

Fiscal policy and growth-inequality tradeoffs: Bayesian evidence from Cote d'Ivoire

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Abstract. *The growing within-country income inequality has brought to the forefront of the economic policy agenda the question of the role of fiscal policy in income redistribution. However, there may be a tradeoff between the objectives of addressing income inequality and promoting economic growth vis-à-vis fiscal policies. This study investigates the potential growth-inequality tradeoffs in the design of fiscal policy in Cote d'Ivoire. Using a Bayesian VAR framework which is more suitable to deal with possible issues that may appear in small data sample, the results show that a positive shock in government current expenditure undermine economic growth but reduce income inequality. Also, we find that public investment and direct taxes promote growth and reduce income inequality while indirect taxes decelerate growth with a marginal effect on income inequality. Overall, our findings reveal that government current expenditure is the fiscal policy instrument that generates growth-inequality tradeoff in Cote d'Ivoire.*

Keywords: fiscal policy, income inequality, economic growth, Bayesian VAR, Cote d'Ivoire.

JEL Classification: C5, E6, H3.

1. Introduction

The rapid growth of emerging economies such as China and India has brought down the overall global inequality over the last decade. At the same time, however, the within-country income inequality has experienced a sharp increase in almost every country (Bastali et al., 2012; Bourguignon, 2015; Gordón and Resosudarmo, 2018). This growing within-country income inequality has brought to the forefront of the economic policy agenda the question of the role of fiscal policy in income redistribution. Fiscal policy is seen as one of the main tools for effectively tackling income inequality. It can affect household consumption directly through taxes and transfers and indirectly through work and production incentives as well as the provision of public goods and services such as education and health.

Bourguignon (2003) argues that high-income inequality reduces the elasticity of poverty to economic growth. Policymakers should, therefore, be concerned with high and persistent income inequality as this can be a major obstacle in reducing poverty. However, income inequality-reducing fiscal policies may have adverse effects on economic growth. In other words, there may be a tradeoff between the objectives of addressing income inequality and promoting economic growth through fiscal policies. For instance, direct taxes, which are usually composed of personal income tax and corporate income tax, are believed to decelerate economic growth because they distort resource allocation and discourage the effort to work and investment. At the same time, these taxes, in particular, the progressive personal and corporate income tax, are considered to be very effective in combating income inequality. Thus, the design of fiscal policy needs careful consideration of its potential effect on the growth- inequality tradeoff.

Cote d'Ivoire is the leading economy in the West African Economic and Monetary Union (WAEMU)⁽¹⁾, and one of the largest economies in West Africa; it has also become one of the world's fastest-growing economies since 2012. The average economic growth over the period 2012-2018 is around 9%. However, this impressive economic growth seems not to have contributed significantly to reduce income inequality in the country. The level of market income inequality (income inequality before tax and transfers) measured by the Gini index experienced only a marginal decline from 46.2 in 2008 to 45.7 in 2016. This is in line with the 2019 report by United Nations Economic Commission for Africa (UNECA) which points out that "despite the remarkable economic growth, income inequality in Africa fell only slightly". Since tackling inequality will be a key to achieving the UN 2030 Agenda for the Sustainable Development Goals, it is highly important to find the combinations of fiscal policies that can reduce effectively income inequality without disrupting the current growth dynamics in the country.

Most of the empirical studies focus either on the effect of fiscal policy on economic growth or the effects of fiscal policy on income inequality. Despite its relevance in terms of economic policy, the joint response of economic growth and income inequality to different instruments of fiscal policy has received little attention in the literature except for a few recent empirical studies such as Roca-Sagalés and Sala (2011), Muinelo-Gallo and Roca-

Sagalés (2013), and Liu and Martinez-Vazquez (2015). Also, the existing scarce evidence on this issue is generally based on a large sample made up of developed and developing countries. However, as argued by Castelló-Climent (2010) and others, the empirical analysis of the relationships between growth, income inequality and fiscal policies should be based on countries with similar levels of development, because the political implications may differ considerably depending on the level of development of the economies.

Against this backdrop, this study aims to investigate how income inequality and economic growth respond simultaneously to various types of fiscal policies in Cote d'Ivoire. The study is organized as follows: Section 2 presents a brief survey of the literature. Section 3 highlights the methodology; Section 4 presents the results and discussions while section 5 concludes.

2. Fiscal policy, growth and income inequality: A brief survey of evidence

The empirical literature on the impact of fiscal policy on economic growth and income inequality has examined separately the link between “fiscal policy and economic growth” and the link between “fiscal policy and income inequality”. The joint response of economic growth and income inequality to fiscal policies has been largely under-researched. Table 1 presents a list of selected empirical studies.

Table 1. Selected empirical studies

Authors	Country	Methodology	Findings
<i>1. Impact of fiscal policies on economic growth</i>			
Barro (1991)	98 countries	Pooled cross-section time series regression	Negative effect of government consumption expenditure on economic growth and statistically insignificant effect of public investment on economic growth
Easterly and Rebelo (1993)	100 countries	Pooled cross-section time series regression	Public investment in transportation and communication affect positively economic growth
Kneller et al. (1999)	22 OECD countries	Two-way panel fixed effects regression	Distortionary taxation and unproductive government expenditure undermines economic growth while non-distortionary taxation and productive government expenditure promotes growth
Kamps (2005)	22 OECD countries	Vector Autoregressive (VAR)	Public capital has a positive effect on output
Fedderke et al. (2006)	South Africa	Error Correction Model	Public expenditure on infrastructure affects positively economic growth
Tun (2019)	Myanmar	Ordinary Least Square (OLS)	Fiscal deficit has a positive effect on economic growth
<i>2. Impact of fiscal policies on income inequality</i>			
Caterina et al. (2018)	EU countries	System GMM	Education, health spending, sickness, disability, family and child benefits, significantly reduce income inequality
Woo et al. (2013)	38 advanced and Emerging countries	Panel fixed-effects regression with Driscoll-Kraay standard errors	Fiscal consolidations tend to increase income inequality

Authors	Country	Methodology	Findings
Martinez-Vazquez et al. (2012)	150 countries	Generalized Method of Moments (GMM)	Indirect taxes increase inequality while education, health, and housing expenditures reduce inequality
Gemmell and Morrissey (2005)	Six African countries	Concentration curves.	Taxes on exports and goods consumed by the poor increase inequality. Taxes on 'luxury' items reduce inequality.
<i>3. The Joint response of economic growth and income inequality to fiscal policies</i>			
Liu and Martinez-Vazquez (2015)	150 developed and developing countries	Structural equations, three-stage least squares (3SLS)	Growth-inequality tradeoff: direct taxes retard growth and reduce income inequality while indirect taxes promote growth and increase income inequality.
Muinel-Gallo and Roca-Sagalés (2014)	Uruguay	Vector Autoregressive (VAR)	Growth-inequality tradeoffs: Government current expenditure increases growth and worsens income inequality. Public investment breaks such a tradeoff
Muinel-Gallo and Roca-Sagalés (2013)	21 high-income OCDE countries	Structural equations, three-stage least squares (3SLS)	Distributive expenditures and direct taxes undermine growth and reduce net income inequality.
Roca-Sagalés and Sala (2011)	Sweden	Vector Autoregressive (VAR)	Growth-inequality tradeoffs: government current expenditure decelerates growth and reduces income inequality. Public investment promotes growth and increases income inequality. Indirect taxes stimulate growth and worsen income inequality.

3. Data and methodology

3.1. Data

To achieve the aim of the study, we use annual data for the period 1985-2016. The choice of the study period is dictated by data availability, especially income inequality indicator. The relatively small size of our sample is not uncommon in the empirical literature related to our study (see, for example, Kamps, 2005; Roca-Sagalés and Sala, 2011; Muinel-Gallo and Roca-Sagalés, 2014, among others).

Regarding the variables used, we have income inequality (net income inequality) measured by the Gini index, and it is sourced from the Standardized World Income Inequality Database (SWIID) by Solt (2019). This database has been widely used in the literature (see, Acemoglu et al., 2013; Anyanwu et al., 2016, among others). It is important to remind that the Gini coefficient is not the only way of measuring income inequality; our choice is purely motivated by its availability as compared to other indicators of inequality. Another variable is the real gross domestic product (GDP) used as a proxy for economic growth. The raw data is collected from the World Development Indicators (WDI). Concerning the fiscal policy variables, we have government current expenditure and public investment on the spending side, and direct taxes, and indirect taxes on the tax side. Government current expenditure comprises mainly wages and salaries, expenditure on goods and services, and subsidies and transfers. Direct taxes include taxes on income and profits while indirect taxes include mainly tax on goods and services (VAT), and import and export duties⁽²⁾. All the variables related to fiscal policy are measured in percentage of GDP, and the raw data is extracted from the Central Bank of West African States online Database⁽³⁾, World Bank (WDI), and African Development Bank Online Database.

Table 2 shows some descriptive statistics about the selected variables. The average level of government current expenditure is 11.7% of GDP while the average level of public investment is roughly 4.4% of GDP. On the tax side, the average level of direct taxes is 4.8% of GDP while the average level of indirect taxes is 10.8% of GDP. The average level of net income inequality (Gini Index) is around 41%.

Table 2. *Descriptive statistics*

Variable	Obs.	Mean	Std. Dev.	Min	Max
Gini net	32	40.89	0.432	40.3	41.5
Current spending	32	11.71	3.751	7.226	18.254
Public investment	32	4.399	1.894	1.565	9.913
Direct taxes	32	4.873	1.598	2.738	9.232
Indirect taxes	32	10.845	2.025	8.079	16.534
GDP ^a	32	9.22	0.181	8.972	9.678

Note: a. Included as the logarithm of GDP.

3.2. Methodology

To investigate the response of economic growth and income inequality to fiscal policies in Cote d'Ivoire, a Vector Auto-Regressive (VAR) modeling strategy is a useful choice. However, in small samples as the case at hand in this study, the rich parametrization of VAR models may come at the cost of overfitting the data, possibly leading to imprecise inference. To avoid such overfitting, we estimate a Bayesian Vector Autoregression model (BVAR). Bayesian estimation method have a better estimation performance than alternative methods in small samples (Rabanal and Rubio-Ramirez, 2005; Karagöz and Keskin, 2016). In the BVAR model, the parameters are regarded as random variables with prior probabilities; it provides parameter estimates where the model includes many variables and relatively little data. Bayesian techniques may also be used to provide unbiased coefficient estimates when the variables contain unit roots (see, for example, Koop and Korobolis, 2010, Kotzé, 2017).

A typical VAR model can be expressed as follows:

$$Y_t = B_1 Y_{t-1} + B_2 Y_{t-2} + \dots + B_p Y_{t-p} + D z_t + \varepsilon_t \quad (1)$$

Where Y_t is a $n \times 1$ vector of endogenous variables; B are $n \times n$ and $n \times d$ matrices of parameters respectively; z_t is a $d \times 1$ vector of exogenous variables while ε_t is a $n \times 1$ vector of error terms independently, identically and normally distributed with variance-covariance matrix Σ ;

$$\varepsilon_t \sim IIN(0, \Sigma), B_t (t = 1, \dots, p).$$

To introduce the Bayesian estimation techniques, equation (1) is rewritten in a more compact form as follows:

$$Y_t = X_t B + \varepsilon_t \quad (2)$$

where

$$X_t = (I_n \otimes W_{t-1}) \text{ is } n \times nk \text{ matrix; } W_{t-1} = (Y'_{t-1}, \dots, Y'_{t-p}, z'_t)' \text{ is } k \times 1, \beta = \text{vec}(B_1, B_2, \dots, B_p, D) \text{ is } nk \times 1.$$

The unknown parameters of the model are β and Σ . The Bayesian estimation techniques consist of combining the likelihood function of the VAR model with prior information

regarding the distributions of the parameters. Assuming a prior $p(\beta, \Sigma)$ and the likelihood function $L(Y/\beta, \Sigma) \propto |\Sigma|^{-T/2} \exp\{-\frac{1}{2} \sum_t (Y_t - X_t \beta)' \Sigma^{-1} (Y_t - X_t \beta)\}$, the posterior distribution of the coefficients can be obtained by using the following Bayes rule:

$$p(\beta, \Sigma / Y) = \frac{p(\beta, \Sigma) L(Y/\beta, \Sigma)}{p(Y)} \propto p(\beta, \Sigma) L(Y/\beta, \Sigma) \quad (3)$$

Where \propto represents “proportional to” (see Cicarelli and Rebucci, 2003).

In the literature, there is a wide range of priors but the commonly used prior distribution is the “Minnesota prior” propounded by Litterman (1980). This prior transforms the VAR model into random walk process for each variable (Luetkepohl, 2011). At the same time, imposing Minnesota priors is the simplest way of dealing with the variance-covariance matrix of the VAR coefficients (Bobasu, 2016).

Minnesota method is composed of the following priors: $\mu_1, \lambda_1, \lambda_2$, and λ_3 . μ_1 is the prior mean; λ_1 is the overall tightness on the variance (first lag) and controls the relative importance of sample and prior information. λ_2 represents the relative tightness of the variance of other variables while λ_3 represents the lag decay (Moreira et al., 2015). In this study, we used the standard values of these hyper-parameters recommended by Sims and Zha (1998) as they are applicable and works well in practice even if the length of periods and system size vary (Wind, 2015; Gemechu, 2019). Hence, the value of μ_1 (prior mean values) is set to 1 to account for the non-stationary variables (random-walk priors), λ_1 ($lamda1$)= 0.2, λ_2 ($lamda2$)=1, and λ_3 ($lamda3$)=1 (lag decay). In sum, this study employs a Bayesian VAR model with Litterman/Minnesota prior to estimate the impact of fiscal policy shock on growth and income inequality in Cote d’Ivoire.

The fiscal shocks are identified using a recursive scheme (Cholesky decomposition). The ordering of the variables in the model is based on economic theory and economic intuition. Thus the variables are ordered from the most exogenous one to the most endogenous. Following Roca-Sagalés and Sala (2011), and Blanchard and Perotti (2002), among others, we assume that public spending affects contemporaneously economic growth and income inequality while economic growth and income inequality affect public spending with lag.

Output changes are not usually distributionally neutral, thus affecting income inequality. On the other hand, output is most likely to respond to changes in inequality only in the longer term, since the transmission mechanisms identified in the literature, such as human capital accumulation with imperfect financial markets, or the joint education–fertility decision, need time to operate (Benabou, 1996; Perotti, 1996).

We also assume that economic growth affects tax revenues contemporaneously. Keho (2010) finds that tax revenues in Cote d’Ivoire depend highly on the changes in economic activity. However, it is assumed that output does not respond contemporaneously to changes in tax policy. The underlying reason is that there may be some delays between the decisions and the implementation of changes in the tax rates (Roca-Sagalés and Sala, 2011). We assume also that changes in tax policy affect contemporaneously income inequality, however, the reverse may be also true. Thus we interchange the positions of income inequality variable and tax variables in the ordering for robustness check.

Regarding the disaggregated fiscal variables, we assume that government current expenditure affects contemporaneously public investment because the amount of public investment is usually conditioned by the level current expenditure but the reverse is not true. We equally assume that direct tax revenues affect contemporaneously indirect tax revenues but the reverse is not true. Overall, based on the aforementioned arguments, the main causal ordering adopted for the estimation of the Bayesian VAR model is as follows: government current expenditure, public investment, economic growth, direct taxes, indirect taxes, income inequality.

We start the empirical estimation by determining the order of the BVAR using Schwarz information (SC) and the Hannan-Quinn (HQ) information criterion. These selection criteria indicate that the optimal lag is one. All the variables are taken in logarithmic (log) form before the test and estimations. Before proceeding to the analysis of the impulse-response functions (IRF), we checked the properties of the residuals of the estimated BVAR model. The diagnostic tests concerning the properties of the residuals reveal that the estimated BVAR model satisfies the stability condition and it is free from serial correlation and heteroscedasticity problems.

4. Results and discussions

Figure 1 shows the responses of economic growth and income inequality to one standard deviation shock in fiscal policy variables using BVAR with Minnesota prior; it shows the joint response of economic growth and income inequality to fiscal policies.

The results show that a positive shock in government current expenditure has a negative effect on economic growth. Similarly, a positive shock in government current expenditure has a negative effect on income inequality. In other words, government current expenditure reduces income inequality and undermines economic growth. We were expecting government current spending to reduce income inequality given the fact that it includes some social spending with distributive implications, especially subsidies and transfers. The key message from this finding is that government current spending such as transfers and subsidies, and other current expenditure may reduce inequality but at the expense of growth as it creates distortion in the economy, and hence, crowd out private investment. In sum, government current spending has the potential to create growth-inequality tradeoff in the context of Cote d'Ivoire. These findings, however, differ from Muinelo-Gallo and Roca-Sagalés (2014) but in line with Roca-Sagalés and Sala (2011).

A positive shock in public investment has a positive and statistically significant effect on economic growth and a negative effect on income inequality. In other words, public investment stimulates economic growth and reduces income inequality in Cote d'Ivoire. This shows that, in the case of Cote d'Ivoire, public investment-driven fiscal policy does not give rise to a growth-inequality tradeoff. This is an interesting finding as it indicates that public investment can be used to promote inclusive growth in Cote d'Ivoire. Our finding is consistent with López (2003) and Calderón and Servén (2004, 2010). The importance of public investment in stimulating economic growth is acknowledged in endogenous growth models. Specifically, public investment in education, health,

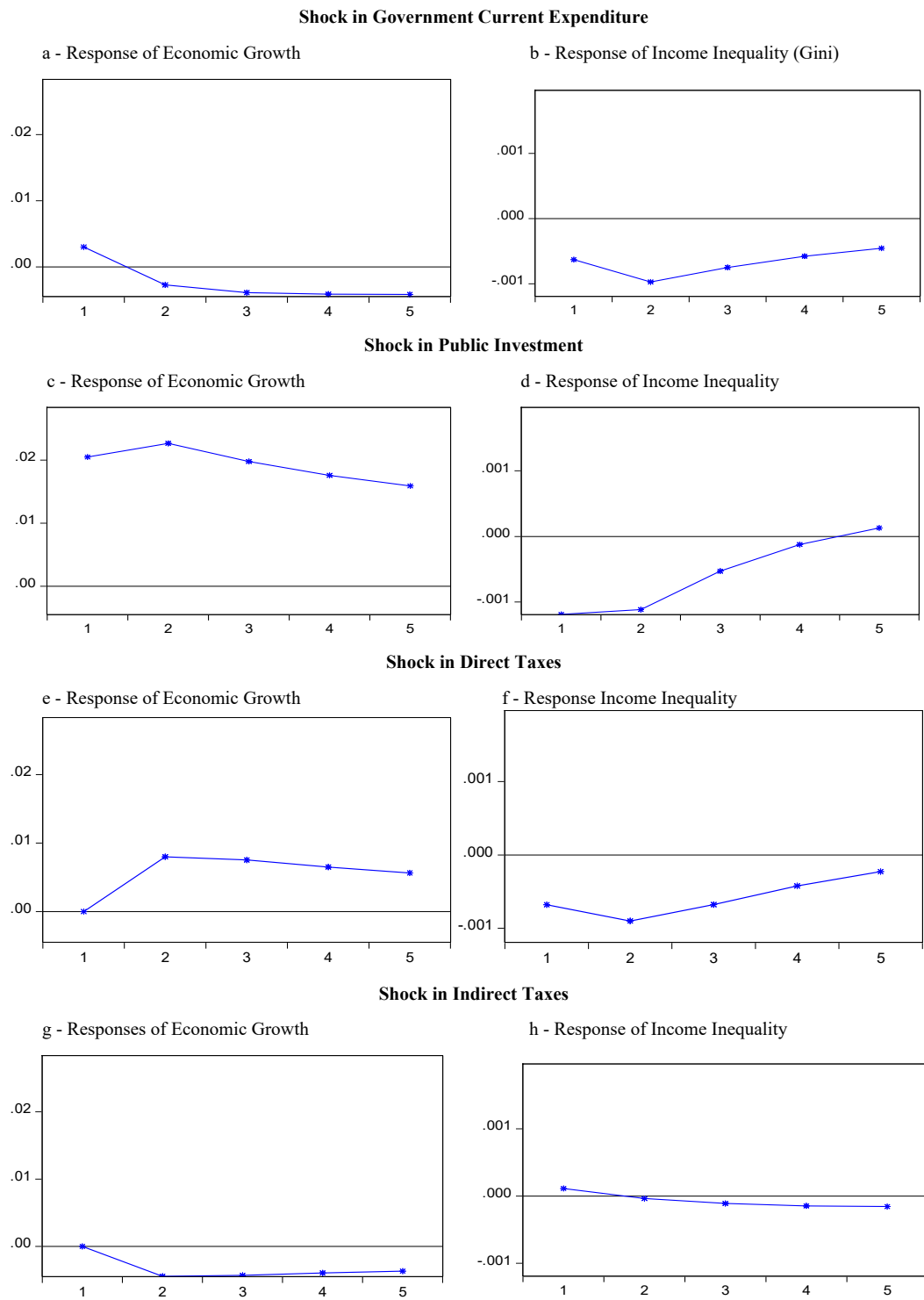
infrastructure, and research development is considered as the engine of economic growth. Lucas (1988) argues that investment in education increases the level of human capital, which in turn, increases the output. Other authors emphasize the importance of public investment in infrastructure (Barro, 1990), research and development (Romer, 1990), and health (Bloom et al., 2001) in economic growth. Also, public investment in socio-economic infrastructure impacts positively on the human capital of the poor segment of the society, which in turn, improve their job opportunities and income prospects (Brennenman and Kerf, 2002; Calderón and Chong, 2004).

A positive shock in direct taxes affects positively economic growth and negatively income inequality. In other words, direct taxes increase economic growth and reduce income inequality at the same time in Cote d'Ivoire. Our finding is consistent with Roca-Sagalés and Sala (2011). The inequality-reducing effect of direct taxes found in this study is in line with the theoretical predictions. Because of their progressivity feature, direct taxes, which comprise the personal income tax and corporate tax, are expected to reduce income inequality. However, the growth-enhancing effect of direct taxes found is contrary to the belief that direct taxes are harmful to economic growth because they tend to lessen economic incentives for work effort and investment, with a negative effect on output. However, our finding is consistent with Keho (2010) for the case of Cote d'Ivoire.

One of the possible explanations is that direct taxes in Cote d'Ivoire might have not yet reached the saturation point beyond which they could affect significantly investors' decisions, and hence, there is still a room for manoeuvre in terms of increasing direct taxes revenue. Also, as argued by Helms (1985), these taxes can lead to economic growth when they are used to finance public spending that has positive effects on investment and the productivity of private capital.

These are generally economic infrastructures such as roads, bridges, airports, railways, telecommunications, etc. and social infrastructures such as health, education, and electricity, etc. In Barro's (1990) model, the positive effects generated by this spending can offset the negative effects generated by distortions from taxation.

Figure 1. Impulse-response functions based on *BVAR (1)* with Minnesota prior



Another result found in this study is that a positive shock in indirect taxes affects negatively economic growth with almost no impact on income inequality. The negative effect of indirect taxes on economic growth can be explained by the fact that higher taxes on goods and services may affect negatively consumption and reduce aggregate demand in the economy, especially in a country like Cote d'Ivoire where the majority of the population belong to the low-income group. Also, in Cote d'Ivoire, import and export duties constitute a large share of indirect taxes, thus higher tax on international trade is more likely to reduce economic growth because of the role of trade as one of the engines of economic growth. Based on a sample made up of 45 African countries, including Cote d'Ivoire, UNECA (2019) reports that trade tax affects negatively economic growth.

Public investment and direct taxes reduce income inequality while promoting economic growth in Cote d'Ivoire. How important are public investments and direct taxes in explaining variations in economic growth and income inequality in Cote d'Ivoire? Table 3 shows the variance of economic growth (GDP) and income inequality (GINI) from shock in each fiscal policy variable.

Table 3. *Variance decomposition of GDP and Gini index (in %)*

Variance decomposition of GDP						
Period	Current Expenditure	Public Investment	GDP	Direct taxes	Indirect taxes	GINI
1	0.73	34.14	65.12	0	0	0
2	0.70	39.70	55.43	2.72	0.84	0.59
3	0.96	40.55	52.62	3.70	1.17	0.98
4	1.21	40.55	51.55	4.04	1.33	1.29
5	1.41	40.34	51.08	4.16	1.34	1.55
Variance decomposition of GINI index						
Period	Current Expenditure	Public Investment	GDP	Direct taxes	Indirect taxes	GINI
1	6.42	22.93	0.30	7.52	0.20	62.60
2	12.74	25.28	0.92	12.13	0.13	48.78
3	14.98	23.15	2.53	13.68	0.20	45.43
4	16.03	21.20	4.67	13.74	0.34	43.99
5	16.44	20.00	7.02	13.24	0.48	42.78

Table 3 shows that public investment is the fiscal policy that explains the large share of changes in economic growth in Cote d'Ivoire. For instance, the results show that in the second year after the initial shock, about 40% of the variance of GDP is explained by public investment, while 55% is explained by its lag. Public investment, government current expenditure and direct taxes are the fiscal policies that account for the large share of changes in income inequality in Cote d'Ivoire. In the second year after the initial shock, about 25% of the changes in income inequality is explained by public investment, 12% by direct taxes and government current expenditure, and 48% by its lag. The relative importance of government current expenditure in explaining the fluctuations of income inequality increases constantly over time to reach nearly 16.5% in the 5th year after the initial shock⁽⁴⁾.

5. Conclusion

As pointed out by the United Nations Economic Commission for Africa (UNECA) in its 2019 report, “despite the remarkable economic growth, income inequality in Africa fell only slightly”. This observation applies to Cote d'Ivoire where the recent impressive economic growth since the year 2012 coexists with a high level of market income inequality. This situation calls for a careful design of fiscal policy to reduce significantly income inequality, and hence, to make economic growth more inclusive in Cote d'Ivoire. However, fiscal policy aiming at reducing income inequality may undermine economic growth. In other words, there may be a tradeoff between the objectives of addressing income inequality and promoting economic growth via fiscal policy. Most of the existing studies usually examine separately the macroeconomic and redistributive effects of fiscal policy looking either at the impact of fiscal policy on growth or the effect of fiscal policy on income inequality. Only a few studies have investigated the joint responses of economic growth and income inequality to fiscal policy instruments.

We contribute to the rare existing evidence on this issue by investigating the case of Cote d'Ivoire. To this end, we use annual data over the period 1985-2016 and employ a Bayesian Vector Autoregressive (VAR) framework where prior beliefs combine with data information to draw a posterior probability distribution on parameters. The important results are that a positive shock in public investment and direct taxes affect positively economic growth and negatively income inequality. In other words, public investment and direct taxes promote growth and reduce income inequality at the same time, and hence, no growth-inequality tradeoff regarding these fiscal policy tools in the context of Cote d'Ivoire.

Also, the results show that a positive shock in government current expenditure reduces income inequality and undermines economic growth. In sum, government current spending has the potential to create growth-inequality tradeoff in the context of Cote d'Ivoire. We find also that a positive shock in indirect taxes impacts negatively on economic growth with a marginal effect on income inequality. Overall, our results show that government current expenditure is the only fiscal policy instrument that creates a significant tradeoff between growth and income inequality in the design of fiscal policy in Cote d'Ivoire.

Given the positive effect of direct taxes on economic growth found in this study, one could argue that the saturation point of the tax burden has not yet been reached, however, this is not to suggest an increase of direct tax rates. Although an increase in these taxes will reduce income inequality, it may undermine economic growth in the long-run. A complementary study should be conducted to determine the optimum level of direct taxes beyond which they could affect investors' decision and undermine economic growth. Efforts should also focus on improving the tax collection system which is very weak and plagued with corruption in Cote d'Ivoire. This can be done, for example, by the dematerialization of the taxes collection process. An efficient tax collecting system will increase government revenue which is needed to spend on investments in socio-economic infrastructures. The government should also increase the share of social spending such as transfers and subsidies in the total government current expenditure. This should be done carefully in such a way that it does not create distortion in the economy by paying attention, for example, to their efficiency and effectiveness.

Notes

- (1) West African Economic and Monetary Union comprises eight countries, namely Benin, Burkina Faso, Cote d'Ivoire, Guinea Bissau, Mali, Niger, Senegal, and Togo.
- (2) We would like to disaggregate further the fiscal measures; however, we are prevented from doing so due to data constraints.
- (3) Central Bank of West African States is the common Central bank for the country members of the West African Economic and Monetary Union.
- (4) For robustness check, we use alternative ordering by assuming that income inequality affects contemporaneously direct taxes and indirect taxes while income inequality gets affected by these variables with lag. We find similar results and they are available from the author upon request.

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