Danubian Economy and Legislation

The Impact of Direct and Indirect Taxes on Economic Growth: An Empirical Study in Albania

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Abstract: Directly or indirectly, fiscal framework and fiscal changes in overall have an important impact in the economic growth. This paper aims to analyze the impact of direct and indirect taxes (administered by tax authorities and customs) in the gross domestic product, based in an econometric model of autoregressive vectors (VAR) model. We have used data for Albanian GDP and tax revenues for the time series starting in 1993 up to 2020. The model uses three endogenous variables, direct tax revenues, indirect tax revenues and gross domestic products. Based on the analysis in this paper, it can be seen that the main impact is given by direct tax revenues and the previous year economic growth itself. Meanwhile, indirect tax revenues tend to have no significant impact in the economic growth for the years taken into consideration in this paper. This analysis serves for proper orientation of fiscal policies and the changes in fiscal legislation from time to time to maximize the role and effects of tax revenues in economic growth. In addition, this paper aims to encourage a public discussion about the important role of fiscal policy in economic growth.

Keywords: direct taxes; indirect taxes; economic growth; autoregressive vector models (VAR)

JEL Classification: O23; C51

1. Introduction

After the 1990s, building a fiscal system that guaranteed the normal functioning of the economic system in Albania was one of the biggest challenges. The introduction in the economy of different types of taxes brought about a "fiscal revolution", given

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that for more than five decades, in Albania there was no fiscal culture. In the mid-1990s, the necessary legal framework was created to regulate the tax liabilities of individuals and businesses related to personal income tax, excise, royalty, value added tax, corporate income tax, etc. For classification and analysis purposes, we often group the tax revenues as direct taxes [here: Profit Tax, Tax Personal Income, National Taxes and Customs Duties] and indirect taxes [here: Value Added Tax and Excise]. The macro-fiscal framework and fiscal policies in particular, directly affect the level of tax revenues collected by the tax and customs authorities, having importance also in the orientation of public expenditures. Moreover, fiscal policies directly affect the level of economic growth.

This paper aims to analyze and explain the impact that direct and indirect taxes have on Albania's economic growth by determining whether direct or indirect taxes are the ones that have the most impact on economic growth. The study includes time series of the last 27 years (1993 - 2020) using the autoregressive vector (VAR) model trying to determine that fiscal changes have impacted economic growth.The paper contains four main sections: on the first part we can read a literature review highlighting the theoretical and empirical framework of previous studies. The second part presents the performance over 27 years of economic growth rate and direct and indirect tax rates in relation to GDP, as well as explanations of these changes. The third part presents the VAR model together with the relevant analyzes and interpretations of the model. The last part summarizes the conclusions and recommendations reached from this paper. As will be further expanded, the VAR methodology for this study can be used in further empirical studies as it meets the conditions of validity of the model, making the relevant VAR probability tests, residuals correlation, autoregressive tests, etc.

2. Literature Review

Economic experts often aim to study the relationships between different variables in order to give a clearer definition of the relationships, impacts and consequences that an endogenous variable cause on other variables. As one of the most influential elements in the economy, taxes are almost always in the focus of studies related to public spending, investment orientations by governments, and the impacts on economic growth. Direct and indirect taxes, as part of fiscal changes, tend to have important effects on fiscal sustainability, public policies and macroeconomic variables.

Mura has applied a study that shows how tax structures affect economic growth in six Eastern European countries over 23 time periods [years]. Through empirical study, it was shown that tax revenues that come from direct taxes tend to have a negative impact on economic growth, while direct taxes provide a positive impact in the economic growth. "*In the context of fiscal implications, governments of Eastern Europe, should gradually shift the fiscal burden from direct taxes to consumption taxes*" (Mura, 2015).

Szarkowska also analyzed data from 24 EU countries on the impact of taxes and the tax burden on economic growth. From empirical research and modeling of the data, it was observed that the tax burden has a negative impact in the economic growth and in particular direct taxes negatively affect this growth. (Szvarkowskà, 2013)**.** If we analyze a paper done by some Romanian authors, it was noticed that both direct and indirect taxes have had a negative impact on Romania's economic growth over the period 1990-2007. (Brasoveanu & Brasoveanu, 2008). Other authors such as Stoilova and Patonov have also analyzed data for 28 EU countries and come to almost very similar conclusions to previous studies. *"The empirical study showed that direct taxes heavily affect economic growth in EU countries. As a result, economies based on direct taxes tend to have more efficient policies that affect economic growth."* (Stoilova & Patonov, 2012). Also, in another paper after five years, Stoilov analyzed through an econometric model and showed that import custom duties and taxes on production have agreater impact in economic growth compared with other taxes (Stoilova, 2017).

Another important study made by Jens Arnold emerges again in similar findings with other studies. From the empirical analysis of some OECD countries, it is concluded that *"direct taxes have a greater impact on slowing economic growth compared to indirect taxes and property taxes."* (Jens, 2008). In addition to fiscal changes and types of taxes, there are also other factors that positively or negatively impact economic growth. Some of the factors may not be clearly identified, as they have indirect impacts on a country's economic growth. This conclusion was seen also in another study done in Romania. In this context, indirect taxes were seen to have a positive impact on economic growth. (Bâzgan, 2018). There are authors who think that while it is difficult to clearly identify the contribution of tax revenues to economic growth, they see this contribution as closely linked to the orientation of public spending. Thus, Benos argues that when tax revenues are well-oriented to efficient public spending, the whole economy can grow faster. (Benos, 2009). In another empirical study of some OECD countries, Angelopoulos has argued that

public spending, capital gains and corporate income tax positively affect economic growth, in contrast to the taxation of incomes coming from employment that reduce the economic growth (Angelopoulos, 2007).

If you expand the analysis and correlation between the tax system and economic growth, we can affirm that not only direct and indirect taxes, but the whole fiscal system and fiscal framework affect the economic growth, especially in countries with similar economic features like Albania. This conclusion was reached by the authors of a publication made by the World Bank for the countries of Eastern Europe and Central Asia, where it is quoted that the simplicity of the fiscal system is one of the basic conditions for sustainable economic growth (Grey, Lane, & Varoudakis, 2007). *"In the richest economies and non-OECD member countries taken into consideration, it is noted that the size of public spending and tax revenues negatively affect the economic growth,"* so concluded in a study made by (Fölster & Henrekson, 2001). So, if we summarize, almost all empirical studies come to the same conclusions. Let us analyze the data of Albania to see what conclusions we can reach.

3. Economic Growth Performance in Albania

For almost three decades (1993-2020), economic growth in Albania has experienced strong oscillations, often contradictory, as there have been periods where growth has tended to be stable. In the macroeconomic framework, Albania's economic growth is set to be as one of the primary indicators, being several times in the focus of economic policies undertaken by governments.

Making a simple analysis, we can divide the period under consideration into 3 sub-periods [always referring to the economic growth trend]. The first period which belongs to the years 1993 - 2001 is characterized by strong movements, often unjustified, characterized by the crackdown of 1997, followed by an immediate increase in the next 2-3 years. Throughout this period, direct taxes (as a percentage of GDP) dominate over indirect taxes. The second period, 2002 - 2008 is characterized by a stable economic growth stationed at levels 5 - 6%. Throughout this period, the percentage of direct taxes increases again, while the role of indirect taxes continues to remain at stable levels.

The period 2009 - 2013 shows the effects of the global economic crisis, leading to a decline in economic growth. After 2013, with the exception of 2020 [which reflects the effect of Covid-19 on the economy], we have a stable economic growth, where

we can see a small increase in the share of indirect taxes, while the level of direct taxes almost remains unchanged.
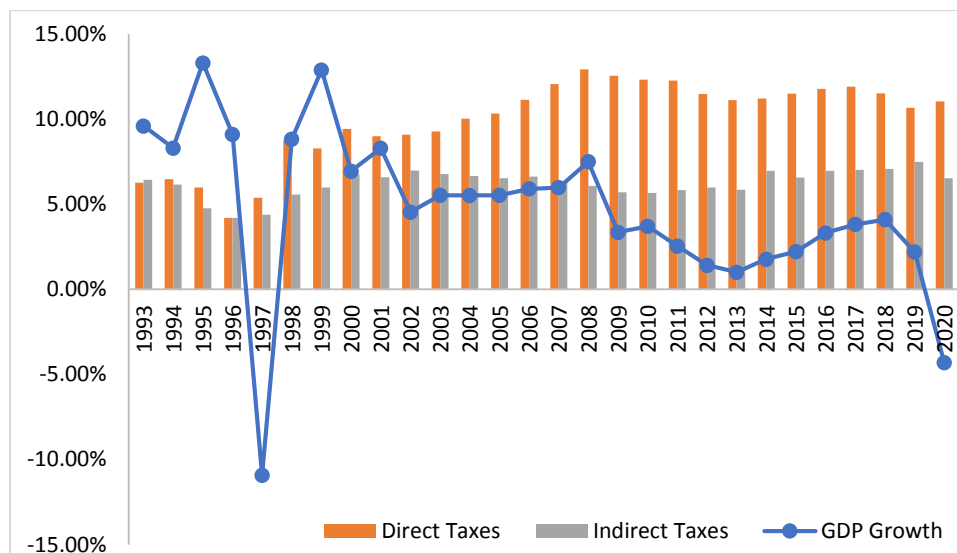

Figure 1. Economic Growth and Tax Revenues Performance (1993 – 2020)

4. Research Methodology

In the regressive and autoregressive models which create time series, the econometric tests must be taken into consideration to assess the effectiveness and relevance of these models. Among the most important tests is the time series stationarity test, a test which we are explaining summarized as follows.

One of the most widely used tests to assess the stationarity of time series, is the Augmented Dickey – Fuller test (ADF). A variable is non-stationary if it is expressed as a function of time. A time series variable is stationary (i.e., stable) if its mean and variance are constant over time and the covariance between the two values depends only on the length of the time period that separates them and not on the time moments when they occur. Time series data must first be converted to stationary data so they can be usable and can serve as data input in the econometric model. Only after a time series is stationary, then it is accepted as a dependent or independent variable in a regression model. At the same time, we can test the conversion of time series to stationary series by differences.

Meanwhile, the autoregressive variable (VAR) model is used to explain the economic relationship between the variables under consideration. VAR model uses a series of equations in which each of the variables is explained by the time-delayed variable of itself and by the current and past values of the other variables. In the case of the VAR model for the impact of direct and indirect taxes on economic growth (calculated with the value of GDP), basic VAR model with p delay time and k - dimensional (X variables $_j$ for $j = 1,2, ..., k -1$) forms the system of equations:

$$GDP_t = \sum_{i=1}^{p} \alpha_{1i} GDP_{t-1} + \sum_{i=1}^{p} \alpha_{2i} DT_{t-1} + \sum_{i=1}^{p} \alpha_{3i} IDT_{t-1} + \varepsilon_{1t}$$

$$DT_t = \sum_{i=1}^{p} \beta_{1i} GDP_{t-1} + \sum_{i=1}^{p} \beta_{2i} DT_{t-1} + \sum_{i=1}^{p} \beta_{3i} IDT_{t-1} + \varepsilon_{2t}$$

$$IDT_t = \sum_{i=1}^{p} \gamma_{1i} GDP_{t-1} + \sum_{i=1}^{p} \gamma_{2i} DT_{t-1} + \sum_{i=1}^{p} \gamma_{3i} IDT_{t-1} + \varepsilon_{3t}$$

Equation 1. VAR formulas of each variable of the econometric model

where, GDP_t - gross domestic product

DT - level of direct income

IDT - level of indirect tax revenue

Based on the models made by foreign authors for the economies of the countries under study, to reflect the relationship between direct and indirect taxes on economic growth, it is suggested to build models with autoregressive vectors (VAR). In the case of Albania, we use data belonging to a period of 27 years (1993 - 2020) with annual frequency. The data obtained to be modeled were adapted to the same unit and before creating the econometric model, it was initially analyzed whether the time series of the data were appropriate to use as input data for the VAR model.

4.1. Stationarity

Analyzing the data, we have converted the times series into stationary ones because initially none of them were stationary. Specifically, GDP and Direct Taxes turned to stationary series with the second difference (p <0.05) while indirect taxes turned to stationary series with the first difference. Now that the series has passed the stationarity test, the data can be used to build the VAR model.

Table 1. Time Series Stationarity Test

ADF test	*Level*		*First Difference*		*Second Difference*	
Unite root test	F stat.	Prob.	F stat.	Prob.	F stat.	Prob.
GDP	-1.232139	0.6453	-1.812262	0.3665	-4.128952	0.0039
Direct Tax	-1.129365	0.6884	-2.774323	0.0758	-6.064116	0.0000
Indirect Tax	1.137895	0.9964	-3.22236	0.0329		

4.2. Determining the optimal LAG (time delay)

Since VAR models are dynamic models [which also represent the effects of time-varying variables], for data analysis we have to define an optimal LAG that will represent the limit to what time period the variables will affect each other. Through econometric analysis, the data are presented as follows:

Table 2. Lag Length Selection Criteria

Endogenous variables: GDP, D-Tax, IND-Tax						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	-905.3844	NA	4.46e+26	69.87572	70.02089	69.91752
1	-810.1734	161.1262*	5.92e+23	63.24411	63.82477*	63.41132*
2	-800.3800	14.31349	5.76e+23*	63.18308*	64.19923	63.47569
* indicates lag order selected by the criterion						

From the analysis it is noticed that the optimal lag is equal to one (1). This indicates that variables must be taken for granted that has an impact with a delayed time period. Since the data have become stationary and we have found the optimal lag, we can now model the data in order to study the links between direct and indirect taxes with economic growth.

Table 3. Parametric Estimation of VAR Model

Dependent Variable: D(D(LOG(PBB)))				
Method: Least Squares				
Sample (adjusted): 1996 2020				
Included observations: 25 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.019636	0.016179	-1.213692	0.2383
D(D(LOG(GDP(-1))))	-0.553885	0.156225	-3.545419	0.0019
D(D(LOG(DT(-1))))	0.154895	0.052867	2.929872	0.0080
D(LOG(IDT(-1)))	0.053143	0.128821	0.412531	0.6841
R-squared	0.524276	Mean dependent var		-0.009556
Adjusted R-squared	0.456316	S.D. dependent var		0.063540
S.E. of regression	0.046851	Akaike info criterion		-3.138044
Sum squared resid	0.046095	Schwarz criterion		-2.943023
Log likelihood	43.22554	Hannan-Quinn criter.		-3.083953
F-statistic	7.714423	Durbin-Watson stat		1.791491
Prob(F-statistic)	0.001165			

Through the VAR model and logarithmic forms of variables, we note that the model is statistically significant (F-stat. <0.05) and at the same time the variables of economic growth and direct taxes are also statistically significant, with probabilities of 0.0019 and 0.008 respectively, both less than 5%. Although the model as a whole has a relatively not very large coefficient of determination (45.6%), this is not a problem as long as the model as a whole is statistically significant. Another element that is noticed is that indirect taxes have a statistically insignificant effect in economic growth, but it has not been eliminated as a variable in order to fully maintain the model.

In general form, regarding the model data, the equation that explains the relationship between independent variables (direct and indirect taxes) and economic growth is presented as follows:

$$\Delta^2 \log(GDP_t) = -0.0196 - 0.5539 \Delta^2 \log(GDP_{t-1})$$
$$+ 0.1549 \Delta^2 \log(DT_{t-1}) + 0.0531 \Delta \log(IDT_{t-1}) + \varepsilon_t$$

Equation 2. General equation of the model (dependent variable: GDP)

Realizing the qualitative interpretation of the variables, we can say that:

1. The previous year's GDP has a statistically significant inverse relationship with current GDP. If the GDP of the previous year had increased by 1%, current GDP

would theoretically decrease by 0.55%. This reverse cyclical link is related to the fact that GDP growth, given the chain growth, indicates that the economy will gradually begin to deplete its growth, so next year the economy tends to decline.

2. DT of the previous year have a statistically significant direct impact on economic growth and the performance of current GDP. If the previous year direct taxes increased by 1%, we expect current GDP to increase by 0.15%. This is due to the fact that the increase in tax revenues gives the impact next year for at least two reasons. Firstly, because the taxes collected can contribute into greater public investment increasing GDP. Secondly, more taxes collected means that individuals have realized more income (converting most of them as consumption) and impacting economic growth.

3. IDT of the previous year have a direct relationship, but statistically insignificant with current GDP. This is because the frequent changes in the indirect fiscal tax legislation have made it almost impossible for IDT to contribute to the economic growth of the following year. A lot of changes in fiscal framework means no stable contribution to the value of GDP and economic growth.

Trying to build a more generalized and sustainable model, it is recommended that the VAR model used must be tested for elements such as multicollinearity, heteroskedasticity of residuals and autocorrelation. This is done because we have to be convinced that the model is statistically important.

4.3. Multicollinearity

Table 4. Multicollinearity Test

Variance Inflation Factors			
Sample: 1993 2020			
Included observations: 25			
	Coefficient	Uncentered	Centered
Variable	Variance	VIF	VIF
C	0.000262	2.981272	NA
D(D(LOG(GDP(-1))))	0.024406	1.587854	1.523951
D(D(LOG(DT(-1))))	0.002795	1.113166	1.101068
D(LOG(IDT(-1)))	0.016595	3.117927	1.638615

As can be seen from the VIF values (centralized and decentralized), for all three variables we have values less than 5, which means that the VAR model does not suffer from multicollinearity between variables.

4.4. Heteroskedasticity

Table 5. Breusch – Pagan Godfrey Heteroskedasticity Test

F-statistic	1.406653	Prob. F(3,21)	0.2687
Obs*R-squared	4.183154	Prob. Chi-Square(3)	0.2424
Scaled explained SS	10.32507	Prob. Chi-Square(3)	0.0160

Even heteroskedasticity analysis shows that the model does not suffer from heteroskedasticity, presenting to us the fact that residuals have a homoscedasticity dispersion. This is expressed by the probability 0.2424> 0.05.

4.5. Autocorrelation

Table 6. Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.342230	Prob. F(2,19)	0.7145
Obs*R-squared	0.869291	Prob. Chi-Square(2)	0.6475

The Breusch-Godfrey test determines that our model does not even have autocorrelation of data.

4.6. Histogram – Normal Distribution Test

As can be seen from the graphic presentation of the residuals, it turns out that they do not have a normal distribution. Although this is not a good indicator in terms of distribution of the residuals, this shall not prejudice the importance of the model. Moreover, another additional analysis makes us realize that in our model, it does not matter that the residual does not have a normal distribution. This is confirmed by the residual's stability test.
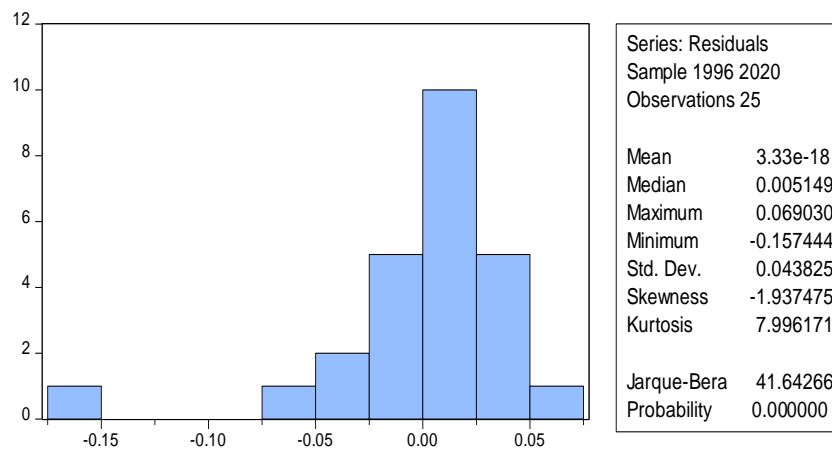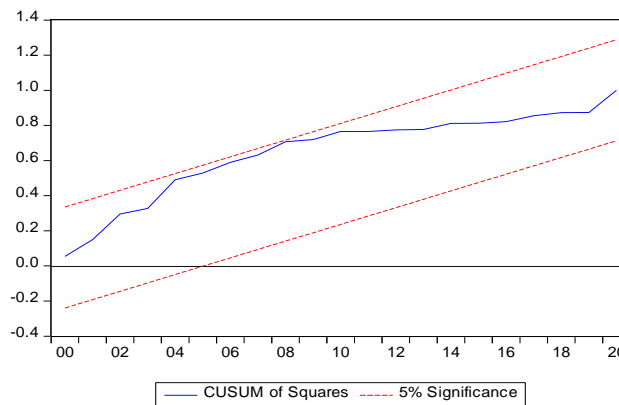

Figure 2. Normal Distribution Histogram

Figure 3. CUSUM Test

Taking as a reference the significance level of 5%, we see that all residuals behave as stable within this constraint, making us realize that they are sustainable and do not pose a problem in the medium- and long-term forecast. Although the distribution of residuals is not normal, the stability of them confirms that the model can be used for both medium- and long-term forecasts.

5. Findings and Discussions

Referring to the literature reviewed to analyze the relationship between direct and indirect taxes with economic growth, in most Eastern European countries it has been observed that direct taxes are the ones that have the most impact on economic growth, having a negative relationship with GDP. While indirect taxes have shown that they positively affect the economic growth of countries with similar economic typologies to Albania. On the other hand, it is advisable to shift the fiscal burden from direct to indirect taxes.

If we refer to the analysis conducted in this paper, we conclude that direct taxes are those that have a positive impact on economic growth. Specifically, if we refer to the findings of the model, we claim that the increase of direct taxes of the previous year by 1%, simulates the growth of current GDP by 0.15%. While indirect taxes are seen as not significantly affecting economic growth. The VAR model also analyzes that last year's economic growth itself has a statistically significant impact on current economic growth. An increase of 1% of GDP last year, brings a decrease of 0.55% in current GDP. This is also due to the justified or not fluctuations that the Albanian economy has had in the last three decades. Thus, we can conclude that precisely direct taxes in Albania give the main impact on economic growth.

The lack of importance and contribution of indirect taxes has a significance. Firstly, indirect taxes (the vast majority as VAT) are the main and most important object in tax evasion, not bringing potential revenue to the budget and not giving the expected impact on economic growth. Secondly, the frequent fiscal changes in tax legislation, especially for value added tax, have made the trend of revenues collected each year from indirect taxes unstable. Thirdly, economic growth itself has been hit hard from time to time, reducing the effectiveness of fiscal policies undertaken by governments.

In this context, to recommend that:

1. Public policy should be directed to the sustainability of economic growth, on purpose to consolidate the public policies undertaken for that.

2. Fiscal policies should be oriented towards increasing tax revenues that come from direct taxes, as these revenues impact economic growth in these 3 decades in Albania.

3. Legal changes in indirect taxes are not very important in economic growth. Although indirect taxes constitute a significant burden on the state budget, it is

recommended that these changes can be made to improve revenues, but without focusing on economic growth.

VAR models are widely used to analyze the effect of taxation in economic growth. If we want to make a deeper analysis of the impact of the specific direct or indirect taxes (classified by the economic source and their contribution in GDP and its cycle) in economic growth, for Albanian economy we face a lack of full database of time series.

Perhaps this is a future challenge for further work by the authors themselves. At the same time, autoregression models that explain economic phenomena and the relationship between baseline indicators in a country, are generally capable of explaining these relations in short and e medium term.

These models are limited and fail to provide long-term relationships between variables. Therefore, for further in-depth studies on the long-term effects of taxation on economic growth and GDP as itself, it is recommended to use more complete data and more advanced methodologies that include a fully explanation of variables and their effects.

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