



HAL
open science

Taxes and economic growth in the WAEMU

Zacharia Zabsonre

► **To cite this version:**

Zacharia Zabsonre. Taxes and economic growth in the WAEMU. Les Cahiers de la Recherche-Développement, 2023. hal-04116532

HAL Id: hal-04116532

<https://hal.science/hal-04116532v1>

Submitted on 4 Jun 2023

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Taxes and economic growth in the WAEMU

Author: ZABSONRE Zacharia. Centre d'Etudes, de Documentation et de Recherches Economiques et Sociales (CEDRES). zabsonrezacharia2022@gmail.com

Summary

This article analyses the interaction between taxes and economic growth in WAEMU countries by breaking down total taxes into direct and indirect taxes. The application of the Generalized Least squares (GLS) estimate on data for the period 1980-2020 through the Seemingly Unrelated Regression Equations Model (SURE) has led to conclusive results. The results show a lack of significant interaction between total taxes and economic growth in Benin, Niger, Senegal and Guinea-Bissau. Unidirectional causality ranging from tax revenues to economic growth is found in Burkina Faso and Côte d'Ivoire. However, feedback is observed between the two variables in Mali and Togo. In the light of these results, it is necessary to strengthen the WAEMU Community Directives on direct and indirect taxation. This will allow different countries to further improve their tax system in order to boost their economic growth.

Keywords: taxes, economic growth, SURE model, UEMOA, interaction

Résumé

Cet article analyse l'interaction entre les impôts et la croissance économique dans les pays de l'UEMOA en décomposant le total des impôts en impôts directs et impôts indirects. L'application de l'estimation Generalized Least squares (GLS) sur les données de la période 1980-2020 à travers le Seemingly Unrelated Regression Equations Model (SURE) a permis d'aboutir à des résultats concluants. Les résultats montrent une absence d'interaction significative entre le total des impôts et la croissance économique au Bénin, au Niger, au Sénégal et en Guinée-Bissau. Une causalité unidirectionnelle allant des recettes fiscales à la croissance économique est constatée au Burkina Faso et en Côte d'Ivoire. Toutefois, une rétroaction est observée entre les deux variables au Mali et au Togo. A la lumière de ces résultats, un renforcement des directives communautaires de l'UEMOA en matière de fiscalité directe ou indirecte s'avère nécessaire. Ce qui va permettre aux différents pays d'améliorer d'avantage leur système d'imposition afin de booster leur croissance économique.

Mots clés : impôts, croissance économique, modèle SURE, UEMOA, interaction

1. Introduction

The ideology of many low-income countries is systematic state intervention to stimulate economic growth (Nafziger, 2006). Tax reforms are therefore presented as having strong macroeconomic growth effects (Engen & Skinner, 1999). This hope is based on the fact that the tax system influences economic growth (Thomakos and Nikolopoulos, 2017; Romer, 1986; Lucas, 1990). On the other hand, some governments want more economic growth to generate significant tax revenues (Gray et al. 2007). Indeed, the tax ratio increases with economic growth (Chelliah, Baas and Kelly 1975; Tait, Gratz and Eichengreen 1979; Tanzi 1987, Tanzi 2018). They argue that the causality between economic growth and taxation ranges from higher growth to higher levels of taxation. Yet some of the causality can also range from tax revenues to economic growth (Todaro & Smith, 2015) if tax resources are wisely spent, for example, to improve human capital and the necessary investments in infrastructure.

Finally, only empirical evidence can determine whether tax policy has a strong influence on economic growth or whether it is the reverse (Engen & Skinner, 1999). This theoretical controversy is also observed empirically. Indeed, some researchers have identified a unidirectional relationship between economic growth and taxes. Among them, many find that taxes positively affect economic growth (Köse and Alı, 2021; Moh'd AL-Tamimia and Bataineha, 2021; Amedanou, 2020; etc.) while others have led to the opposite results that is- that taxation negatively impacts economic growth (Hakim, 2020; Oyinlola et al. 2019; Ozpence and Mercan, 2020; Baiardi et al. 2018; Atems, 2015; etc.). While previous work has focused on the effects of taxation on economic growth, some authors have looked at the opposite effect. They have thus provided evidence that economic growth generates tax revenues (Gurdal et al. 2020; Hassan et al. 2021; Kobayagda, 2019, etc.). In contrast to those who have highlighted a one-way relationship, researchers such as Arvin et al. (2021), Gurdal et al. (2020), Baiardi et al. (2018) and Kane (2018) are among those who have highlighted a two-way relationship between taxation and growth. A third group of authors reported an absence of relationship between the two variables (Baiardi et al. 2018; Atems, 2015; Kalaš et al. 2018; etc.).

These theoretical and empirical controversies lead us to determine the causal relationship between taxes and economic growth. What is the interaction between economic growth and taxation in WAEMU countries? What is its nature, meaning and intensity? Are there

discernible differences in GDP growth as a result of tax cuts? To what extent has this growth been caused by tax cuts?

The main objective of this research is therefore to analyse the interaction between economic growth and taxes in the WAEMU countries. We assume that there is feedback between these two variables in WAEMU countries. The application of the Generalized Least squares (GLS) estimate on data for the period 1980-2020 through the Seemingly Unrelated Regression Equations Model (SURE) allowed us to verify the hypothesis. The implementation of the SURE model for the first time in the context of WAEMU is one of the innovations of this research. Another important contribution of the present work is to highlight the interaction between direct taxation and economic growth separately from that between direct taxation and indirect taxation.

The rest of the document is structured as follows. Section 2 provides a review of some relevant literature on the issue and Section 3 outlines the methodology approach. The results and their discussion will be discussed in Section 4 and the conclusion and implications of economic policy will be discussed in Section 5.

2. Literature Review

Here we review the literature review both theoretically and empirically.

2.1. Theoretical interaction between taxes and economic growth

The interaction between taxes and economic development is analysed in three directions. First, taxes influence economic growth, second, taxes affect taxation, and finally, the existence of neutrality is often highlighted between the two variables.

2.1.1. Influence of taxes on economic growth

It is well known that taxes and tax regimes affect economic growth (Thomakos and Nikolopoulos, 2017). Reducing the distortions of the tax structure would permanently increase economic growth (Auerbach and Kotlikoff, 1987; Auerbach, 1996a; Engen and Gale, 1996). But how does tax policy affect economic growth? Taxation essentially goes through five channels to influence economic growth. First, high statutory corporate and personal income tax rates can discourage investment rates (Solow, 1956). Second, taxes can dampen labour supply growth by discouraging labour force participation (Solow, 1956). Third, tax policy can discourage productivity growth by mitigating research and development (R&D) and venture capital development (Solow, 1956). Fourth, tax policy can influence marginal

productivity of capital by reducing investment in heavily taxed sectors in favour of those with lower overall productivity (Harberger, 1962). Fifth, high taxation of labour supply can impede the effective use of human capital by discouraging labour in sectors where social productivity is high but where the tax burden is high (Engen & Skinner, 1992). In the Harrod-Domar model, the rate of economic growth decreases with the increase in the tax rate (Harrod, 1939; Domar, 1946). However, the question remains: how big are these tax effects on economic development? Fifth, high taxation of labour supply can impede the effective use of human capital by discouraging labour in sectors where social productivity is high but where the tax burden is high (Engen & Skinner, 1992). In the Harrod-Domar model, the rate of economic growth decreases with the increase in the tax rate (Harrod, 1939; Domar, 1946). However, the question remains: how big are these tax effects on economic development?

2.1.2. Influence of economic growth on taxation

As real per capita GNP increases, people demand relatively more public goods and relatively less private goods (Wagner, 1958). As a result, a country's tax ratio increases with economic growth (Chelliah, Baas, & Kelly, 1975; Tanzi, 1987). Indeed, taxation capacity is closely associated with administrative capacity that is likely to improve with economic development (Burgess and Stern, 1993; Gray et al., 2007; Todaro and Smith, 2015). On the other hand, tax systems tend to have "integrated" mechanisms for increasing tax revenues as income levels of economic agents increase as economic activities increase (Musgrave & Musgrave, 1989). The level of real income per capita is therefore an important factor in a country's fiscal potential (Todaro & Smith, 2015). The explanation is that people with higher incomes theoretically pay a higher percentage of that income in taxes when it is too costly administratively and economically regressive to try to collect substantial taxes from the poor. (Todaro and Smith 2015). As a result, developed countries receive a much higher percentage of GDP in tax revenues than developing countries (Todaro and Smith 2015).

2.1.3. Tax neutrality and economic growth

Solow's conventional growth model postulates that productivity growth is assumed to be fixed and not affected by tax policy. But this paradoxical result is also due to a distinction between changes in the level of GDP and changes in GDP growth rates. In the Solow model, growth in investment and labour supply returns to their initial rates determined by long-term population growth. In other words, Solow's simple model implies that fiscal policy, even if distortive, does not have an impact on long-term economic growth rates, even if it reduces the

level of long-term economic output. Thus a revenue-neutral change that would eliminate all taxes on capital income while increasing taxes on labour income would increase growth rates negligible (Lucas, 1990).

2.1.4. Empirical interaction between taxes and economic growth

Empirically, there are three types of interaction between taxation and economic growth: One-way, two-way, and no-interaction.

2.1.4.1. One-way interaction between taxation and economic growth

The authors who identified a one-way relationship between economic growth and taxes fall into two categories. There are those who think that taxation affects economic growth and those for whom it is exactly the opposite.

Taxation positively affects economic growth

Based on an ARDL model of data from Iraq covering the period 2005-2019, Köse and Ali (2021) found that the effects of government revenues on growth were positive. Similarly, Moh'd AL-Tamimia and Bataineha (2021) demonstrated that there is a positive impact of tax revenues on growth in Jordan over the period (2000-2018). They relied on the VAR model and the Granger causality test. The ordinary least squares estimation technique was used. Using a Scully model (1996, 2000) and a quadratic model, Amedanou (2020) identified an inverted U-relationship between economic growth and tax burden in West African countries over the period 1980-2017. Pooled Mean Group (PMG) and MG (Mean Group) panel estimation techniques were used to arrive at the conclusion that rising tax levels are accompanied by improved living conditions in countries. But in some countries, such as Burkina Faso and Guinea-Bissau, greater mobilization of tax revenues as a percentage of GDP has led to lower levels of well-being. Using the time domain and frequency panel causality test on annual data from G7 countries (Canada, France, Germany, Italy, Japan, the United Kingdom and the United States) for the period 1980-2016, allowed Gurdal et al. (2020) Demonstrate that there is a long-term unidirectional relationship between tax revenues and economic growth from tax revenues to economic growth in Japan.

Using a seemingly independent regression model (SURE: Seemingly Unrelated Regression Model) on data from 2000 to 2015, Oboh et al. (2018) showed that a 1% increase in indirect taxes stimulates economic growth by about 47.7% in Ghana, Sierra Leone, Benin and Burkina Faso and Nigeria. In Nigeria, the effect is positive but negligible. Similarly, the taxation of

corporate profits positively influences the economy when the tax rate delayed by a period is less than 12.7% in six (6) WAEMU countries for the period 1970-2016 (Maxime and Toussaint, 2019). The authors used a smooth panel transition model (PSTR) based on the composition of the tax structure to achieve this result. Comlan (2017) also found that tax revenues have a positive effect on the growth of WAEMU economies over the period 1980-2014. The author used an econometric PCSE approach (panel with standard error correction). Empirical results from the generalized least squares estimate indicate that tax revenues are positively and statistically related to GDP in Africa during 2004 to 2013 (Babatunde et al.(2017). N'Yilimon (2014) notes, in disagreement with Arthur Laffer's curve, that there is no non-linear relationship between taxation and economic growth in WAEMU countries. Thus, the absence of a non-linear relationship suggests that high and low levels of fiscal performance are conducive to per capita economic growth.

Taxation negatively affects economic growth

Unlike previous authors who have identified a positive effect, other authors will argue that taxation hinders economic growth (Hakim, 2020; Oyinlola et al. 2019; Ozpence and Mercan, 2020; Baiardi et al. 2018; Atems, 2015; etc.). Hakim (2020) found that the increase in direct taxes leads to a decrease in GDP growth in 51 countries over the period 1992-2016. The Dynamic Panel Generalized Moments (GMM) method was used. Using the Generalized Moments (GMM) method on data from 27 sub-Saharan African countries covering the period 1999-2015, Oyinlola et al. (2019) indicated that indirect tax coefficients are mainly negative on growth while direct tax coefficients are all positive but not significant. Based on impact-response analysis and variance decomposition, Ozpence and Mercan (2020) found that the tax burden negatively affects economic growth over the period 1970-2018 in Turki. Oboh et al. (2018) showed that a 1% increase in direct tax decreases economic growth by 3.08% in five states of the Economic Community of West African States (ECOWAS). But this tax has not been productive in Ghana, Sierra Leone, Benin and Burkina Faso. Using the Pooled Average Estimator (GMG) on data from 23 OECD countries over the period 1971-2014, Baiardi et al. (2018) showed that there is a negative and significant long-term correlation between tax burden and GDP per capita. The positive long-term correlation of GDP per capita is confirmed by a shift from consumption taxes to property taxes. Atems (2015) shows that property and sales taxes have reduced economic growth in the short and long term. The pooled mean group average (PMG) technique was used on the data of 48 States of the United States of America for the period 1967-2008.

Economic growth impacts taxation

While previous work has focused on the effects of taxation on economic growth, some authors have focused on the reverse effect. Thus, Gurdal et al.(2020) highlighted a long-term unilateral relationship between tax revenues and economic growth ranging from economic growth to tax revenues in the UK and Italy. In the United States, this relationship is short-term. Based on an ARDL model applied to Pakistan data from 1976 to 2019, Hassan et al. (2021) showed that increased industrial activity would increase direct and indirect tax revenues. Based on the stochastic model of borders, Kobyagda (2019) has shown that GDP per capita has a positive and significant influence on the tax burden in the WAEMU area. His research used data from 1990-2017. Based on the estimation technique of a fixed-effect model with heteroscedasticity correction and instrumental variables for WAEMU countries over the period 1996-2015, Abdoulaye D. (2018) reached the conclusion that per capita income positively affects tax revenues while corruption negatively affects tax revenues. Official development assistance and inflation have no significant effect on tax revenues. Using an error-corrected dynamic vector model (PVEC) on WAEMU data for the period 1980-2016, Kane (2018) showed that a shock of GDP per capita in a Union country significantly influences the variance of tax revenues among its neighbours.

2.1.4.2. Two-way interaction between taxation and economic growth

Researchers such as Arvin et al. (2021), Gurdal et al. (2020), Baiardi et al. (2018) and Kane (2018) are among those who have highlighted a two-way relationship between taxation and growth. Arvin et al. (2021) showed that in the short term, economic growth has a significant impact on tax revenues and vice versa. They used an error-corrected vector model (P-VECM: panel vector error-correction model) for 51 countries over the period 2005-2019. Gurdal et al. (2020) report two-way causality between tax revenues and economic growth for the period 1980-2016 when all G7 countries are tested together. Baiardi et al. (2018) confirmed a positive and significant long-term correlation between tax burden and per capita GDP is confirmed by a shift from consumption tax to property tax.

2.1.4.2. Two-way interaction between taxation and economic growth

Researchers such as Arvin et al. (2021), Gurdal et al. (2020), Baiardi et al. (2018) and Kane (2018) are among those who have highlighted a two-way relationship between taxation and growth. Arvin et al. (2021) showed that in the short term, economic growth has a significant impact on tax revenues and vice versa. They used an error-corrected vector model (P-VECM:

panel vector error-correction model) for 51 countries over the period 2005-2019. Gurdal et al. (2020) report two-way causality between tax revenues and economic growth for the period 1980-2016 when all G7 countries are tested together. Baiardi et al. (2018) confirmed a positive and significant long-term correlation between tax burden and per capita GDP is confirmed by a shift from consumption tax to property tax.

2.1.4.3. Lack of interaction between taxation and economic growth

The lack of relationship between the two variables was found in the work of Baiardi et al. (2018; Atems, 2015; Kalaš et al. 2018; etc.). By expanding the data set to 34 OECD countries, Baiardi et al. (2018) concluded that the tax burden is not significantly associated with long-term economic growth for the period 1995-2014. Atems (2015) shows that income taxes have had no impact on economic growth in both the short and long term in 48 states of the United States of America for the period 1967-2008. Applying a standard panel data model, Kalaš et al. (2018) also confirmed that there is no significant relationship between taxes (namely corporate income tax, value added tax, social security contributions and excise taxes) and gross domestic product in Serbia and Croatia over the period 2007-2016.

3. Research methodology

3.1. Theoretical models

3.1.1. Theoretical models of causality

Be X_t, Y_t two fixed time series with zero means. Granger's (1969) simple causal model is:

$$\begin{aligned} X_t &= \sum_{j=1}^m a_j X_{t-j} + \sum_{j=1}^m b_j Y_{t-j} + \varepsilon_t, \\ Y_t &= \sum_{j=1}^m c_j X_{t-j} + \sum_{j=1}^m d_j Y_{t-j} + \eta_t. \end{aligned} \quad (1)$$

where ε_t, η_t are considered as two uncorrelated white noises, i.e., $E[\varepsilon_t \varepsilon_s] = 0 = E[\eta_t \eta_s], s \neq t, E[\eta_t \eta_s] = 0$ for all t, s . In the model (1), m may be infinite, but in practice, of course, due to the finite length of the available data, m will be considered finite and shorter than the given time series. The above definition of causality implies that Y_t causes X_t provided that some b_j are not null. Similarly, X_t causes Y_t if some c_j are not null. If these two events occur, there would be a feedback relationship between X_t and Y_t . This new definition of causality is in fact identical to the one previously introduced. The more general model with instant causality is

$$\begin{aligned} X_t + b_0 Y_t &= \sum_{j=1}^m a_j X_{t-j} + \sum_{j=1}^m b_j Y_{t-j} + \varepsilon_t, \\ X_t + c_0 X_t &= \sum_{j=1}^m c_j X_{t-j} + \sum_{j=1}^m d_j Y_{t-j} + \eta_t, \end{aligned} \quad (2)$$

In model (2), instantaneous causality is allowed (Granger 1969).

3.1.2. Theoretical model of the interaction between taxation and economic growth

Aigner et al. (1977) shows that tax revenues (T) are a function of GDP and other variables. Thus,

$$T = f(\text{PIB}, X_1 \dots X_n, U) \quad (3)$$

where the $X_i (i = 1 \dots n)$ represents the various variables likely to influence tax revenues and U denotes the error term. Conversely, taxation acts on economic wealth as evidenced by the macroeconomic model of Harrod(1939)-Domar(1946). Thus,

$$\omega = [s + (\lambda - s)t]A, \quad (4)$$

Where ω refers to the long-term economic growth rate, s, savings rate A, productivity . λ is the share of public investment in public expenditure and t is the tax rate.

Keeping all other variables constant, the complete system of interaction between growth and taxation is formalized as follows:

$$\begin{cases} T = f(\text{PIB}, U) \\ \text{PIB} = f(T, U) \end{cases} \quad (5)$$

3.2. Empirical Models

Based on theoretical models (1) and (5), we write our empirical model in the form of an equation system.

3.2.1. Interaction model between economic growth and total taxes

$$\ln \text{PIB}_{1,t} = \alpha_{1,1} + \sum_{i=1}^{lm1} \beta_{1,1,i} \ln \text{PIB}_{1,t-i} + \sum_{i=1}^{ln1} \delta_{1,1,i} \ln \text{Tax}_{1,t-i} + \sum_{i=1}^{lk1} \gamma_{1,1,i} \ln \text{PopAct}_{1,t-i} + \varepsilon_{1,1,t}$$

$$\ln \text{PIB}_{2,t} = \alpha_{1,2} + \sum_{i=1}^{lm1} \beta_{1,2,i} \ln \text{PIB}_{2,t-i} + \sum_{i=1}^{ln1} \delta_{1,2,i} \ln \text{Tax}_{2,t-i} + \sum_{i=1}^{lk1} \gamma_{1,2,i} \ln \text{PopAct}_{2,t-i} + \varepsilon_{1,2,t}, \quad (1)$$

$$\ln PIB_{N,t} = \alpha_{1,N} + \sum_{i=1}^{lm1} \beta_{1,N,i} \ln PIB_{N,t-i} + \sum_{i=1}^{ln1} \delta_{1,N,i} \ln Tax_{N,t-i} + \sum_{i=1}^{lk1} \gamma_{1,N,i} \ln PopAct_{N,t-i} + \varepsilon_{1,N,t},$$

et

$$\ln Tax_{1,t} = \alpha_{2,1} + \sum_{i=1}^{lm2} \beta_{2,1,i} \ln PIB_{1,t-i} + \sum_{i=1}^{ln2} \delta_{2,1,i} \ln Tax_{1,t-i} + \sum_{i=1}^{lk2} \gamma_{2,1,i} \ln PopAct_{1,t-i} + \varepsilon_{2,1,t},$$

$$\ln Tax_{2,t} = \alpha_{2,2} + \sum_{i=1}^{lm2} \beta_{2,2,i} \ln PIB_{2,t-i} + \sum_{i=1}^{ln2} \delta_{2,2,i} \ln Tax_{2,t-i} + \sum_{i=1}^{lk2} \gamma_{2,2,i} \ln PopAct_{2,t-i} + \varepsilon_{2,2,t},$$

(2)

$$\ln Tax_{N,t} = \alpha_{2,N} + \sum_{i=1}^{lm2} \beta_{2,N,i} \ln PIB_{N,t-i} + \sum_{i=1}^{ln2} \delta_{2,N,i} \ln Tax_{N,t-i} + \sum_{i=1}^{lk2} \gamma_{2,N,i} \ln PopAct_{N,t-i} + \varepsilon_{2,N,t},$$

Compared to (1), this substitution specification has two distinct characteristics. First, each equation in (1) and also in (2) has different predetermined variables. The only possible link between individual regressions is the simultaneous correlation within systems. Therefore, these sets of equations are not VAR systems, but Seemingly Unrelated Regression Equations Model (SURE). In systems of equations (1) and (2), GDP indicates GDP per capita at constant 2015 prices, Tax indicates nominal tax revenues, PopAct indicates the labour force (population aged 15 to 64); it is the control variable, N is the number of panel units, t is the period ($t = 1, \dots, T$) and i is the selected offset time in the system. The common coefficient is α , the slopes are β , δ and γ , while ε is the error term. \ln refers to the natural logarithm. This allows us to obtain consistent, reliable and easily interpretable empirical results (Shahbaz et al., 2016). It is also allocated a maximum difference between variables and between equations. In this document, the system is estimated by each possible pair of $lm1$, $ln1$, $lm2$, $ln2$, $lk1$ and $lk2$, and it is assumed that there is a single lag in the fact that taxation in a year (n) is based on the profits of the previous year (n-1). Our present work is part of an instantaneous causality as defined above.

3.2.2. Interaction model between economic growth and direct taxes

$$\ln PIB_{1,t} = \alpha_{1,1} + \sum_{i=1}^{lm1} \beta_{1,1,i} \ln PIB_{1,t-i} + \sum_{i=1}^{ln1} \delta_{1,1,i} \ln DirTax_{1,t-i} + \sum_{i=1}^{lk1} \gamma_{1,1,i} \ln PopAct_{1,t-i} + \varepsilon_{1,1,t},$$

$$\ln PIB_{2,t} = \alpha_{1,2} + \sum_{i=1}^{lm1} \beta_{1,2,i} \ln PIB_{2,t-i} + \sum_{i=1}^{ln1} \delta_{1,2,i} \ln DirTax_{2,t-i} + \sum_{i=1}^{lk1} \gamma_{1,2,i} \ln PopAct_{2,t-i} + \varepsilon_{1,2,t},$$

(1)

$$\ln PIB_{N,t} = \alpha_{1,N} + \sum_{i=1}^{lm1} \beta_{1,N,i} \ln PIB_{N,t-i} + \sum_{i=1}^{ln1} \delta_{1,N,i} \ln DirTax_{N,t-i} + \sum_{i=1}^{lk1} \gamma_{1,N,i} \ln PopAct_{N,t-i} + \varepsilon_{1,N,t},$$

et

$$\begin{aligned} \ln DirTax_{1,t} &= \alpha_{2,1} + \sum_{i=1}^{lm2} \beta_{2,1,i} \ln PIB_{1,t-i} + \sum_{i=1}^{lm2} \delta_{2,1,i} \ln DirTax_{1,t-i} + \sum_{i=1}^{lk2} \gamma_{2,1,i} \ln PopAct_{1,t-i} + \varepsilon_{2,1,t}, \\ \ln DirTax_{2,t} &= \alpha_{2,2} + \sum_{i=1}^{lm2} \beta_{2,2,i} \ln PIB_{2,t-i} + \sum_{i=1}^{lm2} \delta_{2,2,i} \ln DirTax_{2,t-i} + \sum_{i=1}^{lk2} \gamma_{2,2,i} \ln PopAct_{2,t-i} + \varepsilon_{2,2,t}, \end{aligned}$$

(2)

$$\ln DirTax_{N,t} = \alpha_{2,N} + \sum_{i=1}^{lm2} \beta_{2,N,i} \ln PIB_{N,t-i} + \sum_{i=1}^{lm2} \delta_{2,N,i} \ln DirTax_{N,t-i} + \sum_{i=1}^{lk2} \gamma_{2,N,i} \ln PopAct_{N,t-i} + \varepsilon_{2,N,t},$$

where *DirTax* refers to direct taxes.

3.2.3. Interaction model between economic growth and indirect taxes

$$\ln PIB_{1,t} = \alpha_{1,1} + \sum_{i=1}^{lm1} \beta_{1,1,i} \ln PIB_{1,t-i} + \sum_{i=1}^{ln1} \delta_{1,1,i} \ln IndTax_{1,t-i} + \sum_{i=1}^{lk1} \gamma_{1,1,i} \ln PopAct_{1,t-i} + \varepsilon_{1,1,t},$$

$$\ln PIB_{2,t} = \alpha_{1,2} + \sum_{i=1}^{lm1} \beta_{1,2,i} \ln PIB_{2,t-i} + \sum_{i=1}^{ln1} \delta_{1,2,i} \ln IndTax_{2,t-i} + \sum_{i=1}^{lk1} \gamma_{1,2,i} \ln PopAct_{2,t-i} + \varepsilon_{1,2,t},$$

(1)

$$\ln PIB_{N,t} = \alpha_{1,N} + \sum_{i=1}^{lm1} \beta_{1,N,i} \ln PIB_{N,t-i} + \sum_{i=1}^{ln1} \delta_{1,N,i} \ln IndTax_{N,t-i} + \sum_{i=1}^{lk1} \gamma_{1,N,i} \ln PopAct_{N,t-i} + \varepsilon_{1,N,t},$$

et

$$\begin{aligned} \ln IndTax_{1,t} &= \alpha_{2,1} + \sum_{i=1}^{lm2} \beta_{2,1,i} \ln PIB_{1,t-i} + \sum_{i=1}^{lm2} \delta_{2,1,i} \ln IndTax_{1,t-i} + \sum_{i=1}^{lk2} \gamma_{2,1,i} \ln PopAct_{1,t-i} + \varepsilon_{2,1,t}, \\ \ln IndTax_{2,t} &= \alpha_{2,2} + \sum_{i=1}^{lm2} \beta_{2,2,i} \ln PIB_{2,t-i} + \sum_{i=1}^{lm2} \delta_{2,2,i} \ln IndTax_{2,t-i} + \sum_{i=1}^{lk2} \gamma_{2,2,i} \ln PopAct_{2,t-i} + \varepsilon_{2,2,t}, \end{aligned}$$

(2)

$$\ln IndTax_{N,t} = \alpha_{2,N} + \sum_{i=1}^{lm2} \beta_{2,N,i} \ln PIB_{N,t-i} + \sum_{i=1}^{lm2} \delta_{2,N,i} \ln IndTax_{N,t-i} + \sum_{i=1}^{lk2} \gamma_{2,N,i} \ln PopAct_{N,t-i} + \varepsilon_{2,N,t},$$

where *IndTax* refers to indirect taxes.

3.3. Variable definition and data source

Table 1: Variables and Data Sources

Variables	Notation	Sources
GDP per capita at constant 2015 prices	$\ln PIBh$	World Bank (WDI)
Total tax revenues	$\ln Tax$	UNU-WIDER
Direct taxes	$\ln DirTax$	UNU-WIDER
Indirect taxes	$\ln IndTax$	UNU-WIDER
Labour force (pop. aged 15-65)	$\ln PopAct$	World Bank (WDI)

These data cover the period 1980-2020.

4. Results and Discussions

The heterogeneity of the slopes obliges us to a country by country estimate. With regard to R-squared are high we can say the overall significance of the models is good.

4.1. Interaction between economic growth and total tax revenues in WAEMU

The interaction between the HBP and total tax revenues is presented in Table 5. The lack of significant interaction between the two variables is noted in Benin, Niger, Senegal and Guinea-Bissau. This finding contradicts the theories of researchers such as Wagner (1958); Musgrave and Musgrave (1989); Todaro and Smith (2015). This is due to the importance of the informal economy, fraud and tax corruption. These scourges are liable to tax certain incomes. The financing of unproductive public expenditure by tax revenues may also justify this result. Another problem is that taxes are not necessarily allocated to expenditures that are conducive to economic growth, either because of political “inefficiencies” or because of redistribution policies (Atkinson, 1995). Our results are consistent with those of researchers such as AL-Tamimia and Bataineha (2021); Abdoulaye (2018); Baiardi et al. (2018) and N'Yilimon (2014) who also highlighted the non-significant impact of economic development on tax revenues.

In Burkina Faso and Côte d'Ivoire, the causality between economic growth and tax revenues is unidirectional, ranging from tax revenues to economic growth. Thus, a 1% tax increase leads to economic growth of 0.14% and 0.07% respectively in Burkina Faso and Côte d'Ivoire. Which contradicts our original hypothesis. Fiscal resources are therefore spent wisely, for example for the improvement of human capital and the necessary investments in infrastructure (Todaro and Smith 2015) in these countries. This supports the thesis of Ihuri (2017), Pigou (1920), Gray et al. (2007) and Barro and Sala-i-Martin (2004) who argued that an increase in the tax rate affects public investment and positively affects the growth rate. Pigou (1920), Zagler and Durnecker (2003), and Musgrave (1959) achieved the same results. In the long term, however, about two-thirds of the effect of tax changes on economic development is through productivity changes (Niskanen, 2008).

Table 5: Estimation results of the interaction between total taxes and growth in the WAEMU countries

VARIABLES	(Bénin)		(Niger)		(Sénégal)		(Guinée-BisBissau)	
	<i>lnPIBh</i>	<i>lnTax</i>	<i>lnPIBh</i>	<i>lnTax</i>	<i>lnPIBh</i>	<i>lnTax</i>	<i>lnPIBh</i>	<i>lnTax</i>
L. <i>lnPIBh</i>	0.840*** (0.0981)		0.821*** (0.0697)		0.902*** (0.0687)		0.740*** (0.105)	
<i>lnTax</i>	0.000663 (0.0158)		0.0388 (0.0254)		0.0406 (0.0430)		0.0403 (0.0255)	
<i>lnPopAct</i>	0.0632	0.346	-0.0674	0.146	-0.0671	0.992***	-0.159*	1.774***

	(0.0508)	(0.261)	(0.0678)	(0.170)	(0.110)	(0.300)	(0.0860)	(0.477)
lnPIBh		-0.194		-0.274		0.192		-0.179
		(0.490)		(0.205)		(0.196)		(0.623)
L.lnTax		0.891***		0.964***		0.612***		0.448***
		(0.0814)		(0.0671)		(0.119)		(0.140)
Constant	0.140	-2.496	1.683	-0.112	1.193	-11.51***	3.418***	-
	(0.590)	(3.028)	(1.109)	(2.943)	(1.330)	(3.677)	(1.005)	17.29***
								(6.585)
Observation	40	40	40	40	40	40	40	40
R-squared	0.960	0.985	0.882	0.991	0.928	0.994	0.565	0.892

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

VARIABLE	(Burkina Faso)		(Cote d'Ivoire)		(Mali)		(Togo)	
	<i>lnPIBh</i>	<i>lnTax</i>	<i>lnPIBh</i>	<i>lnTax</i>	<i>lnPIBh</i>	<i>lnTax</i>	<i>lnPIBh</i>	<i>lnTax</i>
L.lnPIBh	0.680***		0.909***		0.455***		0.573***	
	(0.0867)		(0.0505)		(0.124)		(0.0694)	
lnTax	0.136***		0.0748***		0.138***		0.154***	
	(0.0318)		(0.0269)		(0.0344)		(0.0251)	
lnPopAct	-0.196	1.305***	-0.0956	0.411*	-0.183	0.436	-0.272***	1.129***
	(0.121)	(0.455)	(0.0612)	(0.213)	(0.121)	(0.356)	(0.0549)	(0.240)
lnPIBh		0.621		0.221		1.134***		1.346***
		(0.416)		(0.180)		(0.335)		(0.350)
L.lnTax		0.461***		0.824***		0.694***		0.445***
		(0.153)		(0.100)		(0.107)		(0.120)
Constant	3.364**	-17.51***	1.158	-5.711*	4.630***	-10.18**		-18.49***
	(1.325)	(5.352)	(0.959)	(3.281)	(1.502)	(4.652)		(3.956)
Observation	40	40	40	40	40	40	40	40
R-squared	0.993	0.994	0.963	0.981	0.963	0.992	0.868	0.965

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Source: author

In Mali and Togo, feedback is observed between the two variables. A change in GDP in these countries causes a change in tax revenues which in turn influences GDP. More specifically, an increase in tax revenues of 1% improves economic wealth by 0.138% and 0.154% respectively in Mali and Togo. In return, the increase in wealth of 1% causes an increase in taxes of 1.134% and 1.346% respectively in Mali and Togo. Thus, the causal effect of economic growth on taxes is greater than the inverse effect. Indeed, the combined effect of tax distortion and beneficial public spending can lead to a net improvement in the functioning of the private sector economy (Barro, 1990, 1991 a,b). An increase in taxes affects public investment and positively affects the growth rate (Ihori, 2017; Pigou, 1920; Gray et al., 2007; Barro and Sala-i-Martin, 2004; Pigou, 1920; Zagler and Durnecker, 2003; and Musgrave, 1959). GDP action on tax revenues is also consistent with the theories developed by Wagner

(1958), Musgrave and Musgrave (1989) and Todaro and Smith (2015). Empirically, our results are similar to those found by authors such as Arvin et al. (2021); Köse and Alı (2021); Tamimia and Bataineha (2021); Gurdal et al. (2020); Maxime and Toussaint (2019) They also demonstrated a positive impact of tax revenues on economic growth.

4.2. Interaction between economic growth and direct taxes in WAEMU

The results of the estimation of the interaction between GDP and direct taxes are presented in Table 6 below. They show that there is no significant interaction between economic wealth and taxes in Benin, Burkina Faso and Guinea-Bissau. This finding confirms the theories of Mendoza, Milesi-Ferretti and Asea (1996) that income taxes are more harmful to growth than general consumption taxes. In contrast, a significant unidirectional relationship between GDP and direct taxes ranging from direct taxes to GDP is noted in Niger. Thus a 1% increase in direct taxes leads to an economic growth of 0.049%. Feedback between the two variables is noted in Côte d'Ivoire, Mali, Senegal and Togo. When direct taxes rise by 1%, GDP improves by 0.048%, 0.073%, 0.094% and 1.152% respectively in Côte d'Ivoire, Mali, Senegal and Togo. Conversely, economic growth of one percentage point leads to an increase in direct taxes of 1.182%, 1.116%, 0.829% and 2.120% respectively. As with total tax revenues, the effect of economic development on direct taxes is greater than the reverse.

Table 6: Estimation results of the interaction between GDP and direct taxes in the WAEMU countries

VARIABLES	(Bénin)		(Burkina Faso)		(Guinée-Bissau)		(Niger)	
	lnPIBh	lnDirTax	lnPIBh	lnDirTax	lnPIBh	lnDirTax	lnPIBh	lnDirTax
L.lnPIBh	0.812*** (0.0987)		0.712*** (0.101)		0.720*** (0.110)		0.763*** (0.0704)	
lnDirTax	-0.0196 (0.0193)		0.0290 (0.0321)		0.00498 (0.0208)		0.0489*** (0.0189)	
lnPopAct	0.125** (0.0582)	0.681* (0.367)	0.127 (0.133)	1.420*** (0.528)	-0.0543 (0.101)	1.275*** (0.471)	-0.0995* (0.0537)	0.355 (0.259)
lnPIBh		0.224 (0.562)		0.202 (0.427)		-0.627 (0.572)		-0.100 (0.407)
L.lnDirTax		0.697*** (0.109)		0.562*** (0.132)		0.753*** (0.0997)		0.891*** (0.0985)
Constant	-0.380 (0.616)	-8.457** (3.344)	-0.510 (1.512)	-18.55*** (6.022)	2.487** (1.165)	-10.93* (6.272)	2.483** (1.009)	-3.707 (5.274)
Observations	40	40	40	40	40	40	40	40
R-squared	0.960	0.977	0.991	0.993	0.523	0.955	0.891	0.975

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

VARIABLE	(Côte d'Ivoire)		(Mali)		(Sénégal)		(Togo)	
	lnPIBh	lnDirTax	lnPIBh	lnDirTax	lnPIBh	lnDirTax	lnPIBh	lnDirTax

L.lnPIBh	0.940*** (0.0434)		0.605*** (0.127)		0.779*** (0.0848)		0.565*** (0.0676)	
lnDirTax	0.0483*** (0.0163)		0.0733** (0.0330)		0.0944** (0.0380)		0.152*** (0.0225)	
lnPopAct	-0.0599 (0.0463)	2.025*** (0.415)	-0.0766 (0.144)	0.755 (0.521)	-0.209** (0.100)	1.314*** (0.315)	-0.130*** (0.0314)	0.880*** (0.160)
lnPIBh		1.182*** (0.391)		1.116*** (0.391)		0.829*** (0.283)		2.120*** (0.404)
L.lnDirTax		0.218 (0.153)		0.675*** (0.117)		0.489*** (0.123)		0.183 (0.134)
Constant	0.803 (0.817)	-31.51*** (7.224)	2.925 (1.837)	-15.27** (6.584)	3.664** (1.512)	-20.03*** (4.810)	3.025*** (0.582)	-17.56*** (3.073)
Observations	40	40	40	40	40	40	40	40
R-squared	0.959	0.906	0.959	0.990	0.930	0.993	0.848	0.848

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

4.3. Interaction between economic growth and indirect taxes in WAEMU

Table 7 presents the results of the interaction between economic growth and indirect taxes. Economic growth has no significant effect on indirect taxes and in Benin, Niger and Senegal. On the other hand, significant feedback is identified between economic growth and indirect taxes in Burkina Faso, Côte d'Ivoire, Mali and Togo. In these countries, an increase in indirect taxes of 1% causes an economic growth of 0.135% in Burkina Faso, while an economic growth of 1% causes an increase in indirect taxes of 0.961%.

The analysis of the results reveals essentially three groups of countries. There is the group of countries in which economic growth has no significant effect on indirect and indirect taxes and conversely, the group of countries for which a unidirectional relationship is noted between the two variables ranging from indirect taxes to economic growth and the third group of countries where there is feedback between the two variables. Thus no interaction is proven between economic growth and indirect taxes in countries like Benin, Niger and Senegal. On the other hand, there is significant feedback between economic growth and indirect taxes in Burkina Faso, Côte d'Ivoire, Mali and Togo. If an increase in indirect taxes of 1% causes an economic growth of 0.135% in Burkina Faso, an economic growth of 1% causes an increase in indirect taxes of 0.961%. In Côte d'Ivoire, a 1% increase in indirect taxes affects economic growth by 0.066%, while a 1% improvement in indirect taxes leads to a 1.148% increase in indirect taxes. In Mali, the increase is 0.138% against 1.407% and 0.124% against 0.948% in Togo. In Guinea-Bissau, indirect taxes have an impact on economic development, not vice versa. Thus, a 1% increase in indirect taxes generates an economic growth of around 0.04%.

Table 7: Estimation result of the interaction between economic growth and indirect taxes in WAEMU

VARIABLE	(Bénin)		(Niger)		(Sénégal)		(Guiné-Bissau)	
	<i>lnPIBh</i>	<i>lnIndTax</i>	<i>lnPIBh</i>	<i>lnIndTax</i>	<i>lnPIBh</i>	<i>lnIndTax</i>	<i>lnPIBh</i>	<i>lnIndTax</i>
L. <i>lnPIBh</i>	0.797*** (0.102)		0.841*** (0.0667)		0.926*** (0.0643)		0.730*** (0.104)	
<i>lnIndTax</i>	0.0156 (0.0159)		0.0302 (0.0251)		0.0116 (0.0379)		0.0404* (0.0233)	
<i>lnPopAct</i>	0.0299 (0.0489)	0.403 (0.268)	-0.0441 (0.0663)	0.304 (0.187)	0.00506 (0.102)	0.304 (0.187)	-0.171** (0.0853)	2.002*** (0.523)
<i>lnPIBh</i>		0.545 (0.551)		-0.0799 (0.218)		-0.0799 (0.218)		-0.142 (0.682)
L. <i>lnIndTax</i>		0.815*** (0.0856)		0.898*** (0.0745)		0.898*** (0.0745)		0.425*** (0.141)
Constant	0.759 (0.689)	-7.514** (3.643)	1.306 (1.065)	-2.996 (3.156)	0.296 (1.111)	-2.996 (3.156)	3.640*** (1.030)	-20.42*** (7.534)
Observation	40	40	40	40	40	40	40	40
R-squared	0.962	0.986	0.877	0.987	0.928	0.987	0.565	0.889

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

VARIABLE	(Côte d'Ivoire)		(Burkina Faso)		(Mali)		(Togo)	
	<i>lnPIBh</i>	<i>lnIndTax</i>	<i>lnPIBh</i>	<i>lnIndTax</i>	<i>lnPIBh</i>	<i>lnIndTax</i>	<i>lnPIBh</i>	<i>lnIndTax</i>
L. <i>lnPIBh</i>	0.904*** (0.0433)		0.674*** (0.0835)		0.470*** (0.121)		0.636*** (0.0749)	
<i>lnIndTax</i>	0.0660*** (0.0161)		0.134*** (0.0264)		0.138*** (0.0333)		0.124*** (0.0271)	
<i>lnPopAct</i>	-0.0846** (0.0405)	1.908*** (0.376)	-0.173* (0.105)	1.316*** (0.480)	-0.168 (0.116)	0.613 (0.384)	-0.256*** (0.0694)	1.046*** (0.267)
<i>lnPIBh</i>		1.448*** (0.407)		0.961* (0.510)		1.407*** (0.367)		0.948*** (0.331)
L. <i>lnIndTax</i>		0.152 (0.159)		0.362** (0.165)		0.582*** (0.115)		0.575*** (0.112)
Constant	1.164 (0.728)	-29.75*** (6.646)	3.114*** (1.116)	-18.76*** (5.555)	4.350*** (1.399)	-13.44*** (4.818)	4.645*** (1.066)	-16.47*** (4.329)
Observations	40	40	40	40	40	40	40	40
R-squared	0.962	0.884	0.994	0.991	0.963	0.989	0.846	0.975

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

5. Conclusion

The interaction between economic growth and taxation in the WAEMU countries was analysed using the Generalized Least squares (GLS) estimator on data for the period 1980-2020 through the Seemingly Unrelated Regression Equations Model (SURE). Total taxes

have been broken down into three levels: the overall level, the level of direct taxes and the level of indirect taxes. Three SURE models have been estimated. In terms of overall taxes, three groups of countries stand out. There are countries where there is no significant interaction between the overall level of taxes and the level of economic growth (Benin, Niger, Senegal and Guinea-Bissau). In some countries the interaction between the two variables is unidirectional, ranging from taxes to economic growth (Burkina Faso and Côte d'Ivoire). Finally, the existence of feedback between the two variables is noted in Mali and Togo. In terms of direct taxes, feedback is identified in Côte d'Ivoire, Mali, Senegal and Togo, while unidirectional causality is mentioned in Niger. In Benin, Burkina Faso and Guinea-Bissau, no interaction between the two variables is revealed. In terms of indirect taxes, the lack of interaction is observed in Benin, Niger and Senegal, while feedback between the two variables is observed in Burkina Faso, Côte d'Ivoire, Mali and Togo. In Guinea-Bissau, it is indirect taxes that act on growth and not the other way around.

In the light of these results, it is necessary to strengthen the WAEMU Community Directives on direct and indirect taxation. This will allow different countries to further improve their tax system in order to boost their economic growth. Countries like Mali and Togo have an interest in improving their tax performance in order to boost economic growth, which in turn will generate tax revenues. To do this, civic-minded and tax compliance actions must be strengthened. Senegal and Niger need to focus more on mobilizing direct taxes while Burkina Faso and Guinea-Bissau need to focus on indirect taxes. On the other hand, Côte d'Ivoire, Mali, and Togo must prioritize both direct and indirect taxes to better support economic growth. North (1990), Acemoglu and Robinson (2010), Robinson (2010) and Hayek (1945) emphasized the importance of the role played by institutions (protection of property rights, political power, free competition) on economic growth in a wide range of economic theories. It is therefore necessary to have institutions capable of combating tax evasion, promoting the formalisation of economic activities and guaranteeing competition on the markets. Thus, strengthening institutions is an imperative for compliance with tax compliance, the fight against fraud and corruption, and for compliance with the rules of a competitive market.

The results show that the tax priority differs from country to country depending on the types of tax. This calls into question the common policy of macroeconomic convergence within the WAEMU. A coordinated global tax system, designed with the full participation of developing countries, could be an effective tool for tax mobilization. With this type of tax system in place, innovation in the global distribution of corporate income can be promising to support

economic sustainability strategies in developing countries. We propose to pursue a regulatory corporate income tax objective by linking the overall effective corporate tax rate to corporate performance based on factors such as profitability, employment, social and environmental sustainability, and “wealth redistribution” in a community. The implementation of this proposal would allow low-income countries to structure their tax systems in a way that pursues their development objectives (vocational training, environmental sustainability, job creation), attract investment and start building the kind of social and technological infrastructure that would strengthen and build their economy.

References

- Abdoulaye D.(2018). Effect of governance on tax revenues in WAEMU countries. *Revue d'Economie Théorique et Appliquée*.
- Acemoglu, D., & Robinson, J. (2010). *The Role of Institutions in Growth and Development*. Review of Economics and Institutions.
- Aigner, D., Lovell, C. K., & Schmidt, P. (1977). Formulation and estimation of stochastic frontier production function models. *Journal of Econometrics*.
- Amedanou Y.M.I (2020). Do The WAEMU Member States Still Have Fiscal Space? Answering By ? « Optimal Taxation Approach ». CERDI Laboratory, Clermont Auvergne University, Clermont Ferrand, France.
- Arvin M.B., Pradhan R.P., Nair M.S. (2021). Are there links between institutional quality, government expenditure, tax revenue and economic growth? Evidence from low-income and lower middle-income countries. *Economic Society of Australia, Queensland*. Published by Elsevier B.V <https://doi.org/10.1016/j.eap.2021.03.011>
- Atems, B., (2015). Another look at tax policy and state economic growth:The long-run and short-run of it. *Economics Letters* (2015). <http://dx.doi.org/10.1016/j.econlet.2014.12.035>
- Atkinson, A. B. (1995). *The Welfare State and Economic Performance*. *National Tax Journal* 48 No. 2.
- Auerbach A., and Kotlikoff L. (1987). *Dynamic Fiscal Policy*. Cambridge University Press. Cambridge.
- Auerbach A., Hassett K., and Oliner S.(1994). Reassessing the Social Returns to Equipment Investment. *Quarterly Journal of Economics* 109 No. 3.
- Auerbach, A.(1996a). Tax Reform, Capital Allocation, Efficiency, and Growth." In *Economic Effects of Fundamental Tax Reform*, edited by Henry Aaron and William Gale. The Brookings Institution. Washington, D.C.
- Babatunde O.A., Ibukun A.O. et Oyeyemi O.G. (2017).Taxation revenue and economic growth in Africa. *Journal of Accounting and Taxation*. Nigeria. <https://doi.org/10.5897/JAT2016.0236>.
- Baiardi D., Profeta P., Puglisi R., Scabrosetti S., (2018).Tax policy and economic growth: does it really matter? *Int Tax Public Finance*. <https://doi.org/10.1007/s10797-018-9494-3>.
- Barro R.J (1990). Government spending in a simple model of endogenous growth. *J. Pol. Econ*, 98(5).
- Barro R.J. et Xavier Sala-i-Martin (2004) *Economic Growth*. Second Edition. The MIT Press Cambridge, Massachusetts. London, England.
- Barro, Robert J (1991a). Economic Growth in a Cross-Section of Countries. *Quarterly Journal of Economics* 104.
- Barro, Robert J.(1991b). A Cross-Country Study of Growth, Saving and Government." In *National Saving and Economic Performance*, edited by B. Douglas Bernheim and John Shoven. Chicago: University of Chicago Press and National Bureau of Economic Research.
- Burgess, R. and Stern, N. (1993). *Taxation and Development*. *Journal of Economic Literature*.
- Chelliah, R.J., Baas H.J, et Kelly M. (1975). Tax Ratios and Tax Effort in Developing Countries, 1969–71. *IMF Staff Papers*.
- Comlan C.A.F. (2017). Fiscal policy and economic growth in the West African Economic Monetary Union Countries. *Journal of Economics and Development Studies*. September 2017, Vol. 5, No. 3, pp. 96-104. <https://doi.org/10.15640/jeds.v5n3a11>
- Domar, E. (1946). Capital expansion, rate of growth, and employment. *Econometrica*.
- Engen E. & Skinner J. (1999). Taxation and economic growth. In Slemrod J. (1999). *Tax policy in the real world*. Cambridge University Press. New York.
- Engen E., and Skinner J.(1992). *Fiscal Policy and Economic Growth*. NBER Working Paper No. 4223 National Bureau of Economic Research. Cambridge, MA.

- Engen E., and William G. G.(1996). The Effects of Fundamental Tax Reform on Saving. In *Economic Effects of Fundamental Tax Reform*, edited by Henry Aaron and William Gale. The Brookings Institution. Washington, D.C.
- Granger C.W.J., (1969) Investigating causal relations by econometric models and cross-spectral methods. *Econometrica*, Vol. 37.
<http://links.jstor.org/sici?sici=00129682%28196908%2937%3A3%3C424%3AICRBEM%3E2.0.CO%3B2-L>.
- Gray C., Lane T. et Varoudakis A. (2007). Fiscal policy and economic growth : Lessons for Eastern Europe and Central Asia. The International Bank for Reconstruction and Development/The World Bank. Washington, DC.
- Gurdal T., Aydin M. et Inal V., (2020). The relationship between tax revenue, government expenditure, and economic growth in G7 countries: new evidence from time and frequency domain approaches. *Economic Change and Restructuring*. <https://doi:10.1007/s10644-020-09280-x>
- Hakim T. A. (2020). Direct Versus Indirect Taxes: Impact on Economic Growth and Total Tax Revenue. *International Journal of Financial Research* Vol. 11, No. 2.
- Harberger A.C.(1962). The Incidence of the Corporation Income Tax. *JPE*.
- Harrod R. F. (1939). An essay in dynamic theory. *The Economic Journal*, 49, 14–33.
- Hassan M. S., Mahmood H., Tahir M.N., Alkhatee T.T.Y., et Wajid A. (2021). Governance: A Source to Increase Tax Revenue in Pakistan. *Hindawi Complexity*. Volume 2021
<https://doi.org/10.1155/2021/6663536>.
- Hayek, F. A. (1945). The Use of Knowledge in Society. *American Economic Review*.
<https://doi.org/10.1007/978-3-319-65310-5>.
<https://doi.org/10.5430/ijfr.v11n2p146>
<https://doi:10.1596/978-0-8213-7181-7>.
- Ihori T. (2017). *Principles of Public Finance*. Springer Nature. Singapore.
<http://www.springer.com/series/10099>.
- Juodis A. Karavias Y. and Sarafidis V. (2021). A homogeneous approach to testing for Granger non-causality in heterogeneous panels. *Empirical Economics* 60:93–112.
<https://doi.org/10.1007/s00181-020-01970-9>.
- Kalaš B., Mirović V., Milenković N. (2018). The relationship between taxes and economic growth: evidence from serbia and croatia. *EJAE* 2018, 15(2). <https://doi:10.5937/EJAE15-18056>
- Kane C.S. (2018). Spillover Effects of Budgetary Policies in Monetary union: The Case of West African Economic and Monetary Union. *International Journal of Economics and Financial Issues*.
<https://doi.org/10.32479/ijefi.7435>
- Kobyagda, I.L. (2019). Macroeconomic Determinants of the Mobilization of Tax Revenues of the Countries of the West African Economic and Monetary Union (WAEMU). *Modern Economy*. <https://doi.org/10.4236/me.2019.101017>.
- Köse, Y , Ali, S . (2021). Effects of Monetary and Fiscal Policies on Economic Growth: An Empirical Study On The Iraqi Economy. *Econder International Academic Journal*.
<https://10.35342/econder.881909>.
- Lucas R. E.(1990). Supply-Side Economics: An Analytical Review. *Oxford Economic Papers* 42.
- Maxime A.T et Toussaint O.S. (2019). Effets de la Politique Fiscale sur la Croissance
- Mendoza, E. G., Milesi-Ferretti G. M., and Asea P.(1996). On the Ineffectiveness of Tax Policy to Alter Long-Run Growth: Harberger's Superneutrality Conjecture. *Federal Reserve Board of Governors*. Mimeo.
- Moh'd AL-Tamimia K.A et Bataineha A.(2021). The effect of tax revenues on GDP growth in Jordan. *Accounting*. licensee Growing Science, Canada. <https://10.5267/j.ac.2020.12.012>.

- Musgrave R.A et Musgrave P.B. (1989). Public finance in theory and practice. McGRAW-HILL BOOK COMPANY. Singapore.
- Musgrave R.A. (1959). The theory of public finance: a study in public economy. New York-Mc Graw-Hill.
- N'Yilimon N.(2014). Taxation and Economic Growth : An Empirical Analysis on Dynamic Panel Data of WAEMU Countries. Munich Personal RePEc Archive.
<https://mpra.ub.uni-muenchen.de/61370/>
- Nafziger E.W. (2006). Economic development. Fourth Edition. Cambridge University Press, New York.
www.cambridge.org/9780521829663.
- Niskanen, W. A., (2008). Reflections of a political economist : selected articles on government policies and political processes Cato Institute. 1000 Massachusetts Ave., N.W. Washington, D.C. 20001.
- North, D. (1990). Institutions, Institutional Change, and Economic Performance. Cambridge University Press. Cambridge.
- Oboh, J.O., Chinonyelum, O.J., Edeme, R.K. (2018). Tax Revenue and Economic Growth in Selected ECOWAS Countries, Evidence from Sure Model. International Journal of Academic Research in Accounting, Finance and Management Sciences 8.
- Oyinlola M.A., Adedeji A.A, Bolarinwa M.O, Nafisat Olabisi N.,(2019). Governance, domestic resource mobilization, and inclusive growth in sub-Saharan Africa. Economic Analysis and Policy. <https://doi.org/10.1016/j.eap.2019.11.006>
- Ozpençe, O.et Mercan, N. (2020). The relationship between tax burden and economic growth: Turkey case. Journal of Business, Economics and Finance (JBEP).
<https://doi.org/10.17261/Pressacademia.2020.1220>.
- Pigou A. C. (1920). The Economics of Welfare. Macmillan and Co. London.
- Razin, A. et Efraim Sadka E.(1995). Population Economics. MIT. Press. Cambridge, MA.
- Romer, P. M. (1986). Increasing Returns and Long Run Growth. Journal of Political Economy.
- Scully, G. W. (1996). Taxation and economic growth in new zealand. Pacific Economic Review.
- Scully, G. W. (2000). The growth-maximizing tax rate. Pacific Economic Review.
- Solow, Robert M. (1956). A Contribution to the Theory of Economic Growth. Quarterly Journal of Economics 70.
- Tait, A. A., Gratz W.L.M., et Eichengreen B.J.(1979). International Comparisons of Taxation for Selected Developing Countries. IMF Staff Papers.
- Tanzi V. (2018). Termites of the state : Why Complexity Leads to Inequality. Cambridge University Press. New York. <https://doi.org/10.1017/978110835568>.
- Thomakos D.D. et Nikolopoulos K.I. (2017). Taxation in Crisis: Tax Policy and the Quest for Economic Growth. Palgrave Macmillan Studies.
- Todaro M.P. et Smith S.C. (2015). Economic Development. Twelfth Edition. Pearson Education, Inc. Washington.
- Wagner, A. (1958). Three Extracts on Public Finance. In Richard A. Musgrave and Alan Peacock, eds. Classics in the Theory of Public Finance. Macmillan. New York.
- Zagler M. et Durnecker G., (2003). Fiscal policy and economic growth. Journal of economic surveys Vol. 17, No. 3. Blackwell Publishing Ltd. 2003, 9600 Garsington Road, Oxford OX4 2DQ, UK and 350 Main St. Malden, MA 02148, USA.

