

Dynamism in Economic Policies to Achieve Economic Stability: Evidence from Côte d'Ivoire

Dynamisme des Politiques Economiques pour Parvenir à la Stabilité Economique : Evidence de la Côte d'Ivoire

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Abstract

After more than a decade of wandering, linked to successive socio-political instabilities, the institutional environment in Côte d'Ivoire is more or less favorable to the proper functioning of the economy. Indeed, these numerous crises have caused a deterioration in the business climate, pushing foreign investors to other more stable sub-regional economies. Since April 2011, the state has embarked on the implementation of economic policies that can improve the dynamism of the economy in order to initiate the development process. There is indeed a close link between public policies and the macroeconomic dynamism of the economy. This study analyzes the dynamism of economic policy instruments on economic growth in Côte d'Ivoire. The analysis of the cointegration between the variables in our study shows the existence of a cointegration relationship. This justifies the choice of an autoregressive vector model (VAR) with a lag. Through annual data covering the period 1987 to 2020, the results of our estimates show that a high tax rate would lead to a drop in the level of economic activity. This means that taxation has a distorting effect on economic activity because it promotes tax uninviting behaviors such as tax evasion and tax evasion. Likewise, a high unemployment rate would lead to a considerable drop in economic growth. Conversely, increased government spending and controlled inflation would benefit the economy. It emerges from all of the above that intervention through the stimulus policy based on increased spending on education and health is necessary to stimulate the process of economic growth.

Keywords: Monetary policy, Fiscal policy, Money supply, Vector Autoregression.

JEL Classification: E4, E62, O23

Paper type: Empirical research

Résumé

Après plus d'une décennie d'errance, liée aux successives instabilités sociopolitiques, l'environnement institutionnel en Côte d'Ivoire est plus ou moins favorable au bon fonctionnement de l'économie. En effet ces nombreuses crises, ont engendré une détérioration du climat des affaires poussant les investisseurs étrangers vers d'autres économies sous- régionales plus stables. Depuis avril 2011, l'État s'est lancé dans la mise en place des politiques économiques pouvant améliorer le dynamisme de l'économie afin d'amorcer le processus de développement. Il existe en effet un lien étroit entre, les politiques publiques et le dynamisme macroéconomique de l'économie. Cette étude analyse le dynamisme des instruments des politiques économiques sur la croissance économique en Côte d'Ivoire. L'analyse de la cointégration entre les variables de notre étude ne montre aucune existence de relation de cointégration. Ce qui justifie le choix d'un modèle vectoriel autorégressif à un retard (VAR). À travers des données annuelles couvrant la période 1987 à 2020, les résultats issus de nos estimations montrent qu'un taux d'imposition élevé conduirait à une baisse du niveau de l'activité économique. Cela signifie que la fiscalité a un effet distorsif sur l'activité économique, car elle favorise des comportements d'incivisme fiscal tels que la fraude et l'évasion fiscale. De même, un taux de chômage élevé engendrerait une baisse considérable de la croissance économique. À l'inverse, une augmentation des dépenses gouvernementales et une inflation contrôlée seraient bénéfiques pour le bien-être de l'économie. Il ressort de tout ce qui précède que l'intervention par la politique de relance basée sur l'augmentation des dépenses d'éducation et de santé est nécessaire pour stimuler le processus de croissance économique.

Mots-clés : Politique monétaire, Politique budgétaire, Masse monétaire, Autorégression vectorielle.

Classification JEL : E4, E62, O23

Type de l'article : Recherche empirique

1. Introduction

Growth theories in the 1980s rekindled interest in the literature on the links between public policy and economic growth. Debates about the role and involvement of the state of economic activity have developed into two streams of thought. If the Classics limit the role of the state to the sovereign functions of defense and social justice because of the self-regulating force of the market, the Keynesians for their part insist that public expenditure policies stimulate economic growth. Based on this second view, understanding the link between public policies and economic growth has generated much ink. Since the day after the decade of instability which has had perverse effects on the level of economic activity, Côte d'Ivoire has assumed a central role in the West African zone. As a result, the state has relied on effective economic policies to propel economic growth. It is “elsewhere, what prompts us to know, what is the role of economic policies in the growth process in Côte d'Ivoire? In order to answer this question, this study is included with the aim of analyzing the economic growth of the Ivory Coast. It also seeks to analyze the impact of public policies, in particular, fiscal policy and public expenditure policies on GDP per capita.

To do this, the articulation of this work will focus on three titles. The first is the literature review, the second is data variables and Methodology and the third is empirical results.

2. Literature Review

The relationship between economic growth and country's economic policies to stabilize macroeconomic issues, including Hamzaoui and Bousselhami (2017) analyzed the role of taxation in Morocco's economic growth through a Barro endogenous growth model. Through data covering the period 1980 to 2015, they lead to the results according to which there is a positive relationship between economic growth and taxation.

Umaru and Zubairu (2012) examined the effects of inflation on economic growth and development in Nigeria. To do this, our authors used secondary data covering the period 1970-2010. The results of their studies concluded that inflation positively affects economic growth.

Hussain and Siddiqi (2012) analyzed the interactions of economic policies in Pakistan through a dynamic stochastic general equilibrium framework. Our authors have linked fiscal policy and monetary policy. The results of the study concluded that fiscal and monetary policies interact with each other and with other macroeconomic variables. As for inflation, our results show that it reacts to fiscal policy shocks in the form of public spending, shocks to income and borrowing.

Still, in the case of the Pakistani economy, Chughtai et al (2015) analyzed the impact of the main economic variables on Pakistan's economic growth during the period 1981 to 2013. The results of the multiple linear regression model describe that the rate inflation and the interest rate differential have a negative impact on Pakistan's economic growth, while the exchange rate is deemed positively significantly on the economy.

For the specific case of the Ivorian economy, Coulibaly (2013) examines the functional relationship between public education spending and economic growth during the period 1970 to 2005. Through the estimation of an error correction model, he leads to findings that spending on education improves economic growth.

Qayyum and Manzoor (2018) examined the impact economic policies on Pakistan's economic growth during a period from 1980 to 2017. After ARDL-Bounds testing estimation, our authors obtain that contractionary fiscal policy is undesirable in the long-run due to large tax evasion, which negatively impacts on Pakistan's economic growth, but the money supply has a positive impact both in the short and long-run.

Zaoui and Boudaoud (2020) examines the effect of fiscal policy instruments on economic growth in Algeria during the period 2010-2018. The results reveal that during the study period,

the Algerian economy experienced strong growth. This could be explained by the expansionist policy initiated by the Algerian government which has stimulated aggregate demand.

Laamire and Zirari (2021), examined the impact of fiscal shocks on economic activity in Morocco. Through SVAR modeling, the authors want to study the differentiated multiplier effects of public expenditure shocks on growth. The results show that the most important multiplier effect is that of ordinary expenditure shock, followed by investment expenditure shocks and total expenditure.

Concerning the role of monetary policy, using an error correction model (ECM), Aristote (2021) showed that the quality of governance plays an important role in the relationship between monetary policy and economic growth.

Thus, we can formulate the following hypotheses:

- Too harsh fiscal policy hampers economic growth;
- Monetary policy improves economic growth.

3. Data Variables and Methodology

In this section, we will present the data that will be used for our empirical study and then the appropriate methodology.

3.1. Data

According to the literature review, seven variables are retained to reveal the impact of the economic policies of the economic stability. (Y) represents the Gross Domestic Product per capita, in this paper, it is taken as a dependent variable. (G) represents the government expenditures expressed in percentage of GDP. (T) Represents the net fiscal revenues expressed in percentage of GDP (for fiscal policy). The variable (P) represents the consumer price index, which is used to approximate the inflation. ($M2$) represents the money supply in the annual percentage (for monetary policy). Finally (UN) represents unemployment in the annual percentage.

The data are extracted from the World Development Indicators by World Bank (2021), and the Economic and Financial Database of economic banks of west African states. The series are in annual frequency and covering the period 1987 to 2020.

3.2. Methodology

The empirical studies mentioned in the literature review enabled us to develop our model based on the time series. The relationship between economic growth and the country's economic policies, remains a theme that opens up several avenues modeling. Thus, the econometric evaluation using the Vector Autoregression (VAR) (Johnsen approach's, 1988) is found to be adequate in order to answer our problem.

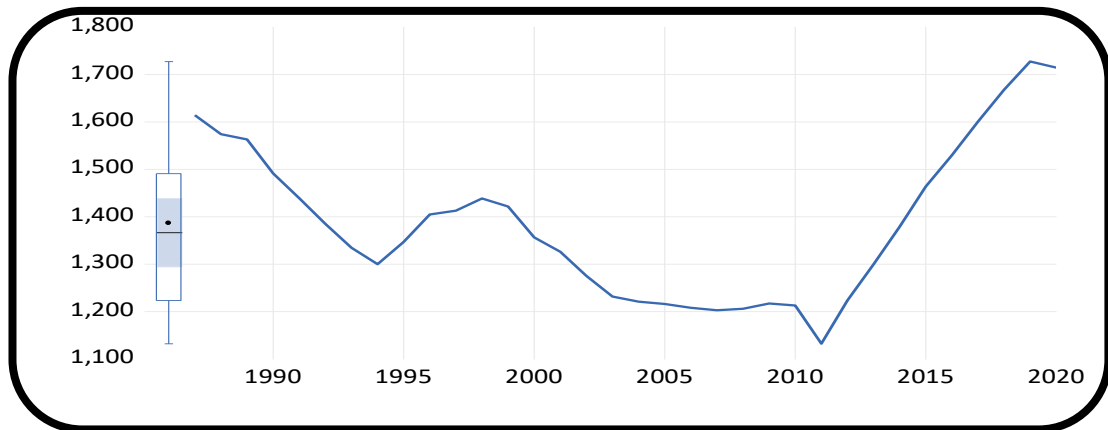
The equation to be estimated is

$$\text{Log}Y_t = \alpha_0 + \alpha_1 G_t + \alpha_3 T_t + \alpha_4 P_t + \alpha_5 M2_t + \alpha_6 UN_t + \varepsilon_t \quad (1)$$

Where,

Y_t : Gross Domestic Product per capital; UN_t : Unemployment rate; P_t : Consumer price index, inflation; G_t : Government Expenditures; $M2_t$: Broad Money Supply; T_t : Tax Rate; ε_t : Withe noise.

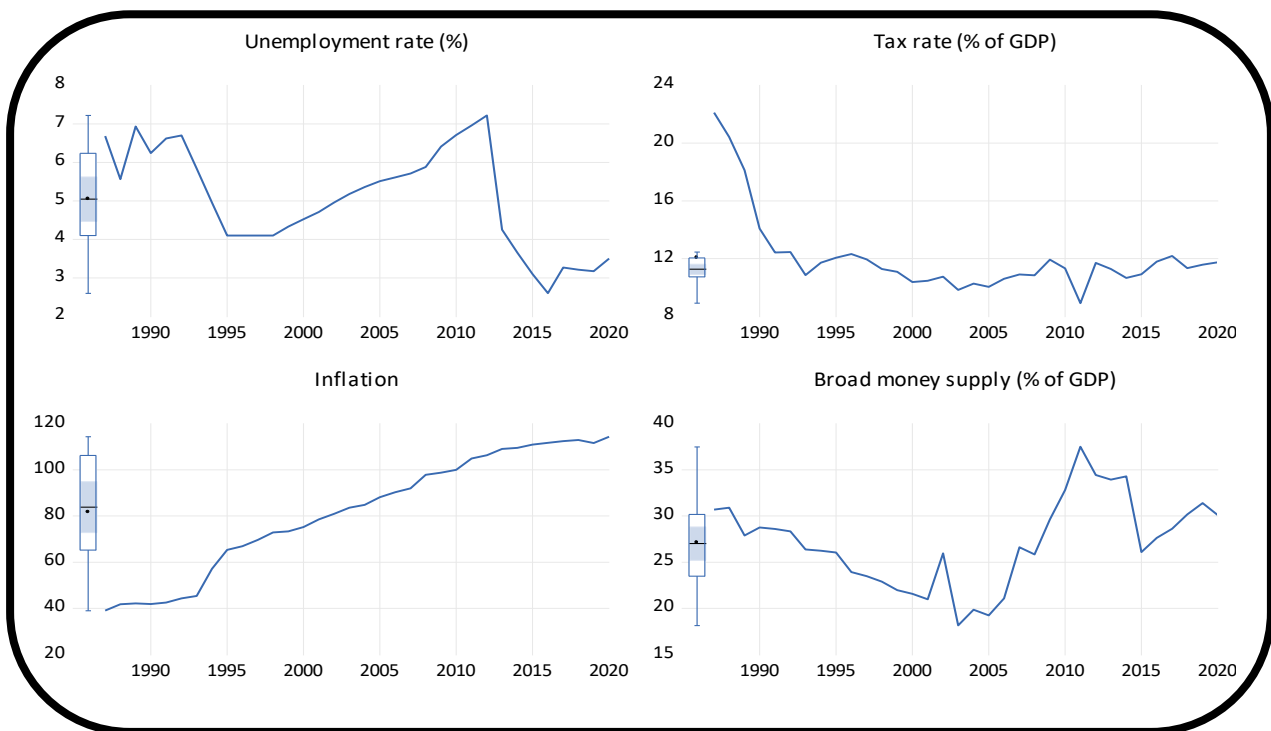
Figure 1: GDP per capital evolution



Source: Author's estimation.

It is clear that the devaluation of the local currency and the decade of politico-military crisis has weakened the level of economic activity. Thus, the lowest value of GDP per capital is observed in 2011 due to the post-election crisis which caused more than 3000 deaths. The Ivorian state in the aftermath of this decade of instability has focused on vast projects to revitalize the economy.

Figure 2 : Erroneous variable evolution



Source: Author's estimation

The *Graph2* shows that the unemployment rate has fallen since the end of the decade of instability that shook Côte d'Ivoire. As for inflation, it has followed an upward trend since the start of the devaluation of the local currency. 2011 represents the year of decline point value in terms of unemployment and tax rate.

4. Empirical Results

In this section, we will show the results of our econometric analyzes made from Eviews 12.

4.1. Descriptive statistics

Table 1 above provides a summary description/ statistic of our data. According to our results, the mean value of GDP is about 1386.461 US dollars with a standard deviation of 0.1153. The Jarque -Bera statistic is 1.7832 with a probability value (P-value) of 0.4099, which shows that the GDP is normally distributed. In sum, this table shows that only the tax rate is not normally distributed since the P-value (0.0000) is less than 0.05.

Table 1 : Descriptive Statistics

	Y	G	M2	P	T	UN
Mean	1386.461	2214.016	27.11893	81.64952	12.06580	5.051176
Median	1367.864	1628.150	27.11821	84.20146	11.32568	5.070000
Maximum	1727.283	4895.380	37.49245	114.3135	22.11228	7.220000
Minimum	1132.549	883.9000	18.15996	39.06501	8.918279	2.600000
Std. Dev.	162.9623	1293.391	4.748257	25.61049	2.780210	1.323938
Skewness	0.505355	1.003695	0.038194	-0.346297	2.497294	-0.062604
Kurtosis	2.265850	2.576871	2.408702	1.792472	8.684681	1.838936
Jarque-Bera	2.210726	5.962256	0.503580	2.745232	81.12046	1.931975
Probability	0.331091	0.050736	0.777408	0.253443	0.000000	0.380607
Sum	47139.66	75276.56	922.0435	2776.084	410.2371	171.7400
Sum Sq. Dev.	876371.1	55204376	744.0162	21644.61	255.0758	57.84275
Observations	34	34	34	34	34	34

Source : Author's estimation

4.2. Correlation matrix

The correlation matrix is used to show the existence or not of a statistical link between the variables. It allows to validate the selected variables. The correlation results show that government spending, money supply and the tax rate have a positive correlation with the country's economic growth, while the unemployment rate and inflation have a negative correlation with the country's economic growth. This table also shows that the P-value of the coefficients are less than 0.75. This implies for the rest of our analysis that all the variables selected can be taken into account in our model since. In some, there is no presence of multicollinearity.

Table 2 : Correlation Matrix

Probability	LY	G	M2	P	T	UN
LY	0.012922 -----					
G	57.44342 (0.0202)	1623658. -----				
M2	0.098800 (0.2928)	2462.462 (0.0152)	21.88283 -----			
P	-0.301638 (0.5539)	27146.94 (0.0000)	27.32001 (0.1878)	636.6063 -----		
T	0.161157 (0.0017)	-832.8132 (0.1741)	3.150694 (0.1610)	-39.35147 (0.0004)	7.502228 -----	
UN	-0.072000 (0.0036)	-1010.873 (0.0001)	1.067257 (0.3224)	-15.59988 (0.0046)	0.972154 (0.1195)	1.701257 -----

Source : Author's estimation

In view of the time-dependent feature of our data, the variables were tested for unit root using the Augmented Dickey-Fuller test (ADF) and Phillips-Perron (pp), at the level of the first difference. The results of unit root tests show that all the variables can be made stationary at the first difference.

Table 3 : Optimal lag

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-450.9855	NA	4110864.	29.41842	29.64971	29.49381
1	-296.2823	249.5212*	978.2968*	21.05047	22.43820*	21.50284*
2	-272.6418	30.50387	1224.265	21.13818	23.68235	21.96752
3	-244.1815	27.54227	1443.382	20.91493*	24.61555	22.12124

* Indicates lag order selected by the criterion; LR: sequential modified LR test statistic (each test at 5% level); FPE: Final prediction error; AIC: Akaike information criterion; SC: Schwarz information criterion; HQ: Hannan-Quinn information criterion

Source : Author's estimation

According to the FPE and HQ criteria, a delay is sufficient to model the dynamic interrelationships between the level of economic activity and economic policies. Applying the Johansen co-integration test, we find that the null hypothesis of no no-integration is rejected and we concluded that the variables are co-integrated in the long-run. To determinate number of cointegrating equations, we employ the Johansen (1988) test for co-integration as shown in table 4 below.

That lag interval of 1 to 1 was used with a linear deterministic test assumption. Johansen co-integration test for the series include *GDP, FP, P; UN, G* and *M2*.

Table 4: Johansen co-integration test

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.652191	71.70474	69.81889	0.0351
At most 1	0.396858	37.90946	47.85613	0.3060
At most 2	0.271981	21.73017	29.79707	0.3138
At most 3	0.229204	11.57247	15.49471	0.1786
At most 4	0.096346	3.241874	3.841465	0.0718

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
 * denotes rejection of the hypothesis at the 0.05 level
 **MacKinnon-Haug-Michelis (1999) p-values

Source : Author's estimation

From the table 4 above, we can observe that the unrestricted Rank Test indicates that there are no integrating equations at the 5% level of significance among the dependent and independent variables. The absence of a cointegration equation confirms the use of the VAR modelization as being the adequate modelization.

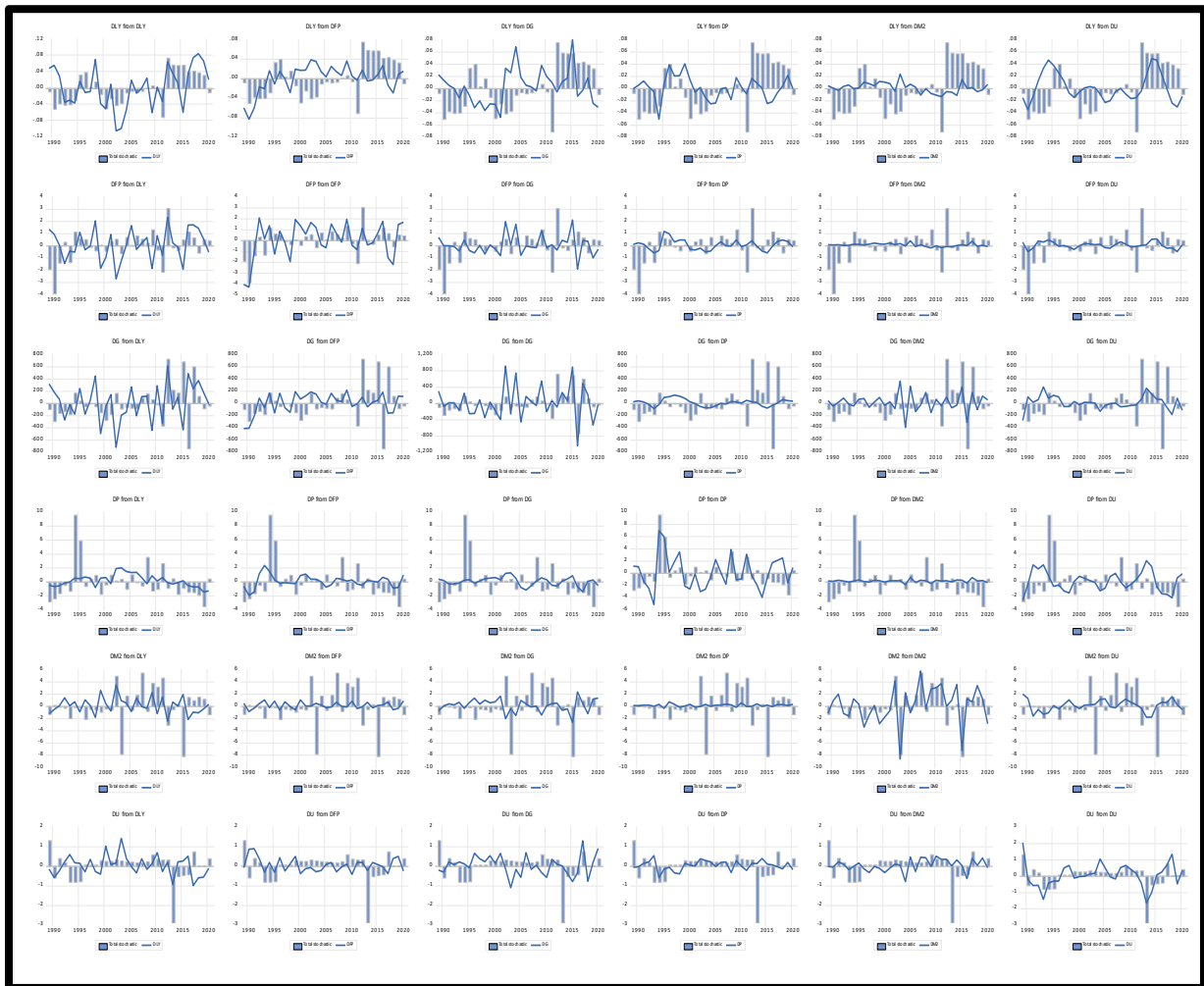
Table 5 : Estimation results

	DLY	DFP	DG	DP	DM2	DU
DLY (-1)	0.668332 (0.21697) [3.08035]	-0.579912 (9.24382) [-0.06274]	2683.396 (1982.32) [1.35367]	-43.09005 (17.9080) [-2.40620]	4.450144 (23.1116) [0.19255]	0.975564 (4.78233) [0.20399]
DFP (-1)	-0.004380 (0.00595) [-0.73669]	0.231915 (0.25334) [0.91545]	8.266630 (54.3271) [0.15216]	0.935681 (0.49078) [1.90650]	0.412671 (0.63339) [0.65152]	-0.150458 (0.13106) [-1.14798]
DG (-1)	7.77E-06 (2.3E-05) [0.33856]	-0.000747 (0.00098) [-0.76389]	-0.377145 (0.20964) [-1.79898]	0.000682 (0.00189) [0.36021]	-0.002111 (0.00244) [-0.86366]	-0.000849 (0.00051) [-1.67910]
DP (-1)	0.006055 (0.00251) [2.41196]	0.124854 (0.10695) [1.16743]	20.68586 (22.9346) [0.90195]	-0.031325 (0.20719) [-0.15119]	0.057325 (0.26739) [0.21438]	0.016059 (0.05533) [0.29025]
DM2 (-1)	0.001767 (0.00189) [0.93648]	-0.018933 (0.08038) [-0.23553]	36.92960 (17.2381) [2.14232]	-0.010109 (0.15573) [-0.06492]	-0.249884 (0.20098) [-1.24334]	0.063279 (0.04159) [1.52160]
DU (-1)	-0.006812 (0.00838) [-0.81334]	-0.186423 (0.35682) [-0.52246]	-39.82981 (76.5186) [-0.52052]	-1.050277 (0.69126) [-1.51937]	0.848459 (0.89212) [0.95106]	0.020712 (0.18460) [0.11220]
C	-0.015613 (0.00862) [-1.81194]	-0.408737 (0.36712) [-1.11337]	103.7259 (78.7272) [1.31753]	2.541792 (0.71121) [3.57390]	0.317583 (0.91787) [0.34600]	-0.051455 (0.18993) [-0.27092]
Adj. R-squared	0.403995	-0.053751	0.145395	0.082402	-0.091682	0.182968
Observations	34					

Source : Author's estimation

All of the previous results have given us allowed some economic discussions inherent in the role of economic policies on the quality of economic growth. The estimation results show that money supply, inflation, government expenditure has a positive impact on the country's economic growth. The tax rate and the unemployment rate have a negative impact on economic growth.

Figure 3: Historical Decomposition



Source : Author's estimation

5. Conclusion and discussion

This study allowed us to analyze the monetary and budgetary policy instruments on the dynamism of growth in Côte d'Ivoire through secondary data covering the period 1987 to 2020. Autoregressive vector modeling with a lag allowed us to have the results according to which the money supply and the stimulus policy based on the increase in public expenditure improve the level of economic activity in Côte d'Ivoire. These results are similar to those of Aristotle (2021) who states that fiscal policy improves economic growth, but this is done through institutional factors. However, too severe taxation via an increase in the tax rate would lead to a reduction in economic activity. This means that taxation has a distorting effect on economic activity as it promotes unattractive tax behaviors such as tax evasion and tax evasion. Indeed, these results justify Laffer's thesis (1981): "too much tax kills tax". Thus, there would be a tax threshold beyond which taxation deteriorates economic growth. Based on these results, it seems sensible to increase public spending, including spending on health and education, and also to set the tax rate at its optimal level.

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