply or demand;
- ✓ Good taxes should be disproportionate and focus more on the rich than on the poor or on companies that create fewer jobs than those that create more jobs (OECD, 2009);
- ✓ It should be targeted to stimulate the economy (Bova et al, 2013). This includes, for example, the promotion of renewable energies and the inhibition of environmentally harmful activities;
- ✓ Finally, good taxes should be seen as a product of democratic compromises (Stiglitz, 2016) and not imposed by authorities.

Regarding the limitations of this study, we encountered problems while collecting the database. In fact, we wanted a longer period of time to study the relationship between tax revenue and economic growth. Otherwise, due to the short duration of our examples, we only used a custom specification with three variables, which eliminated many control variables in order to achieve a greater and more efficient degree of freedom. Another limitation we

encounter is that the stability of our variables forces us to apply a prediction based on the ARDL model.

Indeed, the structure of the database shows us that we cannot use any other econometric model, which makes it difficult to check the robustness of our results by examining another econometric model. Eventually, we encountered obstacles in the literature regarding the limitations of this study. In fact, we find that there are no studies that examine the relationship between taxation and the degree of tax exemption and that confirm the authenticity of our work to some extent.

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