

DETERMINANTS OF TAX BURDEN IN COTE D'IVOIRE

By

FOFANA YACOUBA

THESIS

Submitted to

KDI School of Policy and Management

In partial fulfillment of the requirements

For the degree of

MASTER OF PUBLIC POLICY

2011

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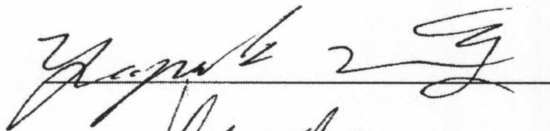
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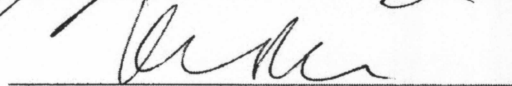
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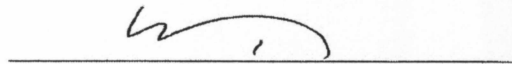
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ABSTRACT

We sometimes wonder, with the given situation of developing countries, if it is possible to increase taxes levy as part of a stabilization program or mobilize significant resources to finance a development program. These questions will be answered in the analysis of the determinants of tax burden. The analysis is done through a simple linear model estimated with ordinary least squares method with secondary data covering the period 1970-2007 for Côte d'Ivoire. We come to the conclusion that money supply and investment are important variables in determining the tax burden. Contrary to previous studies, per capita income and economic openness to the outside appeared as less explanatory variables of tax deductions in Côte d'Ivoire. Beside these macroeconomic variables we can also add the idea of reforming the tax administration to reduce fraud and make tax collection process more efficient.

ACKNOWLEDGEMENT

This thesis achievement is through the contributions of many people to whom I would like to show my appreciation.

Firstly, many thanks should go to Professor Kang,Younguck, my supervisor, who compassionately supported me with guidance, constructive ideas, advice suggestion and comments to accomplish this study.

I would like to thank the entire team of Professors, Lecturers and the staffs of the KDI School of Public Policy and Management for shaping my mind and empowering me in matters of public policy analysis and economic development.

Special dedication goes to the Korea International cooperation Agency (KOICA) for the sponsorship during the entire period of my program.

Many thanks goes to the officials of the Ministry of Economy and Finance of Côte d'Ivoire especially to the Department of Business Cycle and Economic Forecasting. Their cooperation during data collection enabled me to gather the relevant and accurate data needed to accomplish this study.

Finally, I would like to thank all my family members, my wife, relatives and friends for the love, patience and encouragement at all times during my study in Korea. Without their moral support this study could not be successful.

DEDICATION

Praise God almighty for making me what I am today, having heard my call during moments
of doubt and answered my prayers.

I am happy to send this thesis dedication to my beloved family

Special dedication to my lovely and sweet wife

Her support and kindness that made this happen.

ACRONYMS AND ABBREVIATIONS

CBWAS: Central Bank of West Africa States

CET: Common External Tariff

DBCEF: Department of Business Cycle and Economy Forecasting

EPA: Economic Partnership Agreement

GDP: Gross Domestic Product

GNP: Gross National Product

NSI: National Statistics Institute

OLS: Ordinary Least Squares

SME: Small Medium Enterprises

SSA: Sub-Saharan Africa

UNCTAD: United Nations Conference on Trade and Development

VAT: value added tax

WAEMU: West African Economic and Monetary Union

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Chapter I: Introduction

Taxation is the process by which governments ensure the funds collected by mandatory law, in the point of view of paying the public expenditure. Taxes can be levied directly on individuals or legal entities like corporations. Tax burden expressed as a percentage of gross domestic products (T/GDP) is a very important indicator in determining the economic and fiscal policy of a country. For this reason knowing the elements that influence it is a special interest.

Côte d'Ivoire is a particularly interesting case, where deep tax reforms initiated since 2000 focusing on the objectives of stabilization and poverty reduction. These reforms affect both the structure of taxes and tax base. However, the implementation of these was affected by the September 2002 crisis that has weakened the social situation and has upset the economic growth. In addition, the economical and social infrastructure has deteriorated significantly. In order to reverse this trend, Côte d'Ivoire has set up a goal of sustained growth while ensuring the progressive rehabilitation of educational infrastructure, health and drinking water. As this policy requires a net increase in tax revenue, the economic environment should make sure that these resources be mobilized through processes more efficiently and fairly than before.

Therefore, this study is situated in a context where external financing is scarce, due to the debt burden which is already high in many countries and the conditionality set by development partners for new loans. In addition, most countries have embarked on programs to reduce poverty that require significant resources, while their positive effects on development can be felt in the long term base. Finally, the Economic Partnership Agreements (EPAs) and the need for sub-regional economic integration are key factors underpinning lower customs resources that should be offset by more substantial internal resources.

For many countries, increased tax burden is an essential issue that is more than important. According to the Organization for Economic Cooperation and Development (OECD), the tax burden in developed countries varied between 30% and 50% with an average of 38%, while the average ratio in developing countries is 18%. In Côte d'Ivoire, the overall tax burden is 15% on average. With the experience of the 80s fiscal policy which was characterized by taxation increase, it is reasonable to assume that in Côte d'Ivoire the maximum possible tax burden is around 22% (Chamley and Ghanem, 1991). The major problem which arises from this analysis is: what factors are likely to explain the tax burden in Côte d'Ivoire? Knowing these determinants (economical, political or institutional) would enable us to better center the policies aiming to improve tax burden. Thus to achieve the overall objective, this study needs to achieve secondary objectives as following:

- ✓ show how the structural factors can explain the economy tax burden
- ✓ assess how macroeconomic policy factors are favorable to levy tax

In our study, we use the assumptions as following:

- ✓ the size of informal sector and fraud in tax collection do not enable a good level of revenue collection
- ✓ the expansion of value-added tax (VAT) may have some impact on tax progressivity
- ✓ the structural factors of the Ivorian economy such as the level of development and income structure can explain tax burden
- ✓ macroeconomic policies (monetary and fiscal) can explain the tax burden

Our study consists of three main parts. The first deals extensively in the literature review on the determinants of the tax burden analysis. The second will cover current practices of taxation in Cote d'Ivoire. Finally the third will present the empirical analysis (with a model of LOTS and MORSS (1970)) and findings of this study.

Chapter II: literature review of tax level determinants

Many economists try to determine the factors that explain the tax burden these last decades. They have identified many factors such as characteristics of the economies, the socio-political life of their society, or aspects of tax systems as follow:

- ✓ the statistical determinants,
- ✓ the determinants of tax policy and
- ✓ the institutional or social determinants.

A. Statistical determinants

Initial studies on tax burdens were based on structural factors of the economy such as: level of income per capita, often seen as the level of economic development, degree of urbanization, literacy rate and the degree of monetization of the economy, the Degree of openness (the ratio between exports and imports to GDP), shares of mining and agriculture in GDP and finally the size of the country. Musgrave and others have made clear, these factors play an important role in determining the tax base and also a powerful tool of manipulation that can be used by governments to increase the level of income (Musgrave (1969)). The important needs of developing countries' income to fully exploit their takes their "taxable burden." This led to other studies that included the level of public spending between the independent variables (Tabellini (1985)).

The precursor of these statistical analyses is Williamson (1962) who uses the per capita income as an indicator of developmental stage and estimated with an exponential function data for a sample of 33 developed and developing countries. the results indicated the presence of a significant positive relationship between the ratio of revenue and income per capita, although the differences in the share of income was less pronounced than those of income

per capita. This study is followed by Plasschaert (1962) and Hinrichs (1965). They found that the per capita income and the degree of openness (as measured by the ratio of imports over GDP), are the key explanatory variables of less developed countries.

Besides the previous studies we can add the important contribution of Lotz and Morss (1967) in their first paper on the tax burden analysis. With a sample of 72 developed and developing countries they try to examine the relationship between tax rates differences and differences in per capita income and the openness. They used the ratio of the sum of imports and exports to GDP, rather than the ratio of import or export rate as the index of openness. They found that income and openness are positively related to the tax burden. In a second paper (1970), the authors have introduced additional variables in the analysis above. The introduction of the degree of monetization as an explanatory factor has significantly increased the explained variance, but significantly reduces the level of per capita income.

The United Nations Conference on Trade and Development (UNCTAD 1970) has refreshed with some extension the analysis initial of Lotz-Morss. Using data series were compiled for 36 developing countries for the period 1950-1966. They introduce the new explanatory factors as follows: the share of agriculture in GDP and the inflation rate. These variables were added to the income per capita and openness. All came out to be significant, but collinearity between the share of agriculture and per capita income shows that one of them must be abandoned. He also felt that there was little a priori reason to include the inflation factor. Therefore, the study for the final model retains only the share of agriculture and the Degree of openness as key factors that explain the tax level. In the same way, Leuthold (1991) analyzed the tax burden determinants (tax / GDP) of eight African countries over the period 1973-81. The results, based on the OLS estimation method, have revealed that the share of agriculture is negatively correlated with the level of taxation while the share of foreign trade, was released statistically significant. Similarly, Stotsky and WoldeMariam (1997) analyzed

the relationship between (tax/GDP) and the sectoral composition of value added, the overall level of industrial development, the share of international trade. In a sample of 43 underdeveloped countries in SSA during 1990-1995 the authors found that the level of taxation has been negatively impacted by the activities of agriculture and mining and positively by exports and the level of income per capita.

The empirical studies on the relationship between macroeconomic policies and taxes have been introduced in economic literature in the 90s. The authors examined the effects of macroeconomic policies and assumed that the expansive or restrictive monetary and fiscal policies may influence the rate of public levy. Indeed, we have the study of Ghura (1998) with a more complicated model has introduced several new variables including macroeconomic policies and representing the extent of corruption in explaining variations in the level of taxation in a sample of thirty-nine sub-Saharan Africa over the period 1985-96. The results indicate that tax burden in the sample countries was significantly and negatively affected by the inflation rate and extent of corruption. Also we have the study of Fauvelle-Aymar (1999) analyzes the variation in the level of taxation in a sample of 89 developing countries over the period 1980-89. She said a model in which traditional economic variables were completed by proxies for the government to "legitimacy", "efficiency" and "credibility" and found evidence that improvements in these aspects would raise the level of taxation.

There is a particular attention in recent years to the effects of corruption and tax evasion on taxes levy. Indeed, it seems that if corruption increases the share devoted to public investment, it reduces their productivity because the infrastructure built will be of poor quality and poorly maintained. As illustration we have the study of Tanzi and Davoodi (2000) attempted to empirically assess the effect of a corruption index on total revenue, using a sample of 90 countries over the period 1980-97. In addition to the corruption index, the only predictors of earlier studies have been real income per capita and GDP share of agriculture and trade. They

concluded that corruption has a significant negative effect on total tax revenue, but has no effect on its component of nontax revenue. In the portion of total tax revenue, corruption has had a much greater negative impact on direct taxes as a group relative to indirect taxes.

B. Tax policy determinants

Some economists believe that the use of many taxes helps increase the level of revenues from taxation. Others believe that the higher the number of taxes used, the tax burden is likely to be lower. They believe that the use of special tax sources (whether to use tax on the value added see Nellor (1987)), the number of taxes in the country's fiscal regime, the level of tax rates, the use of tax incentives influence the level of revenues in general. There is a growing literature on the relationship between tax structure and tax levels.

Studies have shown that the effective tax bases are often only a small fraction of the potential or theoretical basis. For example, the actual basis of the tax on the value added is often less than 50 percent of the theoretical basis (see Aguirre and Shome (1987)). Besides the tax base can also be added exemptions and a high import of non-taxable public sector (Tanzi (1987)).

Given all these problems the following recommendations were made by tax advisers to increase revenues related to the determinants of fiscal policy. Among these recommendations were noted:

- ✓ the implementation of new tariffs on existing databases or new taxes,
- ✓ the administrative changes aimed at reducing tax evasion,
- ✓ the increased of tax administration resources and tax administrators' salaries,
- ✓ the need to reduce exemptions and broadening the tax base,
- ✓ the increasing level of sanctions,
- ✓ the widening of tax bases followed by the reduction in tax rates.

Determinants mentioned above may help explain the long-term levels of taxation or potential. However, they have not been able to explain more than a small fraction of the variation in levels of taxation in the empirical studies.

Determinants of the tax burden can also be explained by significant changes in tax levels during periods of relatively short time. These fluctuations could not be entirely due to the evolution of these determinants. Some of these variations are due to changes in commodity prices, which induce the decrease in export earnings (See Tanzi (1986) and Chu (1987)).

Another explanation for these dramatic changes over relatively short periods can be found in the government's macroeconomic policy to the extent with different economic policies may have impacted the evolution of income tax. These policies include among others:

- ✓ the change of real exchange rate value,
- ✓ the degree of import restrictions,
- ✓ the level of public debt,
- ✓ the level of interest rates and inflation.

These factors are important in determining the level of taxation at some point in time. In the major part of cases, important mutation on taxation levels may be connected directly or indirectly to macroeconomic policies but it is a relationship which has not always received the attention it deserves.

C. Institutional or social determinants

The literature on the ability of taxation was not limited only to the study of purely statistical relationships she has also made a hole on the qualitative factors, such as the quality of tax administration resources for the administration; the honesty of taxpayers, the degree of corruption among tax collectors; income distribution of countries, the importance of the subsistence sector and the economy: the attitude of citizens towards the government, which may be influenced by the quality of public services and the efficiency with which revenues are spent and forms of government.

Many of these factors are difficult to quantify, but are perceived as being of some importance to determine whether a country is left with a tax level high or low. The extent to which taxes are evaded, or parallel economy grows large, depends to a large extent on some of these factors.

Chapter III: characteristics of the Ivorian tax system

Modern system comparable to the developed countries, the Ivorian tax system is declared type it mean that the taxpayer establishes his own contribution. Indeed, determines:

- ✓ the tax base according to his understanding of finance law;
- ✓ tax liquid that mean itself calculates the payable amount;
- ✓ and then pays himself.

However, the tax administration has a right to control in a specific legal framework. The main objectives of the measures adopted during the 1990s aimed to simplify the tax system and harmonization with the WAEMU (West African Economic and Monetary Union) principle, and consequently an increase in the level of tax mobilization.

In this chapter, we will examine the structure of the current tax system, to identify the characteristics and analyze the contribution of each group of taxes in mobilizing financial resources.

A. The size of the tax system Ivorian

Ivorian tax system has several taxes with generally moderate rate. According to an administrative classification, it is composed of direct and indirect tax.

Direct taxes: The taxes in general which are called direct taxes are based on capital or income. They are due solely because of the existence of capital or income. They are paid by the taxpayer himself without being able to pass the burden to another person.

In their liquidation plan, direct taxes are likely to be reported to a specific taxpayer and can be arranged in a progressive system, following the increase the tax base and / or after the personal circumstances of each taxpayer, considering in particular the dependents of the taxpayer. In this category of tax, we can mention mainly: the tax on profit, small business tax, tax on wages and salaries, property tax, general income tax.

The tax on profit is a tax seated on the profits of commercial professions, non-commercial, industrial, small crafts industry, forestry, agriculture and mining. We have:

- ✓ tax on business profits (BIC): it has two rates, 27% for corporations whose turnover is less than one billion and 25% for individuals and SMEs(Small Medium Enterprises) ;
- ✓ tax on non-commercial profits (BNC): it applies to profits made by the professions (doctors, lawyers, notaries, etc.) and foreign companies. Its rate is 25% and can be fitted under the Tax Treaty applies:
 - for individuals person operating their business in Côte d'Ivoire;
 - and foreign companies which don't have any basis but receive salaries because of service provided or used in Côte d'Ivoire.

Also we have a small business tax which is paid by all companies that are professionally active in Côte d'Ivoire and consists of a fee of 05% applicable on the turnover of the previous year and a fee of 18.5% sat on the rental value of business property.

In addition to the previews tax we have the taxes on salaries and wages. This term includes all levies on income, allowances, emoluments, salaries, pensions, annuities and other compensation paid to employees. Several rates are expected, which together aggregate is around 7.5%.

Furthermore, we have a property tax which is composed of two taxes:

- ✓ the tax on property and land and
- ✓ road tax, hygiene and sanitation;

The tax on property and land are annual this is applicable to both developed properties and undeveloped land. Owners of buildings built so pay tax on income as rents and taxes levied on the assets related to land ownership.

Tax rates are:

- ✓ income tax on land: 11% of the rental value of income properties.
- ✓ property tax :
 - 4% of the rental value of buildings,
 - 4% of the value of income producing vacant land,
 - 15% of the rental value of property of legal persons and enterprises engaged in their activities,
 - 1.5% of the market value of bare land unproductive of revenue.

For the road tax, hygiene and sanitation, the rate is set at 2% of the rental value of buildings or structures belonging to diplomatic missions and similar exempt from property tax and property income tax. And 2% of rental value of building or structure, properties of companies receiving exemption on property tax specified by the Investment Code and other special codes.

Finally in the direct taxes we have the general income tax. This tax affects the overall net annual income of individuals in Côte d'Ivoire who has a habitual residence or Ivorian income source. Recipients of income are taxed as individuals on this income. The scale of computing general income tax is:

Table 1: evolution of general income tax rate

Income between	Tax rate (%)
1000 to 2 200 000	2
2 201 000 to 5 200 000	22
5 201 000 to 9 600 000	24
9 601 000 to 12 600 000	26
12 601 000 to 15 000 000	30
15 001 000 to 19 750 000	32
19 751 000 to 24 000 000	34
24 001 000 and over	36

All the number is in CFA currency: 1\$≈500 CFA

Indirect taxes: The indirect tax is sitting on the use of capital or income it means that, it is paid in connection with the acquisition of goods and services. It based on intermittent facts - expenditure - and its perception continues during the year. In terms of their liquidation, indirect taxes are not subject to any development based on the amount of the tax base or personal circumstances of the taxpayer. They always hit the tax base at a proportional rate.

In this category we can mention mainly: the value added tax (VAT), tax on services, registration fees, tuition foundation, taxes on insurance contracts etc.

The value added tax (VAT) is a tax with the split payment, and it collected on business transactions. The tax is levied at a rate of 18%. Its scope is very wide. Only a few products were exempted of this tax like: the pharmaceuticals products, books and newspapers, fertilizer and natural food products.

In the same way we have the tax on services. This tax is sits on the bank charges and bank commissions. Its rate is 10%. The persons who are liable for this tax are the banks and financial institution.

Likewise, the indirect tax is composed of tax on insurance contracts. This fee covers the insurance invention or life annuities conclude with an insurance company or with any other insurer Ivorian or foreign. The rates charged vary depending on the risks covered (25%, 14.5%, 7%, 5% etc ...).

Moreover, we have the tuition foundation. This concerns a specific taxes that apply to specific products: petroleum products, alcoholic and non alcoholic, tobacco, wood and cartridges. The fees are payable monthly.

Besides all the previews types of indirect taxes we also have the registration fees. They are collected during transactions, signature or authentication of legal documents and other transactions made by individuals and corporations. Applied rates are fixed, proportional or progressive depending on the nature of the acts.

B. Evolution of the main sources of revenue

Revenue budget and tax: After the introduction of several reforms in the tax system, it is noted a growing trend in the level of tax revenues since 1994 to 2009. Reversing the downward trend in revenues from 1988 to 1993. But this favorable evolution of revenues has not kept high the level of fiscal pressure observed during the 80s which showed an average of 20.7%.

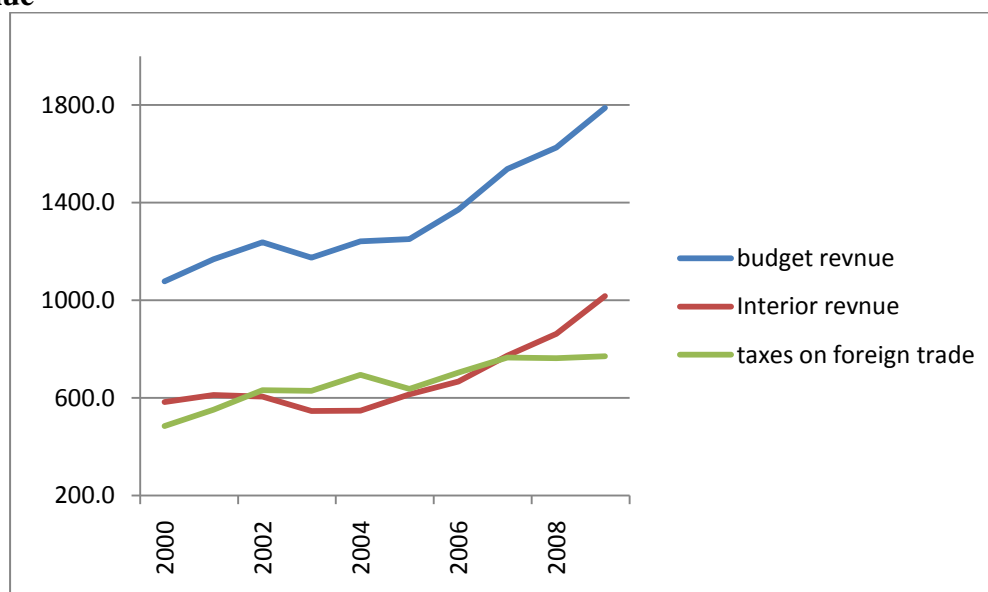
Examination of the table below shows a steady increase in the level of revenue budgetary and tax revenues.

Table 2: budgetary and tax revenues (2000-2009)

Description	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
budget revenue	1077,5	1168,4	1237,5	1175,4	1241,4	1251,2	1372,1	1537,9	1626,3	1788,5
Interior revenue	583,7	611,8	605,2	545,9	547,1	614,1	667,7	772,8	863,0	1017,1
taxes on foreign trade	484,8	552,0	632,3	629,5	694,3	637,1	704,4	765,1	763,3	771,4
Nominal GDP	7416,8	7730,1	8006,1	7984,3	8178,5	8626,2	9033,2	9439,6	10425,3	10880,7
Fiscale pressure (%)	15%	15%	15%	15%	15%	15%	15%	16%	16%	16%

Source/ DBCEF

This table shows the two major groups within the budget revenue mobilization by the General Management of Taxes (DGI) and the General Management of Customs Duty (DGD). On the observation period 2000-2009, internal revenue remained dynamic. Indeed, on the same period, we observe a general upward trend with a record of 1.017,1 billion of CFA francs in 2009 for the internal revenue due to improved conditions of tax collection. In general there is a general increase in all types of revenue with a growth rate of 5.9% on average.

Figure 1: Evolution of budgetary revenues, taxes on trade, external and internal tax revenue

Source: DBCEF / Author

The absolute increase in the level of public tax can be explained by increasing the level of GDP since the public tax is based on wealth created. This increase may also be the result of measures put in place like the reforms in tax administration and customs.

Direct revenue: Direct revenues are seated on three main categories of revenue which are: taxes on profits, taxes on income and salary, and taxes on movable capital. These three taxes, they had contributed to 87.3% of direct revenue in 2009. See Table

Table 3: key Direct Revenue

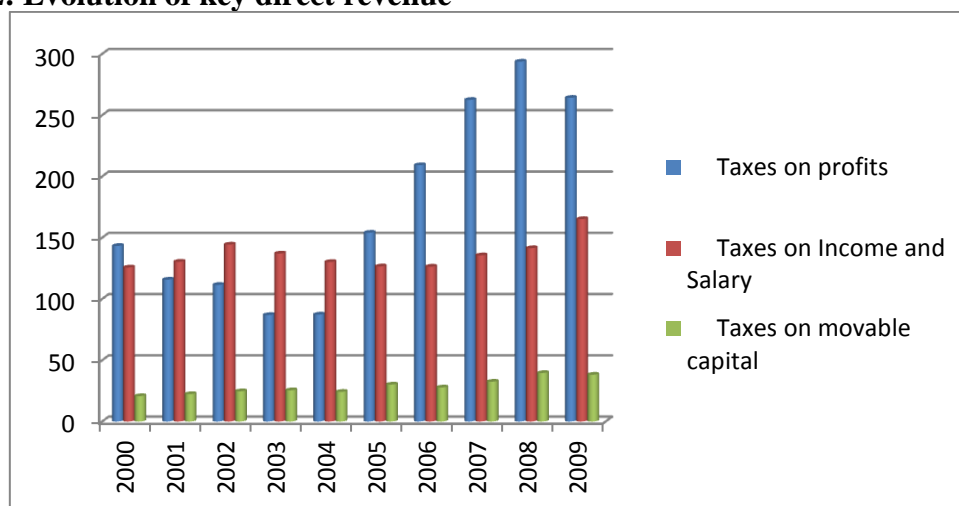
Description	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Directs revenue	334,4	326,6	333,1	287,7	288,6	360,3	413,4	488	541,6	535,8
Taxes on profits	143,3	115,8	111,5	86,9	87,3	154,1	209,2	262,5	293,7	264,2
Taxes on Income and Salary	125,7	130,4	144,4	137,1	130,2	126,6	126,4	135,6	141,5	165,2
Taxes on movable capital	20,7	22,4	24,7	25,5	24,2	30,2	27,8	32,5	39,6	38,2

Source: DBCEF/Author

The evolution of tax revenue in the Côte d'Ivoire shows that direct taxes are important. On the period 2000 to 2009 they represent 29% of total budget revenues and 57.2% of internal revenue.

The upward trend in this category can be explained by a gradual improvement in results of the firms but also by the action of the tax services through the extension of the tax base and the intensification of controls.

Figure 2: Evolution of key direct revenue



Source: DCPE / Author

Indirect revenues: Indirect revenues are seated mainly on these three categories of revenue which are: the value added tax (VAT), tax on provision and service, and registration duty.

The emergence of registration duty in the category of indirect taxation is very recent (2009) following reorganization by the tax authorities. These three taxes had contributed to 78.7% of direct revenue in 2009. See Table

Table of key Indirect Revenue

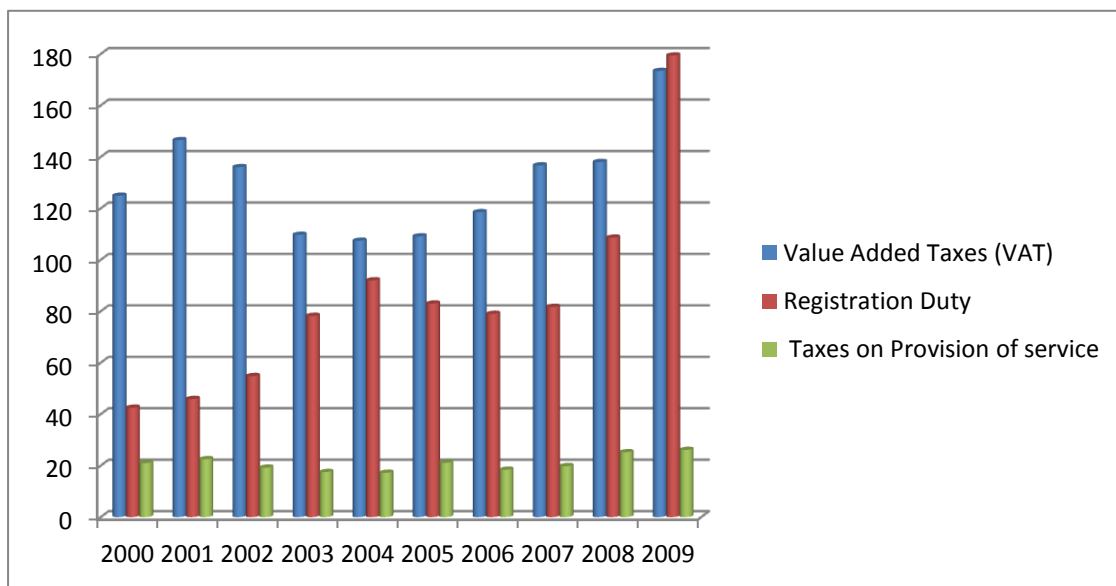
Description	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Indirects revenues	249,3	285,2	272,1	258,2	258,5	253,8	254,3	284,8	321,4	481,3
Value Added Taxes (VAT)	124,9	146,5	136	109,7	107,4	109,1	118,5	136,7	138	173,4
Registration Duty	42,5	45,9	54,8	78,2	92	83	79	81,7	108,6	179,4
Taxes on Provision of service	21	22,5	19,2	17,5	17,2	21,1	18,4	19,8	25,2	26,1

Source: DBCEF/Author

The evolution of tax revenue in Côte d'Ivoire shows the importance of indirect taxes. Between the periods 2000 to 2009 these three main taxes represent 21.6% of total budget revenues and 42.7% of the internal revenue.

In this category of revenue it is important to highlight the dominance of the value added tax (VAT). On the considered period, it represents 9.6% of total budget revenues and about 19% of internal revenue. See chart of evolution of indirect revenue.

Figure 3: Evolution of indirect revenue.



Source: DBCEF/Author

Due to the current socio-economic characteristics of Côte d'Ivoire, a customs duty brings enormous fiscal resources. But in the context of harmonization of taxation and customs policies in the WAEMU, with Commun External Tariff (TEC) come into force since January 2000 at the level of WAEMU states and the signing of EPA (Economic Partnership Agreement) acting by Côte d'Ivoire in 2008, the country should observe in long-term decline of customs revenue.

Therefore, it follows from this situation that the hope of higher tax revenues will come from indirect taxation as more precisely in the VAT. Either by widening the tax base or also tried to fight really against fraud. However caution should be observed for any measure an enhancement of collection of VAT, especially as regards increasing the tax rates or broadening the base for products of wide consumption.

C. Tax Administration Reform

Taxation is a tool for economic development, because firstly, the level of taxes in one country may encourage or, conversely, hindering the development of economic activities, investment and household savings, secondly, because of the importance of tax revenue for the state to determines its ability to make investments, infrastructure and to remunerate the work of its staff.

Today, the concept of development has evolved. His new framework makes clear the importance of taking into account the political, social and cultural vitality of men and peoples. More specifically, the development policy of African states should seek to promote not only the development of enterprises, but also economic growth and poverty reduction, which is installed in most of these states.

In West Africa, the Regional Programme of tax and customs reforms had established that the previous fiscal instruments and customs of the Union contained serious weaknesses detrimental to the economies of the sub-region. Confusion, complexity, significant distortions and significant inequities in the distribution of tax burden characterized the tax system and customs regulations. The reform aims to eliminate these weaknesses and to modernize the system. On this basis it seems appropriate to think of a tax reform for all WAEMU member states, but especially the case of Côte d'Ivoire

1- SIMPLIFY TAX SYSTEM AND MAKE IT MORE FAIR

It involves creating a common framework comprising all the provisions to improve the institutional environment, tax and financial firms in order to promote growth and economic diversification on the basis of a better definition the role of the state, and a harmonious development of the private sector through investments from domestic and foreign.

Reducing the level of taxes to make the tax system fairer is not only of the businesses. It also covers individuals, subject in some countries to a level of taxation of income relatively high.

Three elements are critical in this regard:

- The income taken into account: it must be all taxable income to tax on income of individuals;
- ceiling charges: the mechanism must involve all direct taxes applicable to such income. It should include social contributions;
- The maximum tax rate: it cannot exceed 50% of income taken into account, at least for psychological reasons.

Indeed, it is accepted that each citizen or each company pays a minimum tax to contribute to equality of rights and obligations to public office, it is also possible to accept that taxation is not a sanction The law shall fix the maximum tax to be levied on income or profits for taxpayers.

Finally, a fairer tax system should also aim at reducing the incidence of indirect taxes including VAT on individuals.

As in all countries, the principle of deduction of VAT and "applying a zero rate of VAT on exported products to the refund of VAT paid on investment and operating costs of exporting

companies" ensure the neutrality of the tax. However, the rates of VAT introduced in member states seem to respond only to a goal of increasing budget revenues because these rates are relatively high and thereby contribute to higher consumer prices, especially for households.

A more ambitious reform, however, could involve extending the scope of the reduced rate of VAT to certain services to individuals such as benefits for members of professions. Similarly, there is no reason why individuals are allowed to deduct from their taxable income the VAT on these services, the cost is easily recordable since they give rise to billing.

The application of excise duties on certain products can therefore compensate for the loss of revenue on which might result from lowering the VAT rate applicable in the generality of cases.

It is important to note that the introduction of VAT in place of the old tax revenues has been accompanied by the maintenance of excise duties, to allow an adjustment of tax revenues to the needs of the Treasury.

2- IMPROVING THE COMPETITIVE POSITION OF BUSINESS

The tax system should significantly improve the competitive position of enterprises in West Africa countries. It appears that apart from specific texts for certain sectors, the provisions of tax codes of the countries concerned on the tax exemption on profits during the first years of operation, depreciation or credits taxes are identical to those found in most tax codes around the world. They are therefore not in the state, from our point of view, provisions such as to significantly improve the competitive position of companies in the region.

Finally, many corporations are exempt from corporation tax in the States, including through preferential tax regimes that remain after removal recommended by the tax and customs reform in the WAEMU. Some of these exemptions are questionable as to their merit or

effectiveness. Removing these exemptions would broaden the tax base and in proportion to offset the revenue loss that might result to the member states of the reduced rate of tax.

3- PROMOTE ECONOMIC INTRA REGIONAL EXCHANGES

Tax reform should promote trade between the WAEMU member states and, more broadly, their economic exchanges. It therefore requires a policy of tax harmonization to energize "the single market, but also to render effective the elimination of double taxation and fight against tax evasion. In this regard, while tax harmonization itself is carried out by community directives, the elimination of double taxation within the community is getting a lot less attention from Member States.

Another way to promote economic exchanges between Member States is developing a real group taxation. Now, everyone can observe that the group taxation is poorly developed in Africa and particularly in West Africa.

Indeed, there is no tax consolidation in West Africa, and the main provisions of tax codes to specific groups of companies are generally and mainly:

- The provisions governing the headquarters of corporate groups;
- Provisions relating to the system of parent companies and subsidiaries with regard to the taxation of dividends;
- Provisions relating to the deductibility of head office costs and technical assistance as well as commissions or brokerage fees.

This system of taxation may be further encouraged, provided to ensure that the additional taxation respects the principle of moderation of the tax burden.

4- PROVIDE PERMANENT REVENUE TO THE TOWN

Taxation of development of states of West Africa must be an instrument of policy planning. However, it is undisputed that the centralization of revenue collection is an obstacle to local development. Moreover, in most countries, the lack of decentralization denies common ways to ensure optimal sampling of some local taxes or the taking of which is left in their care.

In this regard, tax reform must be an element of decentralization policies. It should help to provide ongoing revenue to municipalities.

Two reforms can be achieved. They both concern the application of direct taxes which has the most significant impact on the companies and also on the state budget. First, it is possible to establish a system of taxation of corporate profits to the communes. Second, governments should encourage the establishment of enterprises in rural areas through relief measures. To enable the development of local taxation that benefits of decentralized budget.

For example, one can establish a tax credit for implementation in rural areas. The goal is not to grant a tax advantage to companies that promote local development that generates tax revenue for the community.

This tax credit will be granted on condition of employment of a specified percentage of the local workforce, contributing to economic development within the country. The applicability of such a device, including those relating to the benefiting companies, the amounts of investments taken into account, the coefficients applicable or duration of application, must be discussed between the State, municipalities and businesses .

5- STRENGTHENING THE CAPACITY OF TAX ADMINISTRATION

The capacity of tax administrations should allow the States to cope with the relative decline in tax revenues resulting from lower tax rates and better control the application of different tax regimes. This is to facilitate the collection of taxes and make effective and efficient control of the administration on the conditions of application of different tax regimes, including the implementation of rules on mutual assistance Administrative provided in the tax treaty and control the conduct of tax litigation.

Indeed, the tax administration must be able to ensure uniform application of the tax system and reduce distortions resulting from fraud.

Strengthening administrative capacity supposed the realization of two conditions:

- A hiring in tax administrations at all levels, with a continuing education program.
- Better deployment of staff of the tax administration, including inside the country to make more systematic control to the economic sectors.

The capacity of tax administrations should also aim to provide assistance to the economic operator traders, so that, the tax will not be for them only an administration that collects tax and gives penalties, but also a "public service" which provides them an equitable service,.

To better assess the determinants of tax revenue in Côte d'Ivoire we propose to make an empirical study through macroeconomic data in the next chapter.

Chapter IV: Specification of the model and model estimation

A- MODEL SPECIFICATION

The taxes levy system in developing countries has been object of several empirical studies. Among the studies we can distinguish the old studies focusing on structural variables. These empirical studies have been introduced by the studies of the economists MORSS and LOTZ (1970) followed by recent studies introducing other types of variables.

Indeed, using the structural factors in the economy, MORSS and LOTZ (1970) were the first to use the share of taxes in GDP for comparison of tax effort across countries. These researchers had found that income per head, the degree of openness and the degree of monetization were the determinants of the mobilization of fiscal resources. The approach was then used to model data from the international impact of structural variables on the taxes through the use of a model of cross-sectional data. The model is presented like this:

$$\frac{T}{Y_i} = a_0 + a_1 Y p_i + \frac{a_2(X + M)}{Y_i} + a_3 Q_{2i} + a_4 MO_i + \varepsilon_i \quad (1)$$

With: Share of tax revenue in GDP; Y_p : GDP per capita; $(M + X) / Y$: Share of foreign trade in GDP; Q_2 : Share of money and quasi-money to GDP; MO: share of exports in mining and oil exports.

Given the economic structure of Côte d'Ivoire, the theoretical model has been changed with the emergence of two new variables: investment and export earnings. Changes to the base model reflect our objectives and also the availability of data and economic realities of Côte d'Ivoire. So our new model is as follows:

$$\frac{TR}{Y_i} = a_0 + a_1 Yp_i + \frac{a_2(X + M)}{Y_i} + \frac{a_3 M_i}{Y_i} + \frac{a_4 Rexp}{RF_i} + \frac{a_5 Inv}{Y_i} + \varepsilon_i \quad (2)$$

With: RF / Y_i = Recipe tax to GDP ratio (TR); Yp_i = GDP per head of population (Y); $(X + M) / Y_i$ = share of foreign trade in GDP (FT); M_i / Y_i = ratio of money to the GDP (M); $Rexp / RF_i$ = share of exports revenues in total revenue (TE); Inv / Y_i = share of investment in GDP (INV).

After this modification we present our final model as follows:

$$TR = a_0 + a_1 Y + a_2 FT + a_3 M + a_4 ET + a_5 INV + \varepsilon_i \quad (3)$$

The presentation of our final model will allowed us to review the methodology of data analysis. This methodology will start firstly by how we will collect the data. For the data collection we will use a secondary data covering the period 1970-2007 (38 observations) from the database of the Department of Business Cycle and Economy Forecasting (DBCEF), the National Statistics Institute (NSI) and Central Bank of West Africa States (CBWAS). This requires a data pre-processing.

Secondly we will focus on the analysis method. This analysis is based mainly on statistical and econometric tools for the verification of assumptions. But before any statistics and econometrics test, it is important for us to study the problem of stationary of our data because we are using time series data.

To confirm the stationary of the variables, we will make the *stationary test of Dickey-Fuller (ADF)*.

The Dickey-Fuller can not only detect the existence of a trend (Unit Root Test), but also to determine the proper way to stationarize a chronicle. The decision rule is: if the calculated value of the critical probability is greater than 5%, we say that the series is stationary.

The method of estimation we will use is the ordinary least squares method or instrumental variables methods The estimated model will be on the software Eviews 4.1.

The statistical validation of the overall quality of the model is assessed by the coefficient of determination of the model and the Fisher test. The analysis of the overall quality of the model is done through the coefficient of determination of the model (R^2). This coefficient explains the share of the evolution of the dependent variable which is explained by exogenous variables. The overall fit test is done through the Fisher test. The hypotheses to be asked are:

$$\begin{cases} H_0 = \text{all model coefficients are zero} \\ H_1 = \text{he exists at least one non - zero coefficient} \end{cases}$$

If the *Fisher calculated* is higher than *theoretical Fisher* (F_{TH}), or *Prob (F-Stat) < 5%*. We reject the null hypothesis; the quality of the regression is good at 5%. In the opposite case, we accept the null hypothesis at 5%, the quality of regression is not good.

The statistical validation of the quality of individual variables is assessed by the Student test. Student's test poses as assumptions these hypotheses:

$$\begin{cases} H_0: i = 0 \text{ the coefficient } i \text{ is not significantly different from zero} \\ H_1: i = 1 \text{ the coefficient } i \text{ is significantly different from zero} \end{cases}$$

If the Student statistic calculated is greater than the theoretical statistics or probability calculated is less than 5%, we reject the null hypothesis; the variables are statistically

significant at 5%. Otherwise, we accept the null hypothesis; the variables are not significant at 5%.

The normality test of Jarque and Bera will be done to test the assumption of normality on the model variables or the error terms of the model. test is as follows:

$$\begin{cases} H_0: X \text{ follows a normal distribution } N \sim (0, \sigma) \\ H_1: X \text{ does not follow a normal distribution} \end{cases}$$

The decision rule is the following: at 5% level we accept the assumption of normality when the probability value is greater than 0.05. Otherwise we reject the assumption of normality as soon as the probability value is less than or equal to 0.05.

White's test will be done to verify the hypothesis of homoscedasticity of the errors. It consists to regress the squared of the residue of the model on all explanatory variables and then performs the classic test of Student on each of the coefficients.

$$\begin{cases} \text{If } \beta_i = 0 \text{ we infer the homoscedasticity} \\ \text{If } \beta_i \neq 0 \text{ we conclude the heteroscedasticity} \end{cases}$$

B. ESTIMATED MODEL

After the exposition of different property of the OLS, we will review our econometric test and the model estimation.

Firstly we will present the stationary study of the variable The results of this test are reported in the table below. They show that all variables are integrated of order 1.

Table 5: Test of stationary on the variables used in the model (*unit root test*)

Variables	First difference		Conclusion
	ADF _{cal}	ADF _{th} (5%)	
TR	-5.56	-2.95	I (1)
Y	-3.95	-2.95	I (1)
FT	-5.95	-2.95	I (1)
M	-6.91	-2.55	I (1)
ET	-6.41	-2.95	I (1)
INV	-4.09	-2.95	I (1)

Source: Author from Eviews 4.1

ADF_{cal} = Dickey-Fuller-Enhanced calculated; ADF_{th} = Dickey-Fuller-Increased theoretical;

I (1) = integrated of order 1.

The estimated model gives us the following results:

$$TR = a_0 + a_1Y + a_2FT + a_3M + a_4ET + a_5INV + \varepsilon i \quad (3)$$

Table 6: results of the estimation

$$TR = 11.999 - 0.006*Y - 0.007*FT + 0.169*M + 0.002*ET + 0.245*INV$$

$$(3.654) \quad (-2.006) \quad (-0.227) \quad (3.605) \quad (0.046) \quad (4.421)$$

$$R^2 = 0.738 \quad R^2_{\text{ajusté}} = 0.696 \quad F = 18.016 \quad \text{Prob}(F\text{-stat}) = 0,000 \quad N = 38$$

(): t - statistique

Source: Author from Eviews 4.1

Secondly, we will review the statistical validation of the model. In the model, the R^2 of the equation is substantially equal to 0.738 (see table 5 above). This means that the fluctuations in the tax burden are explained to 73.8% by the variables in the equation. The overall adequacy test Fisher reinforces the determination coefficient (R^2). In fact, the F statistic calculated $F_c = 18,016$ is greater than its theoretical statistics $F_{TH}(k-1, nk) = F_{TH}(4; 33) = 2.61$ at 5%. **Finally our model is globally significant.**

This situation leads us to make sure of the quality of the individual variables in the model.

The *t test* used to assess the quality of individual variables. Student statistical threshold of 5% $t_{5\%}(nk) = t_{5\%}(33) = 1.96$. We observe that the variable is only and not significant So we can therefore say that the variables of the model are relevant We will now proceed to the validation of our econometric model.

Thirdly we will focus on the econometric validation which consists to check the quality of the model residue. This analysis will review the property of heteroskedasticity, autocorrelation, and the normality between variables. The result of these different tests is listed below.

- *homoscedasticity of errors test (white test)*

If the result of white test gives us probabilities above 5%, we accept the assumption of homoscedascity errors. The estimates obtained by OLS are optimal (see table below).

Table 7:Results of White test

White Heteroskedasticity Test:			
F-statistic	1.915729	Probability	0.087257
Obs*R-squared	15.77166	Probability	0.106358

Source : Author from Eviews 4.1

- autocorrelation of errors test of (test Breusch-Godfrey)

If the test of *Breusch-Godfrey* also gives us probabilities above 5%, we accept the assumption of no correlated errors (see table below).

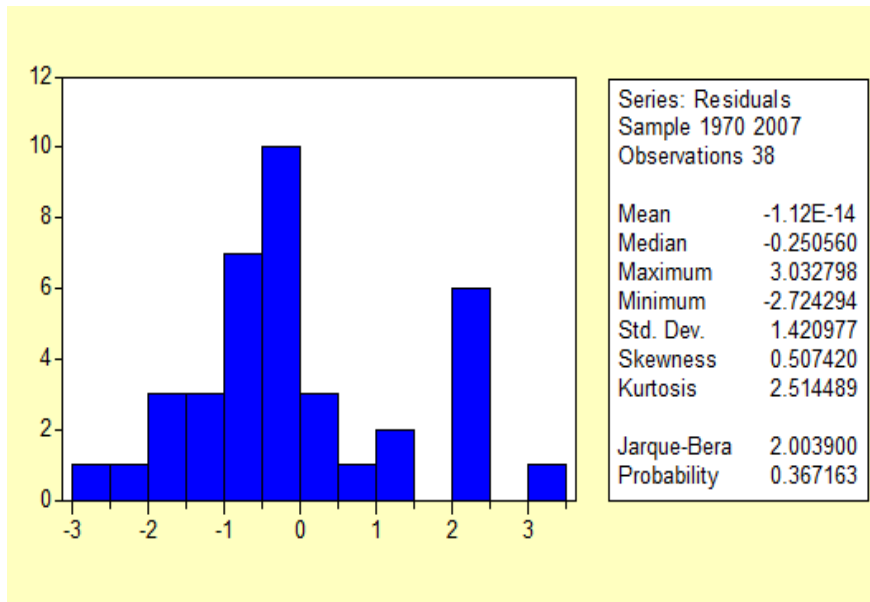
Table 8: Result Breusch-Godfrey test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	2.029553	Probability	0.149641
Obs * R-squared	4.516879	Probability	0.104513

Source : Author from Eviews 4.1

- normality test of errors (*Jarque – Bera*)

The normality test of residuals gives us a probability greater than 5%. What we can say that the series follow the normal laws over the period 1970-2007 (see chart below).



Source : Author from Eviews 4.1

The final result of our estimation is given on the table below

Table 8: overall result

Variables	Coefficient	t-Statistic	Prob
C	11.99946	3.654683	0.0009
TFT	0.001976	0.045626	0.9639
FT	-0.007604	-0.227262	0.8217
M	0.168509	3.605444	0.0182
INV	0.245257	4.421411	0.0001
Y	-0.005946	-2.005951	0.0534
R-squared	0.737879	F-statistic	18.01618
Adjusted R-squared	0.696922	Prob(F-statistic)	0.000000
Akaike info criterion	3.829688	Schwarz criterion	4.088254

Chapter v: Conclusion

The determinants of tax burden in Côte d'Ivoire are well explained by the model at 5% level. From this study we can emphasize the economic implications as follow:

The level of GDP per capita is moving in the opposite direction, even as the tax burden in Côte d'Ivoire is significant. This result is in accordance with the economic theory which one said the tax burden is not motivated by the income. The idea that higher the development levels of a country, the greater its ability to allocate resources is not proven for Côte d'Ivoire. The level of tax collection is not related to the low income of the population. At the same, time openness captured by the sum of imports and exports is negatively correlated with the tax burden which means if the ratio of foreign trade increases about 1%, the tax burden reduced by 0.7%. Accordingly this result argues that the tax burden is not motivated by external trade.

By its coefficient and its probability, investment is positively correlated with the tax burden and is significant for Côte d'Ivoire. This result is in line with the economic theory which states that a country's development depends on all its effort granted in terms of productive investment because in the long run, investment causes a decisive influence on the level of revenue and thus the tax burden. In the same way, the effect of the currency is revealed positively and significantly in accordance with empirical studies. The significance of the quantity of money reflects the fact that fiscal mobilization is related to the quantity of money circulating in the economy. This result is not surprising given the fact that Cote d'Ivoire alone mobilizes around 40% of the money supply of West Africa Countries Economic and Monetary Union.

Ultimately, the impact analysis of economic variables showed that the degree of monetization of the economy and the investment can better assess and explain the tax burden. The results obtained allow us to make some recommendations which are:

- Undertake policies to maximize the collection of taxes through the following actions:
 - Find some tax incentives measures to attract the people from the informal to the formal sector
 - Engage in spans actions to fight against tax evasion
 - Encourage the promotion of tax compliance among taxpayers
- Ensure a better exploitation of existing potential
- Improve the tax system: better exploitation of the available potential will better advantage the dominant position of Cote d'Ivoire in WAEMU

This study may have some limitations related to both, availability and complete reliability of data used and the failure to take institutional factors in the study into account. For this reason, we have some reservations about the interpretations and recommendations. Nevertheless, it is a good analytical basis for refined in-depth studies on specific aspects of tax burden in Côte d'Ivoire.

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APPENDIX

THE OLS RESULT WITH EVIEWS 4.1

Method: Least Squares

Date: 11/24/10 Time: 19:54

Sample: 1970 2007

Included observations: 38

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	11.99946	3.283311	3.654683	0.0009
TFT	0.001976	0.043313	0.045626	0.9639
FT	-0.007604	0.033461	-0.227262	0.8217
M	0.168509	0.104961	3.605444	0.0182
INV	0.245257	0.055470	4.421411	0.0001
Y	-0.005946	0.002964	-2.005951	0.0534
R-squared	0.737879	Mean dependent var		17.95374
Adjusted R-squared	0.696922	S.D. dependent var		2.775467
S.E. of regression	1.527964	Akaike info criterion		3.829688
Sum squared resid	74.70954	Schwarz criterion		4.088254
Log likelihood	-66.76408	F-statistic		18.01618
Durbin-Watson stat	0.466179	Prob(F-statistic)		0.000000

White Heteroskedasticity Test:

F-statistic	1.915729	Probability	0.087257
Obs*R-squared	15.77166	Probability	0.106358

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 11/24/10 Time: 20:00

Sample: 1970 2007

Included observations: 38

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-9.494399	42.05444	-0.225765	0.8231
TFT	0.958512	0.820203	1.168627	0.2528
TFT^2	-0.010737	0.009997	-1.074064	0.2923
FT	-0.098403	0.576576	-0.170668	0.8658
FT^2	0.000539	0.003932	0.137100	0.8920
M	-1.245190	3.058059	-0.407183	0.6871
M^2	0.026062	0.055956	0.465768	0.6451
INV	0.767643	0.577318	1.329670	0.1948
INV^2	-0.023471	0.015690	-1.495952	0.1463
Y	0.042403	0.027160	1.561221	0.1301
Y^2	-8.07E-05	4.30E-05	-1.876772	0.0714

R-squared	0.415044	Mean dependent var	1.966041
Adjusted R-squared	0.198393	S.D. dependent var	2.451977
S.E. of regression	2.195317	Akaike info criterion	4.647728
Sum squared resid	130.1242	Schwarz criterion	5.121766
Log likelihood	-77.30683	F-statistic	1.915729

Durbin-Watson stat

1.768560 Prob(F-statistic)

0.087257

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.029553	Probability	0.149641
Obs*R-squared	4.516879	Probability	0.104513

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 11/24/10 Time: 21:51

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Y	-0.000293	0.007932	-0.036928	0.9708
TFT	0.001455	0.037478	0.038816	0.9693
M	-0.015518	0.068645	-0.226055	0.8227
INV	0.004874	0.089399	0.054517	0.9569
FT	0.009286	0.029577	0.313950	0.7558
AR(1)	0.000552	0.012432	0.044435	0.9649
RESID(-1)	0.071810	0.175746	0.408602	0.6858
RESID(-2)	-0.356101	0.178832	-1.991260	0.0559
R-squared	0.122078	Mean dependent var	0.024999	
Adjusted R-squared	-0.089834	S.D. dependent var	0.893675	
S.E. of regression	0.932953	Akaike info criterion	2.887886	
Sum squared resid	25.24163	Schwarz criterion	3.236193	
Log likelihood	-45.42590	Durbin-Watson stat	2.068816	

NORMALITY TEST(Jarque-Bera)

