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POLITIQUE BUDGÉTAIRE ET DÉVELOPPEMENT INCLUSIF : QUELLE CONTRIBUTION DE LA DÉCENTRALISATION EN CÔTE D'IVOIRE ?

"FISCAL POLICY AND INCLUSIVE GROWTH: HOW CAN DECENTRALIZATION CONTRIBUTE IN CÔTE D'IVOIRE?"

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Summary

An effective and efficient public-sector reform enhances government capability to raise domestic revenue for prioritized spending. It also contributes to strengthening the government capacity to manage public resources more effectively and deliver public services. In pursuing these objectives, fiscal decentralization, the devolution of taxing and spending powers to lower levels of government, has become a key public-sector reform in many countries. Given such high stakes, a growing economic literature is focusing on how to better understand the challenges developing countries face in implementing fiscal decentralization reforms. The present thesis adds to this effort through four contributions shedding light on specific issues related to fiscal decentralization.

Chapter 1 analyses whether and how municipal revenue mobilization could enhance citizens' access to public services and reduce poverty. The results indicate that increasing municipal-raised revenues improve access to public services and reduce poverty. This effect works mainly through enhancing access to education than on access to health, especially in less ethnically diverse localities and in urban zones. Chapter 2 investigates the effect of municipal revenue autonomy on inequalities within sub-national governments. We conclude that higher local revenue autonomy reduces income inequalities within localities, which effect differs between the type of revenue and jurisdiction considered. Chapter 3 analyzes the impact of the transfers from central government to municipalities on the revenue mobilization by municipalities. Our results show that increasing central transfers to subnational government boost revenue mobilization by municipalities for both tax revenue and non-tax revenue. The effect of transfers is found to be higher for tax revenue than for non-tax revenue. Finally, we examine whether the relationship between government responsiveness and property tax compliance differs according to the level of government in chapter 4. The results conclude that responsiveness by municipalities is found to have a greater correlation with property tax compliance than those by central governments. The results of our analysis bear important policy implications to strengthen public sector, especially in sub-Saharan Africa.

Keywords: fiscal decentralization, local tax and non-tax revenues, multidimensional poverty, local development, sub-national governments, inequalities, poverty, Côte d'Ivoire.

JEL Codes: H2; H3; H7; H71; H75; I32; R11; R50; O1

GENERAL INTRODUCTION

The performance of public sector remains a major concern for inclusive growth, especially for developing countries. Indeed, effective and efficient public-sector reform enhances government capability to raise domestic revenue for prioritized spending. It also contributes to strengthening the government capacity to manage public resources more effectively and deliver public services. In pursuing these objectives, fiscal decentralization defined as the devolution of taxing and spending powers to lower levels of government, has become a key public-sector reform in many countries. According to the World Bank, fiscal decentralization contributes at boosting government efficiency both in public service delivery and domestic revenue mobilization (World Bank, 2000). Many developing countries have implemented fiscal decentralization reforms with an explicit objective of increasing public sector efficiency. Countries have been devolving further responsibilities of revenue mobilization to subnational governments and providing them with more spending powers.

Although reasons for decentralization remain ultimately country-specific, supported by dissatisfaction with the results of centralized economic planning, there are two main rationales justifying the transfer of revenue and expenditure responsibilities to lower tiers of governments. First, the *allocative efficiency*, to which decentralization brings decision-making closer to citizens and thus helps alleviating the informational asymmetry (Hayek, 1945; Oates, 1993). This fosters higher accountability from policymakers and increases compliance from taxpayers. The combination of these effects would lead to a better match between citizens' preferences and public policies and enhances local own revenue mobilization.

Second, *the productive efficiency,* to which the benefits of decentralization stem from inter-jurisdictional competition that triggers higher responsiveness to local needs, increasing efficiency of public services on the supply side (Tiebout, 1959). Based on the mobility of

citizens across jurisdictions and the resulting electoral pressures, decentralization lead to higher accountability of local governments in service delivery (Bardhan & Mookherjee, 2005).

Most developing countries carried out reforms to involve subnational governments in public service provision.

However, in these countries, the level of literacy and political awareness among citizens is often too limited to apply sufficient political pressure, and local authorities are likely to be under pressure from elites and prone to corruption. Fiscal decentralization can also induce significant challenges for macroeconomic management. First, the devolution of substantial spending powers to subnational governments may hamper the central government's ability to contain public spending through fiscal consolidation processes. Second, the assignment of revenue raising responsibilities across distinct levels of governments may deprive the central government of tax tools for macroeconomic management. Therefore, the most frequently observed in developing countries is an incomplete implementation of fiscal decentralization reforms, where there is a substantial gap between countries "announcement" of embarking and the real implementation of the process. In many countries, the devolution of responsibilities is complemented by intergovernmental transfers to bridge the gap between revenue and expenditure assignments.

One key resulting challenge is to design an efficient fiscal decentralization system that enhances accountability in the public service delivery process. Countries are struggling to increase the access to public services without increasing income inequalities both between and within subnational governments. This is complicated by the sharing responsibility in delivering public service by different levels of governments. Responsibilities in raising local taxes and delivering services such as education, health, roads and drinking water have been devolved to municipalities, though the central government still plays the leading role in ensuring citizens' access to services.

A second challenge remains to design a solid system of intergovernmental transfers that consistently bridges the gap between tax and spending responsibilities without discouraging tax effort by subnational governments.

The third challenge facing countries in fiscal decentralization process is to define an appropriate local tax bases that ensure a considerable revenue autonomy to local governments, which prevents at the same time, distortive tax competition and accounts for macro fiscal imbalances. This thesis discusses under what conditions, considering the specificities of developing countries, improved public-sector performance through fiscal decentralization can help deal with these three challenges. The most important pillars of fiscal decentralization which are revenue and expenditure devolution to subnational governments are considered. The dissertation explores factors affecting the reform of fiscal decentralization process in Côte d'Ivoire to inform policymaking in developing countries.

The thesis is divided into two parts and each part consists of two chapters.

We first explore how increasing tax raising and spending responsibilities to subnational governments could boost access to public service and reduce income inequalities. The second part assesses how fiscal decentralization in developing countries can promote additional own-revenue mobilization by subnational governments taking Côte d'Ivoire country case studies.

The first part of this thesis comprises two chapters focusing on the distributional effect of fiscal decentralization. The first chapter analyses whether and how municipal revenue mobilization could enhance citizens' access to public services and reduce poverty. While the chapter 2 deals with the internal income inequalities of fiscal decentralization.

The first chapter provides answers to the question of whether fiscal decentralization enhance citizens' access to public services and reduce poverty. The effectiveness of fiscal decentralization in improving public service delivery and reducing poverty is much debated.

The empirical literature has mostly focused on poverty reduction using cross-country analysis. This chapter analyses whether, and how, the devolution of revenue raising responsibilities to Côte d'Ivoire' municipalities enhances access to public services and contributes to reducing poverty. Local revenue sources that reflect municipalities' autonomy in decision-making are considered to measure revenue decentralization. An adjusted multidimensional poverty index for access to public services and a headcount poverty index are also calculated at the local level using the Household Living Standard Survey. The empirical analysis uses a grouped fixed effect approach, combined with a two-stage least squares methodology with panel corrected standard errors clustered by departments to address both time-varying heterogeneity and local revenue endogeneity.

Our study finds that increased local revenue positively affects access to public services and reduces poverty. However, there is evidence that revenue decentralization has a more robust effect on access to public service, than on poverty. This effect seems to work mainly through enhanced access to education more than access to health, water, and sanitation services. Interestingly, our results indicate that municipalities are more likely to improve access to public services in less ethnically diverse localities and in urban zones. The study shows that the conflict has compounded the existing problems of access to public services with no statistically significant effect on poverty.

Do greater municipal revenue autonomy lead to lower inequality in the income distribution within localities in Côte d'Ivoire? This is the question discussed in chapter 2.

In the theory of fiscal federalism, there is a relative consensus on the leading role of central government in conducting the distributional function (Musgrave 1970; Oates 1972). Based on the assumption of taxpayers mobility, different redistributive policies under the responsibilities of subnational governments may lead to disruptive tax competition between jurisdictions and

induce substantial loss of efficiency (Prud'homme, 1995). However, in developing countries such as Côte d'Ivoire, the inter-jurisdictional mobility is constrained, so that fiscal decentralization can lead to greater equality in income distribution (R M Bird & Vaillancourt, 2008). For example, Meloche (2012) finds that fiscal decentralization reduces inequalities at subnational level.

This chapter first, compares the tax raising responsibilities allocated by legislation of fiscal decentralization in Côte d'Ivoire with the real practice. Second, an analysis of the impact of revenue autonomy on the income inequalities is undertaken, using three indices: An adjusted Gini index, the coefficient of variation, and the Theil index for the 58 departments in Côte d'Ivoire.

The chapter concludes that the scope for local governments is highly constrained contrary to the predispositions of the legislation, so that there is a large vertical fiscal imbalance. This important gap between the institutional framework and the real conduct of fiscal decentralization highlights a need for clarification of the roles and responsibilities. The empirical results show also that higher local revenue autonomy reduces income inequalities within localities. The impact differs between the type of revenue and the region considered. Higher local tax revenue seems to reduce inequalities while the effect of non-tax revenue remains mitigated. The conflict is found to have worsened the inequalities in the northern area compared to the southern regions.

In the second part of the thesis, the chapter 3 deals with the intergovernmental relationship, the effects of central grants on local own revenue mobilization. The main determinants of property tax compliance, which appears as the main source of local own revenue is investigated in Chapter 4.

The third chapter analyzes the effect of transfers from central government to municipalities on the revenue mobilization by municipalities in Côte d'Ivoire over the period 2001-2014. In the recent years, a growing literature has highlighted the potential (dis)incentive effect of transfers from central government to local governments on local revenue mobilization. The dependence of local governments on central transfers has led to a number of effects which have been analyzed in the literature (E. Caldeira & Rota-Graziosi, 2014; Cyan, Martinez-Vazquez, & Vulovic, 2013; B. Knight, 2002). Local governments may be discouraged from collecting their own revenue, thus reducing their financial autonomy and accountability to citizens. Transfers are often tied to specific projects, with limited decision-making responsibilities for local authorities (Rajaraman & Vasishtha, 2000). However, central transfers can also stimulate local revenue mobilization when the distributional formula includes local tax effort as a determinant of the amount of transfers (Bahl, 1999). In Côte d'Ivoire, where the process of fiscal decentralization started in the 1980s, transfers represent nearly 80 percent of total local revenue in some municipalities (DDLD, 2014). This dependence on central transfers may have increased with the conflict that the country experienced from 2001 to 2008. Moreover, the conflict may have eroded the local tax base and affected the capacity of municipalities to raise taxes. The purpose of this chapter is to look at the impact of central transfers on revenue mobilization by municipalities in Côte d'Ivoire, and to explore the channels through which they operate. The hypothesis is that the effect of transfers differs between the collection of municipal tax revenue from the mobilization of municipal non-tax revenue.

The analysis is based on a new carefully-constructed dataset covering the conflict and post conflict periods. A two-stage least squares estimator is combined with the Grouped Fixed Effects estimator to address a potential endogeneity bias and to allow for unobserved heterogeneity varying over time. The results show that central transfers contribute to boosting revenue mobilization by municipalities for both tax revenue and non-tax revenue. The effect of

transfers is found to be higher for tax revenue than for non-tax revenue. The conflict eroded the capacity of municipalities to raise revenue.

The fourth chapter investigates factors determining property tax compliance behavior in Côte d'Ivoire municipalities. Property taxes are considered to have a great potential to finance equitable development and reduce governments' dependence from international aids, especially in developing countries (Ali, Fjeldstad and Sjursen, 2014; IMF, 2017). Raising property taxes remains also part of fiscal consolidation efforts to create fiscal space and constitutes a priority for most Sub-Saharan African (SSA) countries (IMF, 2017). Despite the recognition of this untapped resource available, few countries have yet significantly raised property taxes (Norregaard, 2013). One explanation is that effective implementation of a property tax requires a sizable up-front investment in administrative infrastructure and strong technical capacity. However, many studies recently conclude that low property tax efforts in these countries are explained by widespread tax avoidance and evasion (Ali et al., 2014; Keen et al., 2015). Therefore, explaining determinants for successful property tax reform and ultimately finding ways for strengthening compliance has become a greater priority. According to Timmons and Garfias, (2015), a central challenge, therefore, is to create conditions for increasing citizens' compliance with property tax. Against this backdrop, previous studies explaining tax compliance mainly focus on the nature of the fiscal contract, the economic deterrence, and the political legitimacy theories by considering all taxes mostly in developed countries. Only a few has empirically tested how government responsiveness shapes citizens' compliance toward property taxation in developing countries. In addition, the literature does not investigate whether it makes sense to distinguish the effect of subnational governments' responsiveness from those of central governments on property tax compliance. This issue is important in most sub-Saharan African countries such as Côte d'Ivoire for many reasons. One is that, although property tax has many characteristics of being an adequate local tax, its collection is under the

responsibility of the central government, leading to a confusion about responsibilities. Therefore, the first important question the chapter investigates is whether increasing the role of municipalities in property tax collection would boost property tax compliance[1]. Second, as Timmons and Garfias (2015) argue, the simplification of tax system determines the relationship between citizens' compliance with tax and governments.

Thus, the chapter examines whether the effect of government's responsiveness on property tax compliance attitudes differs according to the level of government considered. It also estimates the impact of citizens understanding of tax system on property tax compliance attitude.

Using the fifth round of Afrobarometer survey data for Côte d'Ivoire, and a multilevel mixed-effects logit model, the chapter examines whether the effect of government responsiveness on property tax compliance, differs between central government and municipalities. The chapter also investigates the role played by the quality of institutional environment in exacerbating or in alleviating such effect, and analyses the impact of citizens understanding of property tax system on their compliance attitude with its taxation.

First, the chapter concludes that increased public service provision (fiscal contract) boosts property tax compliance for public services provided both by central government and municipalities. Second, citizens' trust in municipalities and central tax administration increases the likelihood of citizens having compliant attitude with property taxation. However, individual's satisfaction with service provision by municipalities is found to have a greater effect on property tax compliance than those of services provided by central governments.

Third, the study suggests that citizen understanding of tax system increases the likelihood of their compliance with property tax. This highlights the need for strengthening awareness of property tax and simplifying property tax system. Fourth, the effect of corruption is found to be more important for municipalities than central government consistently with the literature of

[1] This remains important is most SSA countries since municipalities are involved in property tax collection.

fiscal federalism to which, local authorities are likely to be under pressure from elites and prone to corruption.

Ultimately, although decentralizing property tax responsibilities to municipalities might increase citizens' compliance, it, therefore, remains crucial to address the issue of corruption that might occur from property-owned local elites.

PART I: FISCAL DECENTRALIZATION, ACCESS TO PUBLIC SERVICES, AND INEQUALITIES

CHAPTER 1[2]: DOES FISCAL DECENTRLIZATION ENHANCE CITIZENS' ACCESS TO PUBLIC SERVICES AND REDUCE POVERTY? EVIDENCE FROM CÔTE D'IVOIRE

[2] This chapter is published in "Word Development".

Abstract

Fiscal decentralization has been implemented in many countries with an explicit objective of improving public service delivery and reduce poverty. However, its effectiveness in achieving these goals are much debated and the empirical literature has mostly focused on poverty reduction using cross-country analysis.

This chapter analyses whether, and how, the devolution of revenue raising responsibilities to Côte d'Ivoire' municipalities enhances access to public services and contributes to reducing poverty. Local revenue sources that reflect municipalities' autonomy in decision-making are considered to measure revenue decentralization. An adjusted multidimensional poverty index for access to public services and a headcount poverty index are also calculated at the local level using the Household Living Standard Survey. The empirical analysis uses a grouped fixed effect approach, combined with a two-stage least squares methodology with panel corrected standard errors clustered by *département* to address both time-varying heterogeneity and local revenue endogeneity.

Our study finds that increased local revenue positively affects access to public services and reduces poverty. However, there is evidence that revenue decentralization has a more robust effect on access to public service, than on poverty. This effect seems to work mainly through enhancing access to education more than access to health, water, and sanitation services. Interestingly, our results indicate that municipalities are more likely to improve access to public services in less ethnically diverse localities and in urban zones. The study shows that the conflict has compounded the existing problems of access to public services with no statistically significant effect on poverty.

Keywords— fiscal decentralization, local tax and non-tax revenues, multidimensional poverty, Local development, Côte d'Ivoire

1. Introduction

Over the past decades, fiscal decentralization has been implemented by an increasing number of African countries, with an explicit objective of improving public service delivery, becoming thus a key public-sector reform (Gradstein, 2017; Kis-Katos & Sjahrir, 2017; Ramírez, Díaz, & Bedoya, 2017; Rodríguez-Pose & Ezcurra, 2010)[3]. This interest has stemmed largely from a belief that decentralizing revenue raising and spending decisions to sub-national governments enhance accountability in the service delivery process (Hayek, 1945; Oates, 1993; Tiebout, 1959). However, in these countries, where the level of literacy and political awareness among citizens is often too limited to apply sufficient political pressure (Bardhan & Mookherjee, 2005), local authorities are likely to be under pressure from elites (R. Bird & Rodriguez, 1999) and prone to corruption (Prud'homme 1995). In sub-Saharan Africa, there is little empirical evidence on the effects of fiscal decentralization on poverty and the delivery of public services such as education and health, especially focusing on one country[4].

This chapter contributes to the literature by analyzing whether revenue decentralization, measured as the ratio of municipal own revenues to total revenues, improves the access to public services and reduces poverty in Côte d'Ivoire conflict setting, over the period 2001-2011.

The issue is particularly relevant for Côte d'Ivoire, where 35% of the population are deprived of basic services (Alkire & Santos, 2014) and where marked income disparities exist among regions[5]. The country is an interesting case study for three main reasons. One, responsibilities in raising local taxes and delivering services such as education, health, roads and drinking water have been devolved to municipalities, though the central government still plays a crucial role

[3]Although the implementation of fiscal decentralization reforms often remains incomplete (Joanis, 2014) and there is a difference between countries "announcement" of embarking and the real implementation of the process.

[4] The term poverty refers only to monetary poverty in this paper.

[5] While there are municipalities where internally collected revenues represent almost 90% of their total revenue, other municipalities depend on central transfers at more than 70% (J.-F. Brun & Sanogo, 2017).

in ensuring citizens' access to services. Second, the country has a large ethnic diversity of different culture and preferences, which heterogeneity might be of interest for fiscal decentralization reforms. In addition, the relationship between fiscal decentralization and poverty is particularly ambiguous in a fragile context such as Côte d'Ivoire, as the conflict, that the country experienced, has compounded the existing problems of access to public services and has potentially increased the role of local authorities in most affected areas.

In the theoretical literature, the overall effects of decentralization on public service delivery and poverty are ambiguous. One strand of this literature argues that the benefits of decentralization stem from inter-jurisdictional competition that should result in higher responsiveness to local needs (Tiebout, 1959). Through this idea, based on the mobility of citizens across local jurisdictions and the resulting electoral pressures, decentralization enhances accountability of local governments in the service delivery (Bardhan & Mookherjee, 2005). In developing countries, this mechanism might not work because citizen's mobility is often limited (Bardhan, 2002a). Decentralization is also claimed to improve service provision efficiency by providing informational advantages to local governments (Hayek, 1945; Oates, 1993). Local government 'autonomy can relieve potential grievances, reduce the risk of violence and then create a better environment for local development (Tranchant, 2007), particularly in the countries of high ethnic heterogeneity or regional identities (Faguet 2014). Numerous other studies have stressed the benefits from decentralization regarding access to public services and poverty reduction (Hindriks, Peralta, & Weber, 2008; Weingast, 2014), but for a country to gain from improved efficiency, the local democracy must function effectively and local authorities must have substantial revenue autonomy and power in allocating resources (Oates, 1993). In developing countries, however, there are strong reasons to believe that such presumptions are violated (Smoke, 2001).

Against these advantages, Prud'homme (1995) and Treisman (1997), among others, suggest that decentralization may worsen delivery of public services. Tax decentralization might increase inequality among regions due to the different tax potential of regions and the competition between jurisdictions that could result in reduced tax rates to attract investments and subsequent loss of efficiency in the delivery of public services (Treisman, 2000). Local elites' capture in the decision-making process (Bardhan & Mookherjee, 2000) might increase income inequality since local revenue collection favors a minority of high-income individuals (Martinez-Vazquez & McNab, 2003). Heterogeneity of the population in developing countries is mostly based on income, rather than difference in tastes. The priorities are therefore to satisfy the population's basic needs, which are better managed by central government (Prud'homme 1995).

The empirical evidence on the effects of fiscal decentralization and poverty reduction and access to public services delivery are also inconclusive. While Gonçalves (2014) finds that local citizens' participation in service provision contributes to improving infant mortality and reducing poverty in Brazilian municipalities, Galiani, Gertler, & Schargrodsky (2008) suggest that it increases inequalities in the provision of education services in Argentina. One potential explanation is that local elites can capture public resources to their preferred uses (Reinikka & Svensson, 2004) and thus limit the scope of local populations monitoring initiatives (Olken, 2007). Similarly, Francis & James (2003) conclude that decentralization in Uganda failed to reduce poverty because of local governments capture by local elites. Local institutions decision making accounts for cultural values and therefore helps to reduce rural poverty in Burkina Faso (Donnelly-Roark, Ouedraogo, & Ye, 2001). In India, active involvement of local authorities allows a better targeting of beneficiaries for poverty eradication programs in Kerala (Heller, Harilal, & Chaudhuri, 2007). Many research find a positive effect of fiscal decentralization on poverty and access to public services (Emilie Caldeira, Martial, & Rota-Graziozi, 2012;

Cavalieri & Ferrante, 2016; Faguet & Sánchez, 2008), while others report opposite results (Bahiigwa, Rigby, & Woodhouse, 2005).

Local heterogeneity is found to play a key role in these mixed evidences (R. M. Bird & Vaillancourt, 2006). For example, Alesina, Baqir, & Easterly (1999) find ethnic diversity reduces the performance of city government in delivering public services in America. And regional heterogeneity of preferences increases the positive effect of decentralization on the delivery of public services (Besley & Coate, 2003). Despite this critical importance of country context, few studies using country-level data have analyzed this relationship, especially in sub-Saharan Africa, ignoring thus the institutional arrangements that govern the design and implementation of decentralization (Ramírez et al., 2017; von Braun & Grote, 2000).

This study analyses how revenue decentralization to municipalities affects access to public services and poverty in Côte d'Ivoire. Local revenue sources that reflect municipalities' autonomy in decision-making are considered. Contrary to Ramírez et al., (2017), who leave aside monetary poverty, this chapter considers both access to public service, measured using an adjusted multidimensional poverty index (MPIa) and a headcount poverty index (HPIn) calculated as the ratio of population living with less than US $ 1 a day to total population of each locality. The chapter assesses also whether the effects of revenue decentralization vary between local governments according to their internal heterogeneity, defined as the degree of ethnic fractionalization and polarization. The analysis accounts for the potential effects of conflict, which might affect the ability of local governments to raise revenue and provide public services.

The original contribution of this chapter to the literature is twofold. First, the study focuses on one developing country which allows to properly control for country-specific heterogeneity than cross-country studies. The second contribution comes from the improved empirical approach using the Grouped Fixed Effect (GFE) method for estimations and an innovative

construction of instruments for endogeneity. The GFE estimator allows controlling for unobservable individual heterogeneity, which may vary or not over time, that cannot be accounted for by the standard fixed effects approach used in previous studies on the effects of decentralization (Bartolucci et al., 2015). A two-stage least squares method is combined with the GFE to properly address the potential endogeneity of local revenues.

The empirical analysis uses a local revenue dataset spanning 11 years (2001-2011) for 115 municipalities aggregated in 35 *départements*. The overall result shows that local revenues have a positive and significant effect on access to public services which are consistent with the findings in Colombia by Ramírez et al., (2017) and contradict those in Uganda by Bahiigwa, Rigby, & Woodhouse (2005). However, there is evidence that revenue decentralization has a more robust effect on access to public service, rather than poverty. This effect seems to work mainly by increasing access to education more than to health, water, and sanitation services. The results indicate that municipalities are more likely to improve access to public services in less ethnically diverse localities and in rural zones. This study provides evidence that effect of the conflict has been statistically limited.

The remainder of the chapter is organized as follows. Section 2 describes the fiscal decentralization process, and the poverty in Côte d'Ivoire with its regional distribution. Section 3 presents the data and the model specification. The results and the robustness checks are discussed in section 4. Section 5 concludes and provides some policy implications.

2. Background

2.1 Fiscal decentralization in Côte d'Ivoire

The revenue structure of local government in Côte d'Ivoire is largely inherited from the colonial period. The implementation started with law No. 55-1489 of 18 November 1955 which established municipalities in Abidjan, Bouaké and Grand Bassam for which local authorities

did not have financial autonomy. The real commitment of the central government to implement decentralization especially the financial autonomy of municipalities, started with Law No. 80-1162 of 17 October 1980. This law defined a specific status and electoral regime for municipalities and created 37 municipality councils in addition to Abidjan. The government has spread the reform to other regions by transferring expenditure and revenue raising responsibilities to local authorities with the aim of improving the delivery of public services.

In 2000, a new constitution was adopted, which lays out the principle of administration and financial autonomy of local authorities. This Constitution subdivides the country into a multi-tiered system with 19 regions sub-divided into 58 *départements* governed by *départements* councils, and 197 municipalities. Since 2011, although the number of municipalities has remained unchanged, the central government has reorganized the country into 14 districts (with full autonomy for Abidjan and Yamoussoukro), 31 regions, 95 *départements*, and 197 municipalities, each with an elected mayor.

The Ministry of Interior manages the decentralization process through the Directorate in charge of decentralization and local development (DDLD). The Ministry of Economy and Finance collaborates with the DDLD to define the amounts of transfers from central to local governments and their allocation. These administrations interact with municipalities organized in the association the Union of Côte d'Ivoire for cities and municipalities. The relationship between central and local governments is organized through a trusteeship system with two levels, by which the central administration approves decisions and helps municipalities.

In the process of strengthening the fiscal autonomy of municipalities and grassroots participation in the decision-making process, more than 35 legislative decrees and laws have been passed to assign expenditure execution responsibilities, and revenue raising functions to municipalities. These responsibilities are often related to the provision of important public

services such as health and education facilities, water and sanitation, local urbanization, and include large sources of revenue.

Local own revenue has two main components: non-tax revenue collected exclusively by local tax administration, and tax revenue collected on behalf of local governments by central government through the General Tax Directorate. Although this local non-tax revenue is smaller than local tax revenue, this revenue remains a key element for increasing accountability and tax compliance at the local level. Local non-tax revenue is likely to be used to improve the population's access to public services as the local authorities have full autonomy in managing this revenue, in contrast to local tax revenue which is often earmarked[6].

Figure 1 shows the composition of total municipality revenue over the period 2001-2014. Over this period, transfers from the central government contributed on average more than 35% of total municipal revenue. This share decreased slightly in the three-year period leading up to the 2010 national election[7]. During the same period, municipalities collected a small part of their total revenue, on average less than 20%. However, tax revenue represents on average 25% of total municipality revenue, and remained relatively constant in absolute terms up to 2014. Combining these two components, local own revenue contributed 45% of total revenue. This is relatively low compared to other developing countries such as Benin, where municipalities' own revenue contributed 69% of total revenue over the period 2003 to 2008 (E. Caldeira & Rota-Graziosi, 2014).

[6] This analysis focuses on the municipal level because there is no recent data on revenue covering all levels of sub-governments in the country (districts, regions, départements, and municipalities).

[7] This trend suggests a possible reassignment of resources to election expenditure since the allocation criteria of these transfers remain mostly at the discretion of central government.

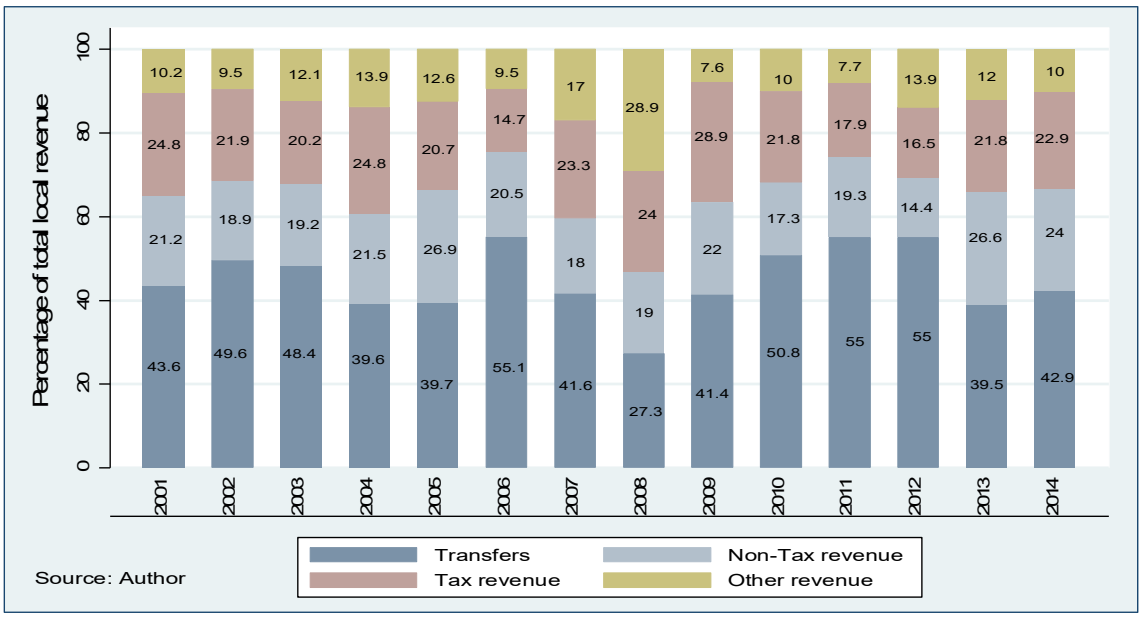
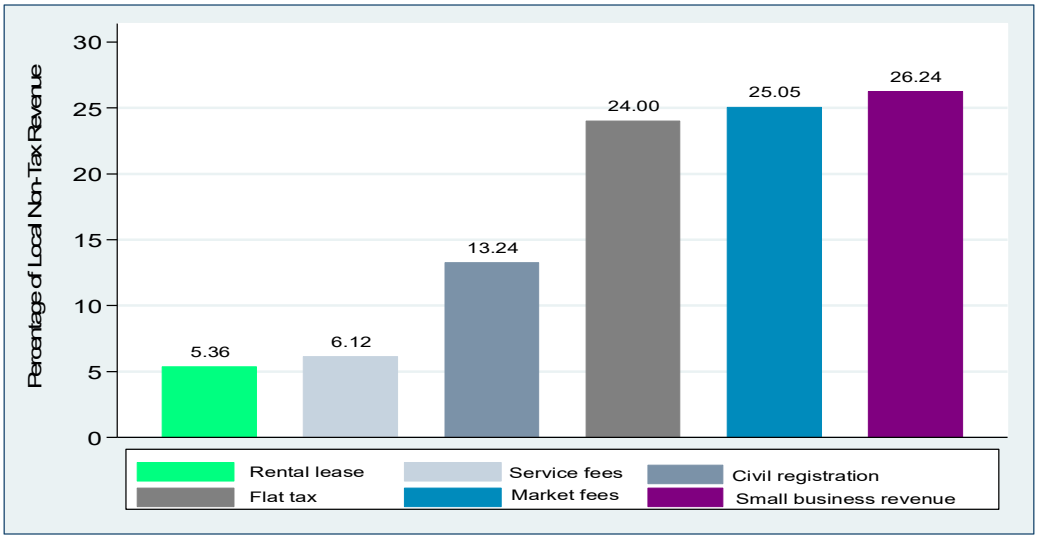


Figure 1: Composition of municipality revenue in Côte d'Ivoire 2001-2014

Figure 2 presents the structure of local non-tax revenue aggregated for the period 2002 to 2007. Small business revenues and licenses contributes the highest share of local non-tax revenue at more than 26%, while revenue from rental lease account only 5.36%. The figure shows also that market fees (25.5%) combined with flat tax (24%) represent almost half of municipality non-tax revenue. As noted above, municipalities are supposed to use their own revenues to improve access to public services and thus reduce poverty since they are involved in the provision of diverse public services such as health and education facilities, water and sanitation, local urbanization, and construction.



Source: By author with Côte d'Ivoire data from the Ministry of Interior.

Figure 2 : Structure of local non-tax revenue Côte d'Ivoire, 2002-2007.

2.2 Public service delivery and poverty trends in Côte d'Ivoire

In this sub-section, poverty trends are analyzed through both the poverty and the access to public services using respectively the poverty headcount ratio and the multidimensional poverty index (MPI) recently developed by Alkire & Santos (2010).

Three decades after starting its decentralization process, Côte d'Ivoire remains one of the poorest countries in the world, ranked 171 out of 188 countries according to the 2016 Human Development Index. Following its independence from France in 1960, the country enjoyed a period of economic growth and political stability driven by agriculture exports, mainly coffee and cocoa. At end of the 1970s, the country experienced an economic downturn due to an unexpected drop in the world prices of these export goods. This economic crisis increased the incidence of poverty up to the 1990s (Bargain, Donni, & Kwenda, 2014). To improve the population access to basic public services, especially in rural areas and thereby reduce regional disparities, the Ivorian government has undertaken a process of fiscal decentralization by involving municipalities in tax raising responsibilities and public services delivery. This shift of responsibilities was followed by a fall in poverty by 3.2% over the period 1995-1998. Unfortunately, the expected results from fiscal decentralization have been limited, due, to three main reasons. First, like in many developing countries, the central government has been reluctant to provide municipalities with considerable responsibilities of tax raising. Second, the administrative capacity of municipalities is very limited in some areas. The third reason is that

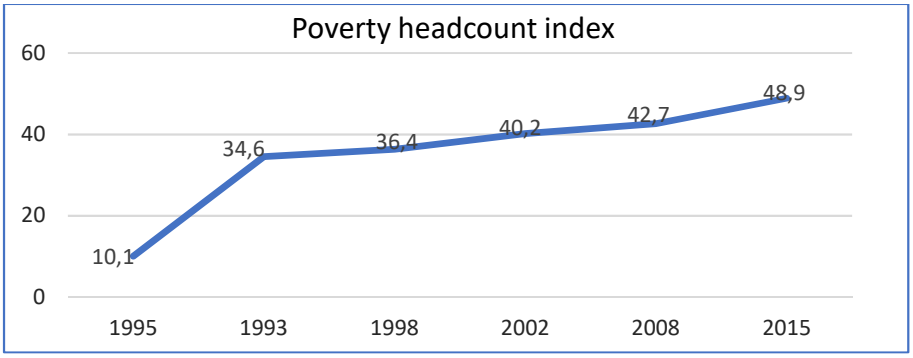
the country experienced several episodes of conflict[8], which compounded the existing problems of access to public services and of poverty.

Since the last three decades, the share of the population living under the poverty line has increased significantly. Figure 3 shows the evolution of poverty headcount ratio in percentage of total population from 1985 to 2015. The poverty rate increased from 10.1% in 1985 to 48.9% in 2015 (HLSS, 2015). Access to public services also remains limited in the country. The multidimensional poverty rate, assessing the privation of citizen in several dimensions of public services, increased from 31.8% in 2008 to 34.4% in 2011 (Alkire & Santos, 2014). There is also a widespread disparity between municipalities in access to public services (Figure 4), and a geographical variation regarding local revenue autonomy (Figure 5)[9]. In urban area, on average 75% of the population has access to education, health, and sanitation, while this figure is only 30% in rural areas. The water distribution, education, and health services are poor, especially in the northern and western regions. A possible explanation is a significant populations displacement across the country, as highlighted by Furst et al.(2010). In particular, the conflict-ridden areas in the north and the west, such as the region of Tonpki (Man) and the Savannah (Korhogo), remain the poorest areas (Figure 4). Minoiu & Shemyakina (2014) report that 70% of professional health workers and 80% of government-paid teachers abandoned their post in the north during the 2002-2007 conflict. This spatial distribution of access to public services could be explained by the low population density in these areas which implies higher transportation costs to access to public services and technology. The poorer regions in the country seem to have less revenue autonomy. Figure 6 shows the distribution of conflict events

[8] Since 1999, Côte d'Ivoire has experienced the 1999 "coup d'etat", the 2002 political conflict and the post-electoral conflict of 2010/2011. This period was characterized by sporadic events with different intensity and location (Dabalen et al, 2012).

[9] "Hight autonomy" refers to localities those own revenue is higher than 50% of total revenue, the others are defined as "Low autonomy".

by *département*. Reported violence against civilians and battles were located mostly in the northern and western *départements* and in Abidjan.



Note: The poverty line in CFAF-75,000 per capita annually in 1985, 101, 340 in 1993, 144, 800 in 1995 and 162, 800 in 1998
Source: Author with data from the World Bank

Figure 3: Poverty Headcount Ratio at national poverty line (% of population)

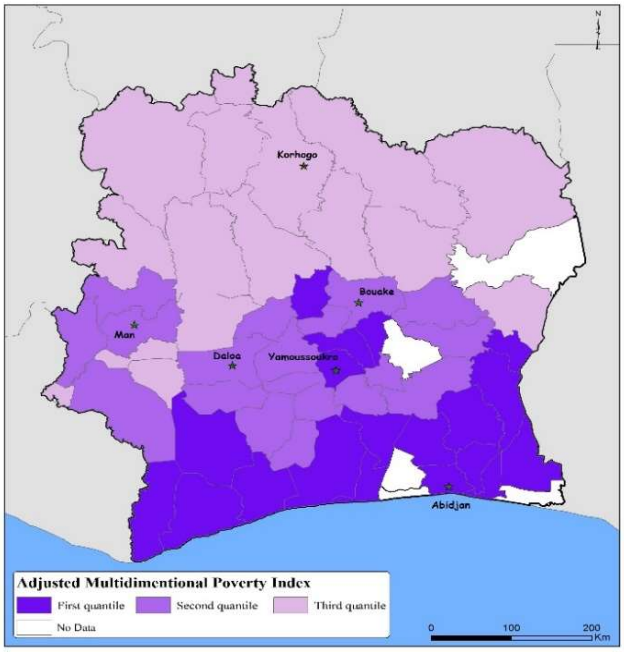


Figure 4: Adjusted Multidimensional Poverty Index distribution pattern in Côte d'Ivoire, 2008
Source: Author from the Household Living Standard Surveys (HLSS-

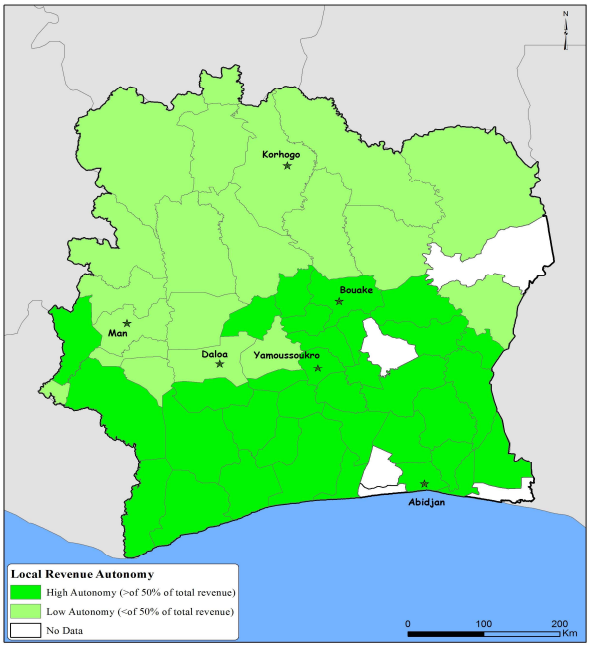


Figure 5: Local Own Revenue distribution pattern (As % of Total Local Revenue), 2010-2013
Source: Author with Côte d'Ivoire data from the Ministry of Interior (DGDDL).

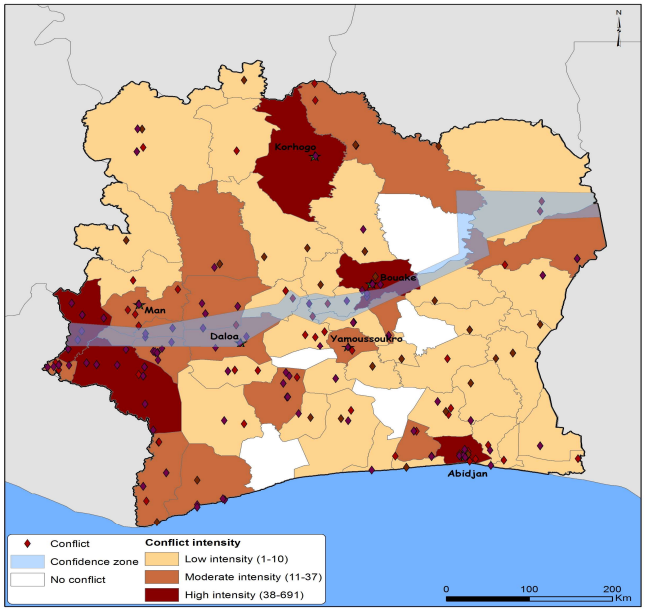


Figure 6: The distribution of violence against civilians and the confidence zone

Data sources: Authors based on ACLED

Note:

Figure 4: The Adjusted Multidimensional Poverty Index (MPIa) is calculated by multiplying the incidence of poverty by the average intensity of poverty across the poor; as a result, it reflects both the share of people in poverty and the degree by which they are deprived. See more details in the following section. Darker shades indicate a lower poverty index reported as a ratio of the number of multidimensional poor to the total local population.

Figure 5: The local own revenue is calculated as the share of revenue collected by local governments over the total local revenue (It is the mean of four years after conflict, 2010, 2011, 2012 and 2013). Darker shades indicate a higher autonomy of internal revenue collection.

Figure 6: The map depicts conflict regions; dark shades indicate more intensity conflict such as violence against civilians, battles, and riots reported in ACLED. The blue part indicates the confidence zone which divided the country into two parts. In the legend, the "No conflict" category stands for no reported incidents and is treated as zero exposure to conflict.

3. Empirical analysis

3.1 Data

First, local government revenue and expenditures dataset is constructed from the administrative account of municipalities produced by the Ivorian Ministry of Interior and the Ministry of Economy. This dataset provides information on own revenue, transfers from central government, and local expenditure for 115 municipalities over the period 2001-2011. Following Grisorio & Prota (2015), the study measures the degree of revenue decentralization as the ratio of own revenues raised and/or controlled by the municipalities (tax and/or non-tax) to the total revenues. This reflects local revenue autonomy and allows an approximation of municipalities' autonomy in decision-making. A high value for this measure indicates a high

degree of fiscal decentralization, since local authorities have decision-making autonomy in using this revenue[10] .

The second source is the 2002 and 2008 Household Living Standard Surveys for Côte d'Ivoire from which the social and demographic indicators are calculated. The HLSS[11] is a national survey which provides information on different dimensions of household living conditions. Its design ensures representativeness for the 57 Côte d'Ivoire *départements*. Approximately 10,800 households in 2002 and 13,657 households in 2008 were surveyed in the country (HLSS, 2002, 2008).

Additionally, information on the geographical distribution of the population from the National Statistical Institute is used to calculate the density of population and the share of urban population.

Third, conflicts indicators are calculated using data from the Armed Conflict Location and Event Dataset (ACLED) (Raleigh et al., 2010). ACLED contains information on the exact dates and locations of political violence and type of events weighted with a fatality index[12]. The fatality index measures the intensity of events and represents the number of deaths due to each event. The fatality index varies from one to ten, with ten for the highest incidence of violence, and one for the lowest.

[10] Another measure of fiscal decentralization is "vertical imbalance" calculated as the ratio of transfers from central government to municipalities' total revenue. It represents the degree to which the local government depends on transfers from central government. A high value of this measure indicates little local financial autonomy.

[11] The surveys provide information on household access to several facilities like running water, electricity, health, and education infrastructures. They contain data about whether households own certain durable goods such as fridge, computer, car, etc.

[12] The conflict events selected are battles (violence against civilians, remote violence, and rioting), protests (non-violent demonstrations), and non-violent events.

These three data sources are combined and aggregated at the *départements* level[13] to construct a panel spanning 11 years (2001-2011) for 35 *départements* of the 57 *départements* in Côte d'Ivoire.

How are the dependent variables computed?

Two dependent variables are used: The headcount poverty index (HPIn) calculated as ratio of population living with less than US $ 1 a day to total population of each *département*[14]. Access to public services is measured using the multidimensional poverty index (MPI) method developed by Alkire & Santos (2010), which captures a set of direct deprivations experienced by a person or a household at the same time. The MPI basic dimensions are adjusted (MPIa) by using different indicators relevant for each dimension to properly capture those for which municipalities intervene in terms of public service delivery (Table 1). Based on the Alkire-Foster (AF) dual cut-off methodology, the weights are assigned to household for each of the deprivations and those weights are summed up to generate the weighted deprivations matrix for each household (Alkire & Foster, 2011; Alkire & Santos, 2014). A household is considered as deprived of access to public service (in the case of this study) if it has more than 30% of the weighted sum of the considered dimensions of deprivation (i.e. deprived in some combination of two to six indicators following Alkire & Santos (2010)). Thus, the ratio of people who are deprived of public services to total population is calculated for each *département*. By construction, this indicator has the advantage of being the product of the Headcount (H) (percentage of people whose weighted deprivation lies above the cut-off), and the Average intensity of deprivation (A), which reflects the sum of deprivation for only the

[13] The data are aggregated at *départements* level because the 2008 HLSS is not available at the municipal level like the first data source. The data are aggregated at *départements* level because the 2008 HLSS is not available at the municipal level like the first data source.

[14] To allow comparison between the two censuses, the data are corrected for inflation using the national prices deflator index.

multidimensionally poor households within each *département*, and thereby the average intensity of poverty for these households.

Table 1 presents the dimensions, indicators, and weights used to compute the MPIa.

There are several reasons for the choice of the dimensions used to calculate MPIa in this analysis. First, local fiscal policies can significantly influence the access to public services for local citizens. Since the 2001 law on decentralization, there has been an ongoing shift of responsibility to local governments for education, water, and sanitation, and health services.

Table 1: Dimensions and indicators used for the MPIa

Dimensions	**Indicators**	**Relative Weight***	**Deprived if…**
Education	Adult illiteracy	16.7%	The person is not able to read nor write a short simple statement on his everyday life
	No access to Education	16.7%	School-aged child is not attending school in years 1 to 8 because of school remoteness or absence
Health	Food Access/ Availability	16.7%	The main household food problem is the lunch or the dinner
	Access to health services	16.7%	The household has no access to health services because of hospital remoteness or absence
Standard of Living	Sanitation	5.6%	The household has no access to improved sanitation facilities (No toilet)
	Electricity	5.6%	The household has no access to electricity
	Water Access	5.6%	The household does not have access to clean drinking water
	Floor	5.6%	The household has dirt, sand or dung floor
	Cooking Fuel	5.6%	The household cooks with dung, wood or charcoal
	Assets	5.6%	The household does not own more than one of radio, TV, telephone, bike, motorbike or refrigerator

*The weighting between the dimensions follows the UNDP's MPI convention

Source: Author

Second, it is easier to interpret, and is well suited for analyzing the access to basic services at local level. The limited number of dimensions simplifies comparison with the HPIn. Third, the HLSS surveys in Côte d'Ivoire are well documented for the chosen indicators and allow using both the individual and the household as units, which makes the index more accurate than those using only households as units of observation.

The 2002 HLSS is used for the sub-period 2001-2006 while the 2008 HLSS covers the sub-period 2007-2011. The variables constructed from the survey data are thus considered fixed for the periods around the household survey. The main reason is that HLSS is collected only every six to seven years and data from each survey are published within 12 months of the end of field work. To deal with this data scarcity, the study follows Kis-Katos & Sjahrir (2017) in considering changes in socio-economic variables as probably limited to be considered and not instantaneous from one year to the next, especially for the main dimensions considered in this study such adult illiteracy, school-aged child not attending school in years 1 to 8, access to health services. For example, Deaton (1997) shows that some living standards do not vary in short-term from one year or two to the next. Using HLSS data from Côte d'Ivoire, he concludes that when the time between surveys is longer, reported expenditures do not increase proportionately. This hypothesis might raise a concern from a potential persistence of dependent variables. Sensibility tests of the results are undertaken in robustness section.

Table A1 provides descriptive statistics for all variables (north and south), and Table A3 shows more information on the sources and definitions of these data.

3.2 Model specification

The previous studies commonly use cross-country data and consider the heterogeneous characteristics as time invariant by using a standard fixed effect approach. One drawback of this method is that the estimates of parameters may be subject to substantial bias in the context that unobserved heterogeneity is not constant over time (B. Knight, 2002)[15]. To deal with this problem and account for both varying and unvarying heterogeneity between *départements*, this analysis uses the Grouped Fixed Effect (GFE) approach proposed by Bonhomme & Manresa

[15] For example Knight (2002) by analyzing the impact of Federal Grants on US State Government Spending, argues that some aspects of US states' demands, such as attitudes towards public transport, are unobservable. He finds that a fixed effect may mitigate, but not eliminate this problem.

(2015). The main motivation for using the GFE method comes from the conflict that the country experienced, which was characterized by a series of events with different intensity and location, as shown by Dabalen et al (2012). As the *départements* are affected differently by conflict and have different revenue potential, their revenue performance trends could follow different paths based on their specific unobserved characteristics. Such shocks may induce time-varying unobservable individual characteristics that cannot be accounted by the standard fixed effects approach (Bartolucci et al., 2015). More evidence about the consistency of this method and the presence of time-varying effects is given in Appendix B. The empirical model has the following form:

$$\log\ (Pov\_mpia)_{it} = \lambda + \ \theta_1 \log(FD)_{it} \ + \ \theta_2 Hetero_{it} \ + \ \theta_3 \log(FD)_{it} * Hetero_{it} \ + \ \theta_4 x_{it} \ + \ \alpha_{g_i t} + \eta_i + \ \varepsilon_{it} \quad (1)$$

Pov_mpia is the dependent variables $\log\ (poverty)_{it}$ or the $\log\ (MPIa)_{it}$ representing respectively the log of the poverty headcount ratio and the adjusted multidimensional poverty index of *département* i at time t. The contribution of education and health in MPI is also used as a dependent variable. It represents the number of habitants who do not have sufficient income or food to meet some defined minimum living conditions over the total population of *département* i at time t. The interest variable $\log(FD)_{it}$ is the log of the ratio of own revenues to total revenues of *département* i at time t. $Hetero_{it}$ represents the local heterogeneity approximated by two variables: Ethnic fractionalization and ethnic polarization as they measure the extent of cultural diversity and thus local taste[16]. Ethnic fractionalization measures the probability that two randomly selected individuals in a *départements* will not belong to the

[16] The five major ethnic groups are considered: Akan, Krou, Mande North, Mande South and Voltaic. The higher these indices, the stronger the heterogeneity of local demand. Ethnic fractionalization and Ethnic Polarization are calculated based on the 2002 and 2008 surveys and considered fixed for the periods around the household survey. The motivations holding his hypothesis are explained above.

same ethnic group. Following José G. Montalvo & Reynal-Querol, (2005), ethnic fractionalization is calculated as:

$\text{Fractionalization} = \sum_{k=1}^{K} \phi_k \ (1 - \phi_k)$;

Ethnic polarization measures how far the distribution of the ethnic groups is from a bipolar distribution[17]. It is calculated as**:**

$\text{Polarization} = 4 \sum_{k=1}^{K} \phi_k^2 \ (1 - \phi_k)$; Where ϕ_k is the share of population belonging to ethnic group k, K equals total number of ethnic groups for the two equations. These variables are assumed to play a key role in the effect of local revenue autonomy on access to basic services and poverty.

Consistent with existing literature, control variables include transfers from central government, economic, demographic and social characteristics, represented by x_{it}. The group-specific unobservable effects $\alpha_{g_i t}$ is modified to consider the *département*-specific fixed effect η_i as well[18]. The conflict effects are measured through the number of conflict events in each *département* and these numbers are weighted by the fatality index. Conflict variables are expected to negatively affect the dependent variables.

Before discussing the empirical results, it is necessary to address some issues concerning the estimation strategy. First, there are reasons to consider local own revenue as an endogenous variable that can induce a bias in estimations. *Départements* with a high access to services or a low-income poverty rate may have higher potential to increase their revenue collection. The resulting reverse causality from this relation may bias the estimation results. Moreover, the internal effectiveness of each *département* in terms of implementing programs and technical staff training are unobservable in the models. This unobservable heterogeneity may be correlated with both the variables of interest and the dependent variables. To address these

[17] The purpose of the ethnic polarization index is to record how far the distribution of the ethnic groups is from the bipolar distribution. See more in José G. Montalvo & Reynal-Querol (2005).

[18] See appendix B for the definition of the optimal number of groups.

issues, model (1) is estimated using a two-stage least squares (2SLS) methodology with panel corrected standard errors clustered by *département*. An instrumental variable for local revenue autonomy is constructed following a method proposed by Martinez-Vasquez, Vulovic, & Liu, (2011)[19]. The value of the local revenue autonomy ratio instrumental variable is, calculated as:

$$LRA\_IV_{it} = \frac{1}{\sum_{j-1}^{n}\frac{1}{d_j}}\sum_{j-1}^{n}\frac{1}{d_j}\ Ownrev_{jt} \qquad i \neq j \quad (2)$$

Where LRA_IV_{it} is the value of the instrumental variable for *départements* i in year t. d_j is the distance between the largest cities in *départements* i and *département* j, and $Ownrev_{jt}$ is the ratio of local own revenues to total revenues of *département* j in year t. This instrument is the weighted average of the own revenue ratio for all other *départements* in the corresponding year, and the weights are the inverse of the distance between the two *départements*. There are two principles hypotheses holding the use of this instrument as argued by Martinez-Vasquez et al., (2011). First, the poverty rate or access to basic services in one *département* relative to others generally should not influence the local revenue mobilization of other *départements*, so the dependent variable should not be correlated with the instrument. Second, the design of the own revenue raising system in a *département* should be affected by the design of the own revenue raising system in a neighboring *département*. The lagged variables of Local Revenue Autonomy (LRA) are also used as instruments under the hypothesis of an intertemporal dependence of local revenue mobilization.

4. Empirical results and implications

Table 2 shows the estimation results of equations 1 concerning the effect of local revenue autonomy on MPIa or HPIn. As defined above, a negative (positive) sign of a coefficient

[19] Lee & Gordon (2005) also use similar way to instrument the corporate tax rate.

suggests a positive (negative) impact of the corresponding exogenous variable. All standard errors are clustered at the *département* level.

In columns 1 and 7, the results show a positive effect of local revenue autonomy on MPIa and HPIn respectively. This effect is statistically significant for MPIa and insignificant for HPIn. These results underline the importance of considering poverty as a multidimensional phenomenon which reflects deprivations in multiple dimensions as highlighted by the World Bank (2016). Sen (1999) shows that income poverty is limited because welfare can depend on other dimensions such as education, health, and living standards. The difference between the MPIa and HPIn results suggests that municipalities can help reduce deprivations in some dimensions without having significant effects on individuals' income. For example, an individual living under the poverty line and deprived in four dimensions could become deprived in three dimensions due to local government action, but could remain under the poverty line[20].

Columns 2 and 8 report the GFE estimation results controlling for potential endogeneity of municipal revenue autonomy. The results show a significant effect of municipal revenue autonomy on access to public services (column 2; table 2). A 10% increase in revenue collected by municipalities induces a 0.94% decrease in the share of citizens deprived in at least 30% of the selected dimensions[21]. This result is significant at the 1% level. The results support the theory that involving local governments in the delivery of public services can help to better account for local demand and improve access to public services.

Column 8 replicates the specification of column 2 by using HPIn as the dependent variable. Once endogeneity is controlled for, municipal revenue autonomy appears to have a positive and statistically significant effect on HPIn at the 5% level. Comparing this coefficient with those of

[20]The poverty index using a threshold is limited to many aspects: First, it fails to consider the severity of poverty. Second, it assumes that poverty is uniformly distributed across a given household ignoring the vulnerable family number such as children and old people.

[21]As noted above, a person is multidimensionally poor if the weighted indicators in which he or she is deprived add up to 30%. This means that the MPIa measures for each locality, the share of population deprived in at least 30% of the selected dimensions.

MPIa, the result shows that the coefficient for MPIa is significant at the 1% level, but HPIn is not significant at the same level. Moreover, the estimated coefficients for other control variables have the expected signs only for MPIa. In absolute term, the effect is lower when considering poverty. A 10% increase in revenue collected by municipalities induces only a 0.89% decrease in the percentage of the citizens living with less than US $ 1 a day.

Note that these results are consistent with the theoretical predictions of Oates (1993) and contrast with the findings of Sepulveda & Martinez-Vazquez (2011) who report that fiscal decentralization increases poverty. The difference between this result and those of Sepulveda and Martinez-Vazquez could be explained by the country-specific context and the method used in their study. Although they use fixed effect estimation, the cross-country regressions might not account for individual country effects which may affect poverty. Moreover, the log of population and openness to international trade which they use as instruments of fiscal decentralization are likely to be correlated with both endogenous and dependent variables. This violates the exogenous hypothesis required for valid instrument and could possibly bias estimation results.

Does local heterogeneity matter in the relationship between fiscal decentralization, access to public services and poverty?

The subsequent columns of Table 2 (Columns 3 to 6 for MPIa and columns 9 to 12 for HPIn) report the direct and indirect effects of local heterogeneity on access to basic services (MPIa) and poverty (HPIn). These estimations test whether the effect of fiscal decentralization on MPIa depends on the degree of the heterogeneity of demand. The results for direct effect of ethnic fractionalization and ethnic polarization are reported in columns 3, and 5, for MPIa and in columns 9 and 11, for HPIn. Columns 4, 6, 10, and 12 present the interaction of local revenue autonomy crossed with the ethnic fractionalization and polarization index and these level variables in the same specifications for each of MPIa and HPIn. The coefficients for both ethnic

fractionalization and ethnic polarization are negative in the four specifications and significant for columns 5 and 9, highlighting the importance of the homogeneity of local preference in the satisfaction of local need as predicted. Noteworthy, the coefficients of interaction terms are also negative and significant at 5% level (columns 5 and 6) only for the MPIa. This suggests that in a less ethnically diverse *départements*, local authorities have a higher propensity to satisfy citizens in terms of access to public services. In fact, as the literature argues, ethnic diversity has a negative impact on social cohesion and human development (Alesina et al., 1999; Hlepas, 2013). Therefore, the significant effect of heterogeneity of demand on MPIa can be explained by the fact that social cohesion helps to increase of cooperation and maintain social pressure against corruption and elite capture. This provides local governments with more ability in the implementation of poverty reduction programs and facilitates their actions[22]. Another possible explanation is that local diversity can force local authorities to be more accountable to citizens. These findings are consistent with the results by Montalvo & Reynal-Querol (2005) who find that fractionalization has an important effect on economic development.

The estimated coefficients of the other control variables have the expected signs and plausible magnitudes. The coefficient associated with the share of the informal sector is positive and statistically significant for the MPI. This indicates that the informal activities negatively affect access to basic services. One explanation might be that informal activities induce loss of revenue for local governments that could have been used for service delivery. However, the coefficients for informal sector are negative, but not significantly different from zero, when taking HPIn as the dependent variable.

The coefficient for central government transfers is negative, and statistically significant, revealing that transfers from central government to local governments contribute to increasing

[22] Alesina, Devleeschauwer, Easterly, & Kurlat (2003) point out the negative effect of ethnic fractionalization on the quality of government.

access to public service. This effect may work through the positive incentives transfers create for local governments to provides public services by crowding in local spending (Richard M. Bird & Smart, 2002; Bracco, Lockwood, Porcelli, & Redoano, 2015). Transfers are often used to bridge the gap between spending responsibilities and revenues endowment of municipalities in Côte d'Ivoire (J.-F. Brun & Sanogo, 2017). The share of urban population shows the expected sign. Its coefficient is negative for both MPI and HPIn, suggesting that local governments with a large share of urban populations are likely to improve access to basic services and reduce poverty[23].

[23] This result is consistent with the findings of Sepulveda & Martinez-Vazquez (2011).

Table 2**:** Effect of local revenue autonomy (LRA) on Multidimensional Poverty Index and Headcount Poverty Index, GFE_2SLS estimation

Dependent variable	Multidimensional Poverty Index (MPIa)						Headcount poverty Index (HPIn)					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	GFE	GFE_IV	GFE_IV	GFE_IV	GFE_IV	GFE_IV	GFE	GFE_IV	GFE_IV	GFE_IV	GFE_IV	GFE_IV
LRA	-0.0856***	-0.0949***	-0.0706***	0.0363	-0.0708***	-0.0197	-0.00191	-0.0896**	-0.120*	-0.137	-0.117	-0.151
	(0.0224)	(0.0265)	(0.0266)	(0.0506)	(0.0248)	(0.0346)	(0.0129)	(0.0445)	(0.0716)	(0.0886)	(0.0791)	(0.107)
Central Transfers	-0.0545*	-0.0531**	-0.0763***	-0.0474**	-0.0466**	-0.0229	0.0134	0.00762	0.0104	0.0170	0.00319	0.00924
	(0.0272)	(0.0253)	(0.0275)	(0.0221)	(0.0230)	(0.0234)	(0.0162)	(0.0127)	(0.0130)	(0.0130)	(0.0143)	(0.0146)
Urban population	-0.732***	-0.753***	-0.689***	-0.739***	-0.636***	-0.690***	-0.145***	-0.168	-0.110***	-0.127***	-0.143***	-0.172***
	(0.161)	(0.190)	(0.213)	(0.161)	(0.215)	(0.167)	(0.0446)	(0.145)	(0.0424)	(0.0480)	(0.0464)	(0.0568)
Informal sector	0.948***	1.008***	0.865***	0.680***	0.896***	0.755**	-0.555***	-0.598	-0.0655	-0.0751	-0.101	-0.113
	(0.257)	(0.262)	(0.289)	(0.263)	(0.324)	(0.354)	(0.158)	(0.514)	(0.125)	(0.127)	(0.138)	(0.144)
Ethnic frag			-0.109	0.333**					-0.238***	-0.597*		
			(0.0857)	(0.138)					(0.0411)	(0.322)		
Ethnic fragmentation*LRA				-0.114***						0.0744		
				(0.0399)						(0.0658)		
Ethnic polarization					-0.0934**	0.0657					-0.00581	-0.190
					(0.0391)	(0.0702)					(0.0439)	(0.160)
Ethnic polarization*LRA						-0.0433**						0.0402
						(0.0205)						(0.0329)
Constant	-1.936***	-1.502***	-1.249***	-0.399	-1.472***	-1.123***	-0.637***	-0.691	-1.227***	-1.756***	-1.163***	-1.461***
Observations	250	182	147	147	147	147	250	182	147	147	147	147
R-squared	0.829	0.832	0.830	0.859	0.839	0.858	0.749	0.738	0.773	0.773	0.767	0.765
Hansen (p-value)		0.08	0.68	0.95	0.43	0.1		0.04	0.85	0.64	0.07	0.102
Cragg-Donald Wald F statistic		126.04	108.03	25.21	111.781	48.43		103.63	86.42	12.3	83.87	37.47
Anderson canon (P-value)		0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00
GFE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Départements FE	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes

Robust standard errors clustered at the *départements* level in parentheses / *significant at 10%; ** significant at 5%; *** significant at 1%

In table 3, the analysis assumes that MPIa is a good proxy for households' access to basic services, because by design this index represents the deprivation of citizens in several dimensions of poverty. The estimations show that municipal revenue autonomy has a positive and significant effect on MPIa. However, this result may hide considerable difference in the effect of local revenue autonomy on the different dimensions of poverty (education, health, water-electricity-sanitation, and living standards). To explore this possibility, the contribution of each dimension in MPIa is calculated.

Table 3 presents the results where each dependent variable represents the share of individuals deprived in 30% of the corresponding dimensions. One might think that there is a significant degree of correlation between control variables, such as the share of urban population and municipal revenue autonomy. To avoid the potential problem of multicollinearity resulting from this correlation, I regress only the municipal revenue autonomy on the MPIa for each dimension (columns 1, 4, 7, and 10). The second specification for each dimension includes the lagged MPIa index to alleviate the potential intertemporal dependence between current decisions and previous level of deprivation. In the third column for each dimension, the benchmark specification (columns 2 and 8 of table 2) are replicated to control for endogeneity. Apart from access to water, the estimates of municipal revenue autonomy are significant for education, health and living standard, however interesting differences in the magnitude of the coefficients are worth noting. First, it seems that local governments are more likely to increase access to education than to health. The coefficient for education is negative and significant at the 1% level of significance, and higher than that for health. It is easier for local governments to implement programs for access to education, for example by constructing schools, than for health. For example, local governments are often involved in the provision of public education by village schools although teacher management powers are retained by central government. The devolution of responsibilities in the health sector to municipalities is limited compared to

education because of the sensitivity of this sector. This might also be driven by the idea that health services have larger spillovers effects and economies of scale than education services (Besley & Coate, 2003; Cavalieri & Ferrante, 2016) [24].

This result is consistent with Côte d'Ivoire's circumstances, since the central government carries out functions such as licensing health professionals, registration and quality-control of drugs.

The results (columns 7, 8, and 9) show that the effects of municipal revenue autonomy on access to water are not significant. A possible explanation is that, by design, the index concerns the citizens' access to tap water which is the responsibility of central government, which has field offices responsible for delivering water at local level. In columns 10, 11, and 12 about living standard, which includes cooking fuel, sanitation assets, floor, and electricity, the results are difficult to interpret, since the exogenous instruments are not valid (the Hansen p-value=0.001). By design, these dimensions seem less affected by the actions of municipalities.

[24]Health prevention initiatives promoted by one jurisdiction are likely to benefit neighbors and the aggregate production and provision of health services, and the joint administration of healthcare structures such as hospitals may not perfectly prompt for a fiscal decentralized solution (Cavalieri & Ferrante, 2016).

Table 3: Effect of municipal revenue autonomy on Multidimensional Poverty Index by dimension, GFE_2SLS

Dependent variable: MPIa by dimension	MPI_Education			MPI_Health			MPI_Water			MPI_Living standard		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	GFE	GFE	GFE_ IV	GFE	GFE	GFE_ IV	GFE	GFE	GFE_IV	GFE	GFE	GFE_ IV
LRA	-0.08***	-0.03***	-0.13***	-0.05*	-0.05*	-0.09**	-0.02	-0.01	-0.03	-0.08**	-0.01	-0.15***
	(0.02)	(0.01)	(0.02)	(0.03)	(0.03)	(0.03)	(0.02)	(0.01)	(0.06)	(0.03)	(0.01)	(0.03)
lagMPI_Educ		0.60***										
		(0.08)										
lagMPI_Heath					0.04**							
					(0.017)							
lagMPI_water								0.38***				
								(0.08)				
lagMPI_living											0.72***	
											(0.069)	
Central Transfers			-0.032			-0.068*			0.008			-0.10**
			(0.026)			(0.035)			(0.03)			(0.04)
Urban population			-0.40***			-0.32*			-0.13			-1.19***
			(0.08)			(0.19)			(0.20)			(0.20)
Informal sector			0.98**			0.208			-0.011			2.39***
			(0.40)			(0.361)			(0.16)			(0.72)
Constant	-2.5***	-1.01***	-3.05***	-4.2***	-4.0***	-1.7***	-2.3***	-1.5***	-1.9***	-2.5***	-0.5***	-3.78***
Observations	277	276	182	277	276	182	272	266	179	277	276	182
R-squared	0.55	0.79	0.66	0.93	0.93	0.94	0.71	0.80	0.67	0.65	0.70	0.60
Hansen (p-value)			0.58			0.56			0.13			0.001
Cragg-Donald Wald F statistic			149.45			175.80			155.33			149.12
Anderson canon (P-value)			0.004			0.00			0.00			0.00
GFE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Départements FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors clustered at the *départements* level in parentheses / *significant at 10%; ** significant at 5%; *** significant at 1%

In order to identify more clearly the area on which local governments must focus on, the sample is divided into two subgroups: urban population and rural population[25]. The analysis is interested in whether deprived urban and rural populations respond differently to changes in municipal revenue autonomy. All variables in table 3 are included in specifications 1 and 3 respectively for rural and urban populations MPIa index. In table 4, the results are consistent with the previous findings, however there is a significant difference between the two subgroups. The coefficients for municipal revenue autonomy for urban populations are higher than those

[25] The literature suggests that, within jurisdictions, there is a large disparity between the urban and rural sectors regarding the access to public services such as education and health (West & Wong, 1995).

for rural populations. This suggests that local governments are more likely to reduce deprivation in access to public service for urban population than rural ones. This result is intuitive since urbanization increases density of population. And decentralization may not have as significant an impact in rural areas because of low population density and lower relative levels of per capita income which may limit the actions of local governments compared to urban areas.

Table 4: Effect of LRA on multidimensional poverty index by subgroup: urban and rural population

Dependent variable: MPIa for rural and urban area	MPIa_Rural		MPIa_Urban	
	(1)	(2)	(3)	(4)
	GFE	GFE_2SLS	GFE	GFE_2SLS
LRA	-0.103*	-0.166***	-0.132***	-0.184***
	(0.0505)	(0.0594)	(0.0459)	(0.0574)
Central Transfers		-0.0812		-0.128*
		(0.0700)		(0.0759)
Urban population		-1.441***		-1.552**
		(0.377)		(0.699)
Informal sector		0.100		0.0320
		(0.251)		(0.968)
Constant	-1.138***	0.954	-0.595	0.558
	(0.0896)	(0.614)	(0.381)	(1.036)
Observations	131	85	174	112
R-squared	0.869	0.930	0.610	0.780
Hansen (p-value)		0.20		0.328
Cragg-Donald Wald F statistic		29.23		71.81
Anderson canon (P-value)		0.00		0.00
GFE	Yes	Yes	Yes	Yes
Departement FE	Yes	Yes	Yes	Yes

Robust standard errors clustered at the départements level in parentheses / * significant at 10%; ** significant at 5%; *** significant at 1%

Does conflict affect access to services and poverty?

Côte d'Ivoire experienced a conflict over the period being studied. It is therefore reasonable to think that this context may have negatively affected the local government capacity to implement programs of poverty reduction and increase in access to public services. To deal with this possibility, the conflict effect is controlled for through an index represented by the number of conflict events weighted with a fatality index for each event by locality. The fatality index

reports the annual number of deaths due to each event, it varies from one to 10 with 10 for the highest incidence of violence, and one the lowest[26].

The estimated coefficients are negative and not statistically significant for HPIn. The coefficient of conflict event for MPIa is, however significant at 5% level of significance (Table 5). This suggests that conflict may have compounded the existing problems of access to public services with no statistically significant effect on poverty. The conflict may have affected municipal administrations which faced problems of their staff and the staff of local services displacement such as education and health. As shown in figure 6, the conflict was characterized by several short periods of conflict events with different intensity and location. A large part of *départements* has been affected by conflict with a higher incidence of violence concentrated in the rebel-held, northern and western parts of the country. This forced populations to move from this areas to safe locations.

[26] The conflict data used is an annual data that codes the dates and locations of all reported political violence and protest events over the period being studied in Côte d'Ivoire. An alternative measures of conflict can either be the onset or the duration of conflict event as suggested by Murshed & Tadjoeddin (2009). Those are not available in the ACLED data for Côte d'Ivoire.

Table 5: Effect of municipal revenue autonomy and conflict on access to basic service and poverty reduction

Dependent variable	Multidimensional poverty index			Headcount poverty Index		
	(1) GFE_2SLS	(2) GFE_2SLS	(3) GFE_2SLS	(4) GFE_2SLS	(5) GFE_2SLS	(6) GFE_2SLS
LRA	-0.121***	-0.128***	-0.0831**	-0.0896**	-0.0865**	-0.186
	(0.0286)	(0.0267)	(0.0372)	(0.0445)	(0.0421)	(0.133)
Central Transfers	-0.0365	-0.0506	-0.0152	0.00762	0.00660	0.0112
	(0.0334)	(0.0328)	(0.0328)	(0.0127)	(0.0129)	(0.0233)
Urban population	-0.983***	-1.015***	-1.024***	-0.168	-0.176	-0.139
	(0.0845)	(0.0806)	(0.0792)	(0.145)	(0.151)	(0.205)
Informal sector	0.973**	1.033**	0.945*	-0.598	-0.589	-0.683
	(0.469)	(0.461)	(0.489)	(0.514)	(0.512)	(0.452)
Conflict events		-0.0540**			-0.0148	
		(0.0250)			(0.0137)	
Conflict events weighted			0.00477			0.00985
			(0.0155)			(0.0177)
Constant	-1.691***	-1.605***	-1.783***	-0.691	-0.686	-0.696*
	(0.365)	(0.366)	(0.385)	(0.448)	(0.445)	(0.404)
Observations	182	182	148	182	182	148
R-squared	0.77	0.79	0.78	0.638	0.64	0.61
Hansen (p-value)	0.202	0.064	0.831	0.091	0.117	0.12
Cragg-Donald Wald F statistic	141.41	139.05	112.77	103.63	96.24	75.59
Anderson canon (P-value)	0.00	0.00	0.00	0.00	0.00	0.00
GFE	Yes	Yes	Yes	Yes	Yes	Yes
Departement FE	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors clustered at the départements level in parentheses / significant at 10%; ** significant at 5%; *** significant at 1%

Are the instruments valid and relevant?

A relevant econometric issue when addressing endogeneity is whether the excluded exogenous variables are valid instruments. To address this issue, for all specifications, the p-value for the Hansen over-identification test is reported. The null hypothesis is that the excluded exogenous variables are valid. The reported Hansen p-values are higher than the 5% conventional level of significance, which suggests that these variables satisfy the requirement for valid instruments and are uncorrelated with the dependent variables. Another issue is whether the instruments are significant in explaining the extent of local revenue autonomy. The reported Anderson Canon p-values confirm that the instruments explain significantly the fiscal decentralization measured here by local revenue autonomy. The instruments are globally relevant. The statistical

significance of the coefficients on the excluded variables in the first-stage estimates was derived[27].

Robustness checks

The benchmark results (column 2, table 2) are not sensitive to the inclusion of other covariates such as the heterogeneity measures and the conflict variables. For example, the effect of local revenue on MPIa does not disappears no matter which measure of heterogeneity is included in the regression and the statistical significance remains for almost all specifications (columns 3 to 6, table 2). However, this statistical significance does not hold in many specifications for the effect on HPIn (columns 7 to 12, table 2).

The above estimations may be sensitive to the inclusion of alternative control variables such as local GDP and other proxy of local heterogeneity[28]. As a robustness check, the estimations results controlling for local GDP and horizontal inequality is reported in table 6 using both individual fixed effect method and group fixed effect approach, as well. Yet, local revenue autonomy contributes to increase access to public services, confirming that the findings are robust to different specifications. Interestingly, the coefficient for local revenue autonomy result obtained with individual fixed effect (column 3) are not statistically significant giving credence to the GFE approach and that is more efficient. The results are also robust to the inclusion of horizontal inequality as measure of heterogeneity (column 5).

[27] The results (first step regression) are available on request.

[28] The index calculated as : Horizontal Income Inequality $= 1 - \ln(Y_{worst})/ln(Y_{best})$. It measures inequality between the richest and the poorest ethnic group.

Table 6: Effect of LRA on MPIa, controlling for Département GDP and alternative measure of heterogeneity

Dependent variable: MPIa	(1)	(2)	(3)	(4)	(5)	(6)
	Controlling for *Département* GDP				Controlling for *Département* GDP	
					Alternative measure of heterogeneity	
	FE	GFE	FE IV	GFE_2SLS	GFE VI	GFE VI
LRA	-0.0427**	-0.0627**	-0.233	-0.0842**	-0.0872**	-1.628
	(0.0193)	(0.0275)	(0.175)	(0.0407)	(0.0414)	(3.010)
Local_GDPhbt	0.0137	-0.0801***	-0.132	-0.0909***	-0.0884***	-1.616
	(0.0254)	(0.0278)	(0.111)	(0.0301)	(0.0288)	(3.011)
Urban population	-0.523**	-0.746***	-0.423*	-0.875***	-0.871***	-0.866***
	(0.221)	(0.173)	(0.244)	(0.227)	(0.222)	(0.234)
Informal sector	-2.181**	0.622*	-2.180**	0.481	0.579	0.520
	(0.807)	(0.332)	(0.862)	(0.452)	(0.490)	(0.446)
Horizontal_inequality					-0.365	-10.21
					(0.335)	(19.50)
Horizontal-inequality*LRA						1.587
						(3.111)
Constant	0.693	-1.461***	1.628	-0.961***	-1.076***	-1.403**
Observations	256	256	185	185	185	185
R-squared	0.574	0.828	0.772	0.790	0.792	0.735
Hansen (p-value)			0.61	0.12	0.15	0.21
Cragg-Donald Wald F statistic			5.41	181.54	173.42	1.60
Anderson canon (P-value)			0.00	0.00	0.00	0.14
GFE	No	Yes	Yes	Yes	Yes	Yes
Departement FE	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors clustered at the *départements* level in parentheses / *significant at 10%; ** significant at 5%; *** significant at 1%

Another concern relates to the sensibility of the estimations to alternative level of cutoff considered to define a person as deprived of access to public service. The main specifications are thus re-estimate, using 40% and 20% as thresholds. As shown in Tables 7, previous results are overall confirmed. Finally, the robustness of the findings is checked regarding the choice of interpolating data for off census years. Results obtained controlling for both local GDP and central transfers are in line with those presented in this study (columns 7 and 8).

Table 7: Effect of LRA on MPIa, different cutoffs for deprivation

Dependent variable: MPIa	Controlling for Central transfers			Controlling for Département GDP			Test for off census years	
	20% Cutoff	30% Cutoff	40% Cutoff	20% Cutoff	30% Cutoff	40% Cutoff	30% Cutoff	30% Cutoff
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LRA	-0.098***	-0.11***	-0.16***	-0.07**	-0.084**	-0.134**	-0.018**	-0.025***
	(0.031)	(0.0376)	(0.0555)	(0.0342)	(0.04)	(0.06)	(0.008)	(0.007)
Transfers	-0.066*	-0.0752*	-0.0565					-0.017**
	(0.037)	(0.045)	(0.081)					(0.0087)
Urban population	-0.763***	-0.888***	-1.148***	-0.748***	-0.875***	-1.19***	-0.194***	-0.19***
	(0.260)	(0.306)	(0.439)	(0.194)	(0.227)	(0.31)	(0.0488)	(0.064)
Informal sector	0.534	0.635	0.782	0.397	0.481	0.67	0.0950	0.131
	(0.455)	(0.537)	(0.820)	(0.384)	(0.452)	(0.66)	(0.0962)	(0.11)
loc_GDPhbt				-0.0788***	-0.09***	-0.11***	-0.0210***	
				(0.0255)	(0.03)	(0.042)	(0.00634)	
Constant	-1.124***	-1.333***	-2.015***	-0.810***	-0.96***	-1.38***	0.459***	0.37***
Observations	182	182	182	185	185	185	185	182
R-squared	0.770	0.780	0.784	0.781	0.790	0.791	0.943	0.941
Hansen (p-value)	0.41	0.38	0.34	0.12	0.12	0.24	0.159	0.55
Cragg-Donald Wald F statistic	140.54	140.54	140.54	171.42	181.54	142.35	183.05	140.54
Anderson canon (P-value)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GFE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Departement FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors clustered at the *départements* level in parentheses / significant at 10%; ** significant at 5%; *** significant at 1%

The analysis goes further by examining whether the 2007 peace agreement signing boosted the implementation program of public services delivery, which may not have been fully captured by grouped fixed effect. I proceed by dividing the sample into two sub-sample periods: 2001-2006 and 2007-2011 and replicate the specification of table 2. This does not alter the previous findings. Local revenue autonomy positively affects access to public services across the two sub-periods. However, the results suggest that the effect is higher for the period (2007-2011), after the signing of the agreement, than the period before the signing (2001-2007) (Table 8). In Côte d'Ivoire, the 2007 peace agreement was signed by all political parties and marked the end of tension. Both sides agreed to a free and fair general election to be held in 2008. This event might have changed the behavior of municipalities. The reported coefficients of GFE are statistically different from zero for both of MPI and HPIn, giving more credence to the econometric approach.

Table 8: Effect of LRA on MPIa, before and after the 2007 peace agreement signing, GFE_2SLS estimation

	Before 2007 Peace agreement				After 2007 Peace agreement			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	GFE	GFE	GFE_2SLS	GFE_2SLS	GFE	GFE	GFE_2SLS	GFE_2SLS
LRA	-0.0799**	-0.0977***	-0.0931**	-0.0638	-0.0466***	-0.0752**	-0.123**	-0.0960
	(0.0342)	(0.0293)	(0.0372)	(0.0512)	(0.0155)	(0.0322)	(0.0496)	(0.0594)
Central Transfers		-0.0145	-0.0298	-0.0546		-0.0780	-0.0968	-0.141*
		(0.0357)	(0.0342)	(0.0364)		(0.0579)	(0.0638)	(0.0737)
Urban population		-0.664**	-0.791***	-0.791***		-0.795**	-0.920***	-0.816**
		(0.241)	(0.251)	(0.235)		(0.302)	(0.355)	(0.329)
Informal sector		1.037***	0.977***	0.875**		0.490	0.331	1.069
		(0.329)	(0.377)	(0.388)		(0.810)	(1.018)	(1.160)
Ethnic frag.*LRA				-0.0292				0.000745
				(0.0216)				(0.0354)
Grouped fixed effet	0.629***	0.148	0.240**	0.328**	0.290**	0.283*	0.290*	0.278*
	(0.104)	(0.226)	(0.119)	(0.142)	(0.134)	(0.155)	(0.149)	(0.165)
Constant	-2.233***	-2.534***	-1.868***	-1.498***	-1.514***	-1.148***	-0.934	-1.253*
Observations	158	138	91	76	119	112	91	71
R-squared	0.753	0.863	0.838	0.811	0.331	0.507	0.531	0.543
Hansen (p-value)			0.0454	0.08			0.73	0.73
Cragg-Donald Wald F statistic			117.67	71.04			71.07	43.59
Anderson canon (P-value)			0.00	0.00			0.00	0.00
GFE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Departement FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors clustered at the *départements* level in parentheses / *significant at 10%; ** significant at 5%; *** significant at 1%

5. Conclusion

Providing local governments with decision making and revenue raising responsibilities enhances accountability and thereby increases social welfare through efficient public services delivery (Oates, 1993). The study poses two questions. First, does the effect of fiscal decentralization, measured as the ratio of municipality own revenue to total revenues differs, when considering either the access to public services or the poverty in Côte d'Ivoire. The second is relative to the role played by the local heterogeneity in this relationship.

The empirical study uses the GFE model of Bonhomme & Manresa (2015) and a local government revenue dataset spanning 11 years (2001-2011) for 115 municipalities in 35 *départements*. An adjusted multidimensional poverty index and a headcount poverty index at *départements* level using the 2002 and 2008 Household Living Standard Surveys are calculated.

The results suggest that devolving municipality revenue mobilization positively affects the access to public services and reduces poverty. However, there is evidence that fiscal decentralization has more robust effect on access to public service, than on poverty. This effect seems to work mainly through enhancing access to education, rather than health, water and sanitation services. Interestingly, the results indicate that municipalities are more likely to improve access to public services in less ethnically diverse localities and in rural zones. The study provides evidence of the effect of the conflict experienced by the country has been statistically limited.

This study provides some important implications for the design of anti-poverty programs and fiscal decentralization in Côte d'Ivoire and more broadly in Sub-Saharan Africa. Since several countries consider fiscal decentralization as a key part of their fiscal reforms, the positive findings concerning the impact of local revenue autonomy in the analysis legitimate and give more credence to this policy objective. Moreover, the research highlights the importance of the context (rural or urban), and the dimensions of access to public service in which municipalities may be more effective, and reveals the importance of considering the multiple dimensions of public services as shown by World Bank (2016).

From the policy perspective, this is crucial for both policy makers and researcher focusing on local government autonomy. However, there is a need to construct more accurate decentralization indicators which reflects the real decision-making power devolved to local authorities. These indicators might include the power to set tax rates, and the political and institutional processes that assign the responsibility to raise taxes and undertake public spending as noted by Lessmann & Markwardt, (2012).

Appendix A

Table A1 : Descriptive statistics

Variables	ALL Sample					Northern localities		Southern localities	
	Obs	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Mean	Std. Dev.
Population	385	98190.00	116880.00	15086.00	758178.0	126560.00	180587.00	85188.00	67276.0
Poverty headcount index (HPIn)	385	0.38	0.16	0.07	0.76	0.42	0.18	0.36	0.14
Multidimensional poverty index (MPIa)	385	0.28	0 .10	0.08	0.51	0.34	0.08	0.26	0.09
MPIa_Education	385	0.35	0 .08	0.22	0.57	0.35	0.06	0.35	0.09
MPIa_Health	385	0.28	0.17	0.02	0.55	0.26	0.17	0.29	0.17
MPIa_Water	385	0.15	0 .06	0.00	0.38	0.17	0.07	0.14	0.06
MPIa_Living standard	385	0.35	0.11	0.14	0.61	0.37	0.12	0.35	0.11
Informal (share of informal sector)	380	0.61	0.10	0.09	0.70	0.62	0.09	0.61	0.10
Ethnic fractionalization	311	0.66	0.20	0.13	0.99	0.59	0.24	0.68	0.17
Ethnic Polarization	311	0.81	0 .33	0.06	0.83	0.76	0.26	0.83	0.36
Horizontal Inequality	385	0.96	0.04	0.71	0.99	0.97	0.02	0.95	0.05
Urban (share of urban population)	352	0.45	0.23	0.07	1.00	0.45	0.16	0.43	0.26
Conflict Events (number of events)	385	5.99	9.36	1.00	54.00	4.74	5.14	6.57	10.71
Conflict weighted with fatality index	378	899.48	4264.63	0.00	43578.00	63.59	312.92	1260.43	5059.12
Household annual consumption (fcfa)	385	930755.9	545811.00	204843.60	1910229.0	841559.20	521151.10	971637.70	552910.0
Local Tax Revenue	303	0.25	0.21	0.00	1.00	0.11	0.20	0.28	0.20
Local Non-Tax-Revenue	303	0.19	0.17	0.00	0.92	0.07	0.11	0.22	0.17
Central transfers	303	0.46	0.29	0.00	1.00	0.70	0.26	0.40	0.27
Miscellaneous revenue	303	0.09	0.13	0.00	0.84	0.11	0.16	0.09	0.12

Table A2. Main variables

Main variables	Description	Source
Adjusted Multidimensional poverty index (MPIa)	For each *département*, the percentage of people who are deprived of public services as a percentage of total population. A cutoff of 30% is used to define a poor individual. Thus a person is poor if the weighted indicators in which he or she is deprived sum up to 30% or more, as suggested by Alkire & Santos (2010)	The 2002 and 2008 Household Living Standard Surveys (HLSS), Ministry of Interior Côte d'Ivoire
MPIa_Education	For each *département*, the number of people who are deprived of education services as a percentage of total population. A cutoff of 30% is used to define a deprived individual.	
MPIa_Health	For each *département*, the percentage of people who are deprived of Health services to total population. A cutoff of 30% is used to define a poor	
MPIa_Water	For each *département*, the number of people who are deprived of clean water as a percentage of total population. A cutoff of 30% is used to define a deprived individual	
MPIa_Living standard	For each *département*, the number of people who are deprived of a set of basic living standards of total population. A cutoff of 30% is used to define a deprived individual	
Poverty headcount index	For each *département*, the percentage of the population living with less than US $ 1 a day	
Ethnic fractionalization	The probability that two randomly selected individuals in a *département* will not belong to the same ethnic group. The higher this index is, the stronger is the heterogeneity of demand.	
Ethnic Polarization	How far the distribution of the ethnic groups is from the bipolar distribution in a *département*. The higher this index is, the stronger is the heterogeneity of demand	
Informal sector	The share of local businesses not registered with the tax administration	
Conflict Events	The number of conflict events by *département*	The Armed Conflict Location and Event Dataset (ACLED) (Raleigh et al., 2010).
Conflict Events weighted	The number of conflict events weighted with a fatality index of each event by *département*. The fatality index reports the number of deaths due to each event, one represents least violence and 10 represents the highest incidence of violence	
Local revenue autonomy	The ratio of local own revenues to total revenues.	Ministry of interior Côte d'Ivoire

Source: Author

Appendix B Consistency of GFE method

Grouped patterns and consistency of the GFE approach

In order to avoid arbitrary setting of the group number that may cause a bias in parameter estimates, the analysis follows Bonhomme & Manresa (2015) in using a Bayesian Information Criterion (BIC) to derive the optimal number of groups.[29] I consistently estimate equation (1)

[29] The following equations are used to calculate this optimal number of groups:

$$\text{BIC (G)} = \frac{1}{NT}\sum_{t=1}^{N}\sum_{t=1}^{T}\left(y_{it} - x_{it}'\hat{\theta}^{(\widehat{G})} - \hat{\alpha}_{it}^{(G)}\right)^2 + \hat{\sigma}^2\frac{GT+N+K}{NT}[\ln(NT)] \text{ with } \hat{\sigma}^2 = \frac{1}{NT-G_{max}T-N-K}\sum_{i=1}^{N}\sum_{t=1}^{T}\left(y_{it} - \acute{x}_{it}\hat{\theta} - \hat{\alpha}_{\hat{g}it}\right)^2$$

for several numbers of groups to identify the optimal number of groups that minimize the bias from the estimation. Table B1 reports the BIC, the GFE coefficient estimates for local own revenue, and selected covariates and the standard errors. The parameter $\hat{\sigma}^2$ and the BIC are computed using a maximum number of groups Gmax=5. To compare with the Fixed Effect (FE) method, I present in the last row of the table the results of FE regression with the same specification. The results suggest that a substantial amount of cross-*départements* heterogeneity is time-variant. This finding is consistent with those reported in Bonhomme & Manresa (2015). In fact, the objective function of FE is higher than the one of GFE for G=4, suggesting that a substantial amount of *département* heterogeneity might be time-variant. The standard errors of the GFE are lower than those of FE, confirming the consistency of GFE approach on the data. Interestingly, Table B1 shows that the value of the BIC decreases steadily as G increases, and reaches a minimum once G=4. This BIC increases for G=5. This result suggests that the optimal number of groups according to BIC is G=4. Thus, the estimations in this analysis will be using G=4. It is worth noting that the homogenous characteristics within a group remain a critical issue that could be further explored by surveys of local governments.

With G the number of groups, $\hat{G}$ the optimal number of groups that minimize the BIC, an upper bound of $\hat{G}_{max}$, $\hat{\sigma}^2$ is a low bias estimates of the variance of the idiosyncratic disturbance, K the number of parameters of estimation.

Table B1 Bayesian Information Criterion and the optimal number of groups

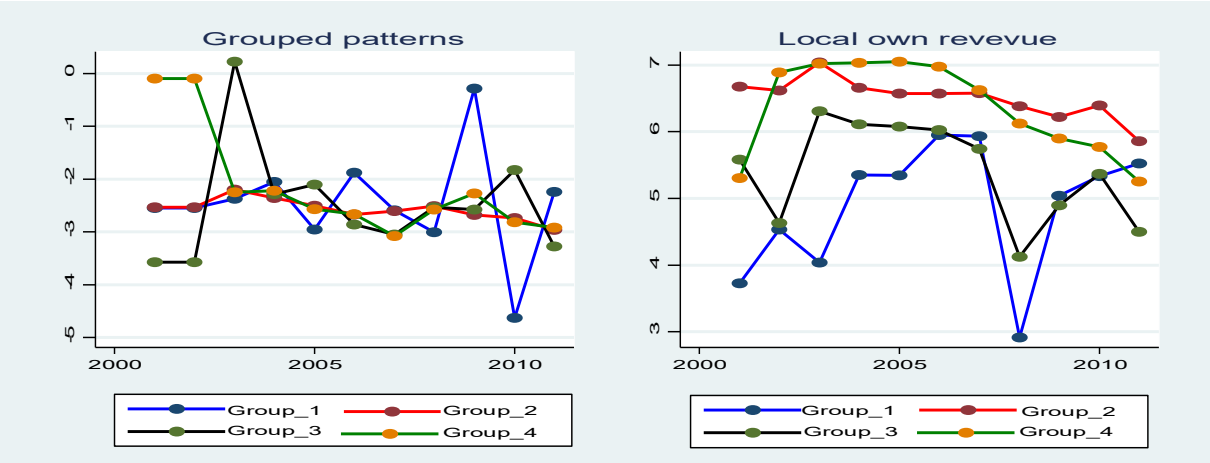
Groups	Obs	BIC	Objective function	Coefficient estimated	Standard errors bootstrapped
1	385	0.69	-	-	-
2	385	0.64	52.93	0.066	0.96
3	385	0.50	37.28	0.102	0.87
4	385	**0.24**	23.27	0.259**	0.90
5	385	0.36	15.64	0.307***	1.03
Fixed effects		-	22.61	0.225**	0.11

Source: Author

There are several reasons in favor of using the GFE estimator rather than the FE approach to control for local governments' unobserved specific characteristics. The first motivation comes from the conflict that the country experienced, which was characterized by several episodes of events with different intensity and location around the *départements*, as shown by Dabalen et al (2012). This effect, combined with the capacity of each *départements* to recover from an economic downturn, tends to cluster *départements* in time and space in terms of revenue performance. As the départements are affected differently by conflict and characterized by disparities in revenue potential. The trend of their revenue performance may follow different paths according to their specific unobserved characteristics. The GFE model allows for time-variance unobservable in a period that is characterized by many phases, as in this case. As argued by Bartolucci, Belotti, & Peracchi (2015), the omitted individual characteristics or shocks may induce time-varying unobservable individual characteristics. They also highlight the importance of accounting for these effects by using GFE methods. Second, the GFE method is well-suited to deal with the characteristics of the data that have a short length of time (2001-2011), and which have a small within- *départements* variance of revenue. Bonhomme & Manresa (2015) argue that the GFE estimator performs well with such small panel data, and produces consistent estimates as long as the number of groups is correctly specified.

Figure B1 reports the unobserved trends of revenue performance using four groups (G=4), and highlights trends in the variables of interest. I find the presence of time-varying patterns across distinct groups in the data. Figure B1 shows that the four groups experience unstable trends

over time. For example, the left panel reports a high dispersion of groups' patterns in the periods of high incidence of conflict (2002 and 2010). The left panel shows that the parameter estimated $\widehat{\alpha}_{\hat{g}it}$ varies over time. In the right panel, the paths of own revenue differ from one group to another, though groups 2 and 4 seem to follow very similar paths. I find therefore several cases of robust evidence of *départements'* heterogeneity that need to be grouped according to their performance in revenue mobilization. These differences could not be accounted for by considering only the fixed specific effects.



Source: Author

Figure B1 Group-specific time effects

CHAPTER 2 : AUTONOMIE FINANCIERE DES MUNICIPALITES ET INEGALITES DE REVENU EN CÔTE D'IVOIRE

Abstract

Do greater municipal revenue autonomy lead to lower inequality in the distribution of income within municipalities in Côte d'Ivoire? This is the question discussed in the chapter 2.

In the theory of fiscal federalism, there is a relative consensus on the leading role of central government in conducting the distributional function (Musgrave 1970; Oates 1972). Based on the assumption of taxpayers mobility, different redistributive policies under the responsibilities of subnational governments may lead to disruptive tax competition between jurisdictions and induce substantial loss of efficiency (Prud'homme, 1995). However, in developing countries such as Côte d'Ivoire, the inter-jurisdictional mobility in constrained, so as fiscal decentralization can lead to greater equality in income distribution (R M Bird & Vaillancourt, 2008). For example Meloche (2012) finds that fiscal decentralization reduces inequalities at subnational level.

This chapter first compares the tax raising responsibilities allocated by legislation of fiscal decentralization in Côte d'Ivoire with the real practice. Second, an analysis of the impact of revenue autonomy on the income inequalities is undertaken, using three indices: An adjusted Gini index, a coefficient of variation, and a Theil index for the 58 *departement* in Côte d'Ivoire. The chapter concludes that the scope for local governments is highly constrained contrary to the predispositions of the legislation, so that there is a large vertical fiscal imbalance. This important gap between the "De jure" and "De facto" power of local governments highlights a need for clarifying the roles and responsibilities between the different levels of government. The results show also that higher local revenue autonomy reduces income inequalities within localities. The impact differs between the type of revenue and the *departements* considered. Higher local tax revenue seems to reduce inequalities while non-tax revenue contributes at increasing inequalities in the distribution of income. The conflict is found to have worsened the inequalities in the northern conflict area compared to the southern regions.

Résumé

L'objet de cette étude est double : (i) analyser l'autonomie financière des collectivités territoriales en comparant les dispositions règlementaires et les pratiques effectives et (ii) évaluer son impact sur les inégalités de revenu au sein des communes en Côte d'Ivoire.

L'étude montre que la décentralisation fiscale en Côte d'Ivoire se caractérise par un écart significatif entre les textes règlementaires et les pratiques effectives. Le cadre de collaboration organisé par les textes est peu suivi et les possibilités de concertation avec l'Etat sur les finances locales restent limitées. L'Etat octroie un pouvoir élargi aux communes sur des taxes dont le rendement potentiel est si faible au regard des besoins locaux, que la ressource est insuffisante pour assurer une véritable autonomie financière.

Il ressort des résultats appliqués que l'autonomie financière basée sur la collecte des recettes non fiscales (les ressources d'exploitation et de services) est défavorable aux ménages les plus pauvres tandis que la mobilisation des recettes fiscales (les impôts rétrocédés) contribue à réduire les inégalités de revenu. Une reforme profitant aux plus pauvres devrait élargir la base des impôts plus neutres reposant sur les biens inamovibles, tel que l'impôt foncier bien que son imposition nécessite des études.

L'analyse fait ressortir par ailleurs l'existence d'une hétérogénéité régionale dans la relation entre les ressources des collectivités et les inégalités locales. L'impôt rétrocédé semble avoir un effet statistiquement moins significatif dans la zone anciennement occupée par la rébellion pendant la crise, comparé au reste du pays. Le conflit armé aurait contribué à creuser les écarts de revenu. Ce résultat est proche de celui de Bircan et al. (2016) qui suggère que les conflits accentuent les inégalités de revenu.

Mots clés : Fiscalité locale, Impôt foncier, Décentralisation fiscale, Côte d'Ivoire, Conflit, Inégalité de revenu.
Classification JEL : H2 ; H7 ; R11 ; R50

1. Introduction

Depuis le milieu des années 1980, les inégalités de revenu ont augmenté dans les pays en développement et atteignent un seuil qui suscite un regain d'intérêt croissant aussi bien auprès des décideurs politiques que des partenaires au développement (Banque mondiale, 2006). Dans cet intense débat, nombreux s'accordent sur l'importance de la fiscalité comme instrument de politique redistributive de revenu tant pour les gouvernements centraux que pour les collectivités territoriales (CT)[30]. En revanche, le niveau de gouvernement adéquat au sein d'un pays pour assurer cette fonction de redistribution porte, de plus en plus, à controverse.

Dans la littérature du fédéralisme budgétaire, il existe un relatif consensus sur le rôle prépondérant du gouvernement central dans l'exécution de la fonction de redistribution (Musgrave 1960; Musgrave 1970; Oates 1972). En effet, en présence de mobilité des facteurs de production, différentes politiques de redistribution sous la responsabilité des CT peuvent entraîner des distorsions (Prud'homme 1995). Les opérateurs économiques pourraient quitter les localités pratiquant une redistribution qui leur est défavorable, tandis que les pauvres y migreraient, détruisant ainsi la base de redistribution (Smoke 2001). Des études trouvent ainsi que l'impact de la décentralisation sur les inégalités de revenu dépend du degré auquel les populations sont disposées à changer d'emplacement en réponse aux impôts (Leigh 2008).

Pour les pays en développement où la mobilité-inter-juridictionnelle reste relativement faible (Bardhan 2002; Caldeira & Rota-Graziosi 2014), la littérature avance que la décentralisation peut contribuer à réduire les inégalités de revenu au sein des CT. Dans la mesure où la décentralisation rapproche les centres de décisions des contribuables et accorde un avantage informationnel aux gouvernements locaux (Neyapti 2006), elle peut permettre de réduire les

[30] Le terme collectivité territoriale correspond ici à celui des collectivités décentralisées.

inégalités de revenu au sein des juridictions à travers une fiscalité plus progressive (Weingast 1995).

Cependant, sous la pression de groupes politiquement puissants, la décentralisation notamment celle de la fonction de collecte de ressources fiscales peut conduire à une sous-utilisation du potentiel de recettes appartenant à ces groupes et ainsi, accentuer les inégalités de revenu (Bardhan 2002). Prud'homme (1995) montre, par exemple, que la recherche de rente par les élites locales peut compromettre la pertinence du principe de proximité de la décentralisation et constitue un frein au développement d'une fiscale locale progressive.

A la lumière de ces contradictions théoriques, les études appliquées fournissent des réponses mitigées. Alors que Meloche (2012) trouve un effet positif de la décentralisation budgétaire sur les inégalités dans le cadre des provinces canadiennes, Lessmann (2012) montre que les processus de décentralisation n'ont pas eu les effets escomptés en termes de réduction des écarts de revenu en Amérique latine à la différence des pays d'Europe de l'Est.

Les conséquences sur les inégalités de revenu, entre les ménages d'une même localité, du transfert de compétences du gouvernement central vers les collectivités décentralisées se révèlent complexes et dépendant de la structure propre à chaque pays. Il importe, de ce fait, d'analyser l'impact de l'autonomie financière des collectivités décentralisées sur les inégalités de revenu, en particulier dans le contexte des pays en développement pour plusieurs raisons: (i) Comprendre les déterminants des inégalités de revenu au niveau local est essentiel car la croissance économique et le bien-être de la population au sein d'un pays sont largement influencés par le niveau des inégalités de revenu (Barro 2000; Deininger & Squire 1996; Lambert 1993). (ii) Elles peuvent être les principales sources de tensions politico-ethniques (Deiwiks et al. 2012) et avoir des effets négatifs sur la stabilité sociopolitique (Cramer 2003). (iii) Par ailleurs, étant donné qu'un renforcement de l'autonomie financière des CT est encouragé pour une mise en œuvre efficace des politiques de lutte contre la pauvreté (Mondiale

mondiale 2016), il est primordial d'obvier les potentiels effets négatifs de la fiscalité locale sur les populations. (iv) De plus, l'analyse explorant la relation entre l'autonomie financière des CT et les inégalités de revenu peut être d'une grande utilité pour définir des politiques fiscales favorables aux plus pauvres. Il est aussi particulièrement important de comprendre s'il existe une hétérogénéité entre les collectivités d'un pays et d'identifier ses déterminants pour mieux orienter la mise en œuvre de politiques pertinentes de décentralisation.

Conscients de cet intérêt, les pays membres de l'Union économique et monétaire ouest-africaine (UEMOA) accordent une priorité accrue aux politiques de délégation de responsabilités aux collectivités décentralisées comme moyen de réduction des inégalités. Nombre de ces pays ont engagé des réformes visant à augmenter l'autonomie financière des CT à travers le rapprochement des centres de décision aux populations locales et à assurer un développement plus équitable.

En Côte d'Ivoire, en dehors des baisses survenues en 2004 (-18.5%) et en 2011 (-50%)[31], les recettes totales mobilisées par les communes ont connu une croissance régulière jusqu'en 2014, atteignant 58,6 milliards de francs CFA (DGDDL, 2014). Dans les communes de la ville d'Abidjan mobilisant près de 60% des recettes totales locales, les recettes propres ont eu un taux de croissance moyen de 5% entre 2001 et 2015 (Brun et Sanogo, 2017). Celles de l'intérieur du pays ont, quant à elles, réalisé en 2010 près de 30,1 milliards de francs CFA de ressources avant de chuter à 13,5 milliards 2011[32]. En dépit de ces avancées, les inégalités de revenu entre ménages sont restées plus élevées en Côte d'Ivoire que dans les pays de la sous-région (UNDP 2011), bien que la distribution des revenus soit devenue légèrement plus égalitaire avec un indice de Gini passant de 0,59 en 2002 à 0,53 en 2008.

[31] Ces baisses sont consécutives à des périodes d'intense conflit armé au plan national (Dabalen et al., 2012; Raleigh et al., 2010).

[32] Les graphiques A3, A4, A5 en annexe donnent plus de statistiques.

L'objectif de ce chapitre est d'analyser l'impact des recettes des communes sur les inégalités de revenu des ménages au sein des communes de Côte d'Ivoire. L'étude propose une évaluation comparée de l'effet des principales sources de financement, notamment les recettes fiscales et non-fiscales des communes ainsi que la dotation générale d'investissement et de fonctionnement. L'hypothèse principale testée est que l'impact sur les inégalités de revenu varie selon le type de recette et l'entité en charge de la collecte. En effet, le gouvernement central octroie le pouvoir de collecte aux CT principalement sur les recettes dont l'assiette repose sur les petites taxes, les recettes d'exploitation et des services. Ces recettes semblent être collectées en grande partie sur les couches de populations défavorisées. A contrario, les recettes fiscales composées d'impôts directes (impôts sur les propriétés bâties et non-bâties, contribution des patentes et licences, vignette)[33], collectées par le gouvernement central et rétrocédées aux CT, auraient un effet plus redistributif car évoluant avec la valeur du bien.

L'analyse appliquée utilise des données des 196 communes du pays sur la période 2001-2014, couvrant aussi bien la période du conflit que post conflit. Contrairement aux études précédentes sur la question, cette analyse utilise à la fois trois indicateurs des inégalités : l'indice de GINI, le coefficient de variation et l'indice de Theil, tous calculés au niveau local. Après avoir contrôlé l'endogénéité potentielle des recettes locales, les résultats économétriques révèlent que l'effet de la décentralisation sur les inégalités varie selon le type de recettes et l'entité en charge de la collecte. Il apparaît en effet que les impôts rétrocédés tendent à réduire les inégalités de revenu pendant qu'un accroissement des recettes non-fiscales propres contribue à accroitre les écarts de distribution de revenu. Ce résultat semble être expliqué par le fait que les recettes non-fiscales locales sont prélevées sur les petits commerces et les couches inférieures des populations. A contrario, les recettes d'impôt rétrocédées aux collectivités locales sont basées sur une matière imposable plutôt possédée en grande partie par les opérateurs économiques

[33] Voir Tableau 6 pour la composition détaillée des impôts et taxes locaux.

relativement plus riches. L'analyse fait ressortir par ailleurs l'existence d'une hétérogénéité régionale dans la relation entre ressources des collectivités et les inégalités locales. L'impôt rétrocédé semble avoir un effet statistiquement non significatif dans la zone anciennement occupée par la rébellion pendant la crise.

La suite du chapitre s'organise comme suit : La section 2 présente le cadre institutionnel de la décentralisation en Côte d'Ivoire. Quelques faits stylisés sont exposés dans la section 3. L'étude montre ensuite le modèle économétrique, sa justification et sa pertinence empirique ainsi que les données utilisées dans la section 4. Ensuite, dans une cinquième section, les résultats des estimations économétriques sont présentés. La dernière section conclut et fait des suggestions de politiques économiques.

2. Cadre institutionnel de la décentralisation en Côte d'Ivoire

2.1 Evolution du cadre institutionnel

Cette section présente l'évolution du cadre institutionnel du processus de décentralisation.

La décentralisation fiscale peut être assimilée à un processus de transfert progressif de compétences et de ressources du gouvernement central aux CT.

La reforme a commencé à partir de 1958 par l'institutionnalisation d'une structure de collectivités locales composée de trois types de communes : les communes de plein exercice, les communes de moyen exercice et les communes mixtes[34]. Le pays a maintenu cette structure de son accession à l'Indépendance en 1960 jusqu'en 1978. A partir de cette date, la constitution par la loi n° 78-07 du 09 janvier 1978 a institué, pour la première fois, un seul type de communes (commune de plein exercice) et en crée 26. En 1980, le gouvernement ivoirien a entrepris des

[34] Grand-Bassam, Abidjan et Bouaké avaient ainsi été érigés en communes. La commune mixte avait la particularité d'avoir des organes propres mais nommés par l'administration coloniale. Ce sont : un exécutif, un administrateur-maire et une assemblée délibérante (Manso, 2003).

réformes substantielles par la mise en œuvre de la loi n°80-1182 du 17 octobre 1980 qui fixe le statut particulier de la ville d'Abidjan ainsi que l'organisation et le régime électoral des municipalités. Elle institue, par ailleurs, la création de 11 nouvelles communes (dont Abidjan) portant le nombre de 26 communes à 37. Cette loi définit ainsi le cadre légal conduisant à l'organisation en novembre 1980 des premières élections municipales permettant la mise en place de 38 conseils municipaux comme organes délibérants de ces communes. A partir de 1985, dans le souci d'étendre le processus à l'échelle nationale, la loi n° 85-1085 du 17 octobre 1985 a été votée portant création de 98 nouvelles communes. Le nombre de communes est ainsi passé à 135. L'organisation de ces élections communales a marqué le démarrage effectif du processus de communalisation et de transfert de compétences aux collectivités décentralisées. Pour répondre à la demande croissante des citoyens de participer à la prise de décisions au niveau local, le gouvernement a créé 61 nouvelles communes par la loi n°95-941 du 13 décembre 1995 portant le nombre à 196 et ensuite à 197 en 1998 avec l'érection du village de Mayo en commune.

Ces réformes avaient pour objectif principal de pallier les défaillances de l'Etat central, par l'accroissement de l'efficacité de l'offre de biens et services publics et le renforcement de l'efficacité fiscale avec une amélioration de la collecte de ressources supplémentaires. La mobilisation de ressources locales propres garantit une certaine autonomie financière des collectivités locales leur permettant de disposer de ressources plus stables. Une meilleure stabilité des ressources contribue à renforcer l'efficacité des dépenses nécessaires à améliorer les conditions de vie des populations (Terreza, Seyte, Mussard, & Koubi, 2005). Dans le souci d'atteindre ces objectifs, l'amélioration de l'autonomie des CT a retenu une attention particulière dans la nouvelle constitution adoptée en 2000. Cette constitution prévoyait le principe de libre administration des CT et envisageait la création de trois nouveaux types de communes dotées de compétences spécifiques. Elle a également prévu l'extension des

responsabilités de ces entités décentralisées par un transfert accru des compétences de l'Etat à ces dernières. Ainsi, en 2002, 56 départements ont été érigés en collectivités décentralisées avec pour organe délibérant le conseil général (loi n°2001-477 d'aout 2001). Ces conseils généraux se sont vu assigner la responsabilité de conduire la politique de développement du département avec comme missions principales : la gestion de la voirie départementale et la réalisation de travaux d'équipement rural, la création et la gestion des infrastructures scolaires et sanitaires, la promotion du développement économique, social et culturel, la sécurité et la protection civile, l'environnement et la santé. Le district d'Abidjan a aussi été créé en 2001 suivi de celui de Yamoussokro en 2002. Ces districts ont essentiellement pour compétences de protéger l'environnement, gérer des ordures ménagères et autres déchets, faire la promotion et la réalisation des actions de développement économique, social et culturel (Ballo 2008). La loi n°2001-477 d'août 2001 a défini également la structure des entités décentralisées composée de 5 types de collectivités que sont la région, le district, le département, la ville et la commune. Depuis la mise en application de l'ordonnance°2011-262 du 28 septembre 2011 et de la loi n°2014-451 du 5 août 2014, le territoire national est réorganisé en 12 districts dont 2 districts autonomes, 30 régions, 95 départements, 497 sous-préfectures[35]. La loi précise aussi que les régions et les communes sont librement administrées et dotées de la personnalité morale et d'une autonomie financière.

2.2 La gestion pratique des ressources transférées aux CT

En ce qui concerne les transferts de compétence en mobilisation de ressources, deux lois définissent principalement les responsabilités des collectivités décentralisées : La loi n°2003-208 du 7 juillet 2003 portant transfert et répartition de compétences de l'Etat aux CT et la loi

[35] Le gouvernement a supprimé le district, la ville et le département en tant qu'entités décentralisées et retenu la région et la commune comme entités décentralisées (Ordonnance n°2011-262 du 28 septembre 2011 et loi n°2014-451 du 5 aout 2014).

n° 2003-489 du 26 décembre 2003 portant régime financier, fiscal et domanial des CT. De plus, la loi n° 2012-1128 du 13 décembre 2012 portant organisation des CT dote chacune des collectivités de la personnalité morale et de l'autonomie financière.

En effet, les ressources propres des CT sont composées essentiellement des recettes d'impôts rétrocédés dites recettes fiscales et les recettes d'origine non-fiscales.

Les CT tirent leurs recettes fiscales de quatre principales sources : (i) les impôts d'Etat dont le produit est attribué aux communes (impôt foncier), (ii) les impôts d'Etat rétrocédés aux communes (patentes, licences, impôt synthétique, vignette), (iii) les taxes communales perçues par voie de rôles (taxe de voirie et d'hygiène, la taxe sur le revenu net des propriétés bâties, la taxe forfaitaire des petits commerçants et artisans et la taxe sur les locaux loués en garnis, …) et (iv) les taxes communales perçues sur titres de recettes (taxe communale d'équipement, taxe sur les taxis,…). Ces ressources sont recouvrées par la direction générale des impôts (DGI) et rétrocédées aux CT. Les taux et l'assiette d'imposition ainsi que la clé de partition sont définis par le gouvernement central à travers la DGI et le Trésor public qui gère la trésorerie des collectivités décentralisées.

Les recettes non fiscales collectées par ces entités locales notamment les recettes de prestation de services. A côté de ces principales sources, les CT bénéficient des aides de l'Etat dont la dotation globale de fonctionnement et la dotation globale d'investissement contribuant de manière significative au budget de ces entités[36]. Le gouvernement central impose des plafonds sur les taux et les CT ne sont pas libres de définir leur assiette imposable de sorte que le degré d'autonomie se trouve amoindri. Cet encadrement des taux d'imposition permet néanmoins de limiter les éventuels abus sur la population locale. Le tableau 1 présente les principaux impôts et taxes locales ainsi que l'entité chargée de la collecte.

[36] La structure complète des recettes des CT est présentée en annexe.

Tableau 1 : Principaux impôts et taxes locales

	Impôt ou Taxe	Base d'imposition	Recouvrement/Entité	Bénéficière
RECETTES FISCALES (La CT ne peut instituer une taxe et impôt qui n'ait été préalablement établi)				
Impôts dont le produit est attribué aux communes	Contribution foncière des propriétés bâties	Valeur locative ou valeur vénale du local; par le Propriétaire	Etablie annuellement/Etat (receveur municipal)	Reversé aux CT
	Contribution foncière des propriétés non bâties	Valeur locative ou valeur vénale du local; par le Propriétaire		Reversé aux CT
	Surtaxe foncière sur les propriétés insuffisamment bâties	Valeur locative ou valeur vénale du local; par le Propriétaire		Reversé aux CT
	Contribution des patentes	Chiffre d'affaire		Reversé aux CT
	Contribution des licences	Chiffre d'affaire		Reversé aux CT
Taxes communales perçus par voie de rôle	Taxe forfaitaire des petits commerçants et artisans	Personne physiques définie selon la loi 94-201 du 8 avril 1994	Etablie mensuellement ou quotidiennement/Etat	Collectivité locale
	Taxe sur les locaux loués en garnis	Valeur locative réelle		Collectivité locale
Taxes communales perçus sur titres de recettes par les communes	Taxe sur les pompes distributrices de carburants	Par bouche (entre 2500 f à 10000 f)	Etablie mensuellement/commune (Trésorier municipal)	Collectivité locale
	Taxe sur les charrettes	Par charrette (entre 1000f à 2000f		
	Taxe sur les spectacles et galas	10% de la recette brute		
	Taxe sur les établissements de nuit	Entre 1000f à 40000f		
	Taxe sur les taxis	Par taxi de 5000f à 10000		
	Taxe sur la publicité	Variable entre 50f à 10000f selon la population de la commune		
RECETTES DES PRESTATIONS ET SERVICES ((La CT peut instituer une taxe et impôt qui n'ait été préalablement établi mais certains taux sont encadrés par l'Etat)				
Recettes des services généraux	Légalisation de signatures et certifications Délivrance de livrets de famille et autres documents Autres recettes de prestations et services au titre de l'industrie et du commerce	A l'unité et variable selon le service	Commune	Commune
Recettes des services de collectivité	Taxes ou redevances de bornage	Superficie et selon le quartier	Commune	Commune
	Taxe d'enlèvement des ordures ménagères Taxes d'inspection sanitaire des produits alimentaires Autres recettes de prestations et services au titre de l'urbanisme, l'environnement	A l'unité et variable selon le produit		
Recettes des services sociaux, culturels et de promotion humaine	Administration des activités culturelles Autres recettes des services sociaux, culturels	A l'unité et variable selon le service	Commune	Commune
Recettes des services économiques	Transports et des communications Transports-Gares routières-stationnement de taxis	A l'unité et variable selon le service	Commune	Commune
	Abattoirs, conservation et transports de viande Marchés		Commune	Commune

En pratique les émissions de rôles des impôts rétrocédés sont effectuées par la DGI avec l'appui de la CT[37]. Cependant, un cadre de collaboration des services des impôts et des CT en matière de gestion de ces impôts rétrocédés est explicitement défini dans le code fiscal des CT. Le

[37] Les rôles sont les listes de contribuables passibles de l'impôt établies par l'administration fiscale et comportent pour chaque contribuable son identification, la nature de l'impôt, les bases et les taux d'imposition, le montant à payer et le bénéficiaire. A travers les émissions des rôles, l'administration fiscale notifie la créance sur le contribuable.

gouvernement a obligation d'informer et de mettre à disposition chaque CT toutes les données fiscales locales notamment les rôles émis, la situation des dépenses fiscales résultant des exonérations, les remises et dégrèvements d'impôts assis sur le territoire de la CT. Cette dernière prend en retour, toutes dispositions utiles pour aider la DGI à recouvrer les restes. Ces dispositions visent entre autres à permettre une meilleure prévisibilité des recettes d'impôts rétrocédés. S'il ressort que les CT jouent leur part de responsabilité en ce qui concerne l'assistance de la DGI pour les travaux d'émission des rôles et de recouvrement desdits impôts[38], les informations relatives aux résultats des rôles émis et aux dépenses fiscales sont exclusivement détenues par la DGI, en violation des dispositions légales susmentionnées. Par exemple, des communes mettent à disposition aussi bien des agents que du matériel (moyens logistiques) d'appui aux services des impôts pour mobiliser les ressources de leur circonscription. Cependant, ces communes ne disposent pas en retour des informations nécessaires sur les recouvrements mensuels pour appliquer la quotité qui leur revient de droit. Certaines communes telles que Bouaké, Daloa et Youpougon constituent une parfaite illustration de ce déficit de partage d'information qui suscitent l'ombre d'une gestion opaque de la fiscalité locale et d'une probable rétention des recettes des CT par la DGI. Ainsi, le cadre de collaboration bien organisé par les textes est inexistant en pratique et les CT disposent de très peu de possibilités de concertation avec l'Etat sur les finances locales, tout cela corroboré par une faible capacité de négociation des élus locaux. L'instauration de rencontres régulières d'échange d'information avec les services financiers des CT, la DGI et le Trésor publique permettrait de renforcer la mobilisation locale et partant l'autonomie des CT. Cela améliorerait leur marge de manœuvre en matière de suivi et leur motivation dans la collecte comme le disait la directrice du service financier de la Mairie de Daloa «*Pour améliorer la mobilisation des*

[38] Les communes de Daloa et Bouaké participent à la collecte de l'impôt local avec respectivement, environ 10 et 25 agents municipaux mis à la disposition de la DGI ainsi que du matériel logistique.

recettes d'impôts rétrocédés, il importe d'organiser mensuellement dans chaque commune des rencontres d'échanges d'information sur la base fiscale et le montant globale collecté entre les services des impôts et celles de la mairie…. ».

Une tentative de renforcement de cette collaboration a été introduite à travers l'arrêté n°2811 du 03 novembre 2011 portant création, organisation et fonctionnement des comités de Trésoreries dans les CT[39]. Six années après la publication de ce texte réglementaire, peu de CT ont mis en place leur comité de Trésorerie et celles qui l'ont créé peinent à le faire fonctionner convenablement. Ces comités regroupant à la fois des représentants de la DGI, du Trésor publique et de la comptabilité publique, et des CT devraient être présidé par l'autorité exécutive de la CT, à savoir le Gouverneur du District, le président du conseil ou le maire, et se réunir une fois par mois.

2.3 L'évolution des réformes de la clé de répartition de l'impôt rétrocédé

Les recettes d'impôts rétrocédées aux CT suivant une clé de répartition définie par le gouvernement central. Cette clé a fait l'objet de plusieurs réformes depuis sa première application[40].

Avant 2014, le produit des impôts partagés était reparti entre l'Etat et les CT selon les quotités prédéfinies et concernait les impôts présentés dans le tableau 2 ci-dessous[41]:

[39] L'arrêté n°2811/MEMI/DGDDL/DTE

[40] Loi n°2004-271 du 15 Avril 2004, annexe fiscale (art 36) ; Ordonnance n° 20086381 du 18 décembre 2008, annexe fiscale (art 23-3/4); Ordonnance n° 2011-09 du 13 janvier 2011, annexe fiscale (art 37-3); Ordonnance n° 2011-480 du 28 décembre 2011, annexe fiscale, art.34; Loi n°2012-1179 du 27 décembre 2012, annexe fiscale (art.30); Loi n°2013-908 du 26 décembre 2013, annexe fiscale (art.27).

[41] En plus de cette répartition, le produit sur le revenu foncier est reversé en totalité à l'Etat. 60% du produit de la taxe d'habitation est retenu par l'Etat et affectés à un fonds commun destiné à soutenir les communes.

Tableau 2 : Règle de répartition des impôts rétrocédés jusqu'en 2014

Type d'Impôt		Règle de Répartition					
		Communes	Villes	Districts	Départe ment	Régions	Etat
Les impôts d'Etat ristournés aux communes	Patentes et Licences	40%	5%	5%	25%	15%	10%
	Impôt Synthétique	40%	no	no	25%	10%	15%
	Taxe spéciale sur les véhicules à moteur (Vignette)	20%	5%	10%	30%	15%	20%
	Jeux Casino	néant	néant	100%	néant	néant	néant
les impôts d'Etat dont le produit est attribué aux communes (impôt foncier)	Contribution foncière des propriétés bâties	40%	5%	5%	25%	15%	10%
	Contribution foncière des propriétés non-bâties	40%	5%	5%	25%	15%	10%
	Taxe d'habitation	40 %	néant	néant	néant	néant	60 %
	Taxe de voirie, d'hygiène et d'assainissement	40 %	5 %	5 %	25 %	15 %	10 %

Source : DGI-Côte d'Ivoire

L'observation de la clé révèle qu'un pourcentage relativement faible est attribué aux communes. En effet, seulement 40% des recettes d'impôts sont rétrocédés aux communes excepté la taxe spéciale sur les véhicules à moteur (vignette) dont 20% leurs est reversé. Les communes sont les seules entités à disposer de « territoire physique » bien déterminé avec un pouvoir de lever des taxes et impôts locaux et des services de collecte. Cette quotité apparait de ce fait insuffisante et limite l'autonomie financière des administrations communales. La clé de répartition apparaît par ailleurs inadaptée au découpage administratif en vigueur. Elle réserve par exemple 25% des impôts aux départements alors que ces entités ont été supprimées par l'Ordonnance n°2011-262 du 28 septembre 2011. Dans la pratique, la quotité réservée des départements est rétrocédée aux districts qui n'effectuent pourtant pas d'activités de mobilisation d'impôts locaux. Ces incohérences en matière de partition conjuguées à la multiplicité des lois et décrets peuvent favoriser le non-respect des compétences des CT et limiter leur autonomie financière.

En ce qui concerne l'identification de l'impôt au niveau local, les communes peinent à suivre le processus dû, souvent à une volonté manifeste de la DGI de dissocier l'administration locale et aussi la capacité limitée de certaines administratives.

Toutefois, cette règle de répartition présentait quelques avantages. Premièrement, elle contribuait à renforcer la stabilité des recettes locales des communes qui s'en servaient pour faire des prévisions de recettes grâce aux pourcentages prédéfinis. Deuxièmement, le mode de

rétrocession qui consiste à attribuer le produit aux communes sur les territoires desquelles il est levé, renforce l'incitation des communes à accroitre leur effort de mobilisation.

Le tableau 3 présente la distribution des principaux impôts rétrocédés en 2012. On y observe que la règle de répartition est globalement respectée pour les communes qui reçoivent environ 40% des recettes de patentes et 20% des vignettes conformément à la clé de distribution. Cependant, les recettes d'impôts synthétiques[42] et d'impôts fonciers s'avèrent légèrement inférieures aux taux préalablement établis et s'élèvent respectivement à 37% et 38,57%. Par ailleurs, des parts significatives des recettes provenant des vignettes et du foncier (22,34% et 9%) sont affectées à des fonds spéciaux tel que le fond d'entretien routier (FER), le fond d'entretien ordure et le fond d'assainissement qui sont tous gérés par l'Etat et contribuent ainsi à limiter l'autonomie des communes. Quant aux parts de l'Etat, le tableau montre que les montants sont légèrement supérieurs à celles prévues. Les patentes sont reversées à 25% et les recettes d'impôt synthétique à 52,49% à l'Etat. Cela pourrait s'expliquer par les dispositions stipulant que l'Etat bénéficie de la quotité devant être allouée à la région si celle-ci n'existe pas. Cette analyse met en évidence le besoin d'adapter régulièrement la clé de répartition au découpage administratif en vigueur.

Tableau 3 : Distribution des principaux impôts rétrocédés en 2012

Entité*	Patente	Impôt synthétique	Vignette	Foncier
Etat Central	9758,39	2715,5	1756,24	11727,89
	(25,24)	(52,49)	(16,49)	(26,01)
District	10730,18	441,53	3394,18	10269,54
	(27,75)	(8,53)	(31,89)	(22,78)
Département	2735,88	101,68	976,57	1536,05
	(7,07)	(1,96)	(9,17)	(3,41)
Communes	15430,73	1914,19	2138,67	17387,6
	(39,91)	(37)	(20,09)	(38,57)
Autres affectations**	0	0	2378,31	4164,51
	(0)	(0)	(22,34)	(9,24)
Total	(100)	(100)	(100)	(100)

***Base de données-Millions de Franc CFA sauf mention contraire ; pourcentage de recette affecté à chaque entité entre parenthèse.**
**** Fond d'Entretien Routier (FER), ACCT/ORG Ordure, Assainissement**

[42] L'impôt synthétique est un prélèvement sur le chiffre d'affaire (CA) au taux de 3% des entreprises réalisant un CA inférieur à 50 millions.

Source : Calcul de l'auteur à partir des données de la DGI

En 2014, l'Etat a pris l'arrêté n°285 du 21/07/2014, portant modification des modalités de répartition des impôts rétrocédés aux CT. Cet arrêté stipule que le produit des impôts d'Etat alloués aux collectivités sera reversé dans une caisse unique et redistribué selon de nouvelles quotes-parts[43], et non plus attribué à la CT du territoire sur lequel l'impôt a été levé. Ces reformes effectués de façon unilatérale par l'Etat, violent le principe de territorialité de l'impôt et érodent le produit des recettes fiscales destinées aux CT. Nombre de CT dénonce ces réformes qui sont de nature à : (i) démotiver les services de collecte à apporter l'appui nécessaire à la DGI et (ii) réduire considérablement leurs ressources. Ces reformes rompent le lien entre les ressources disponibles et les prestations de services publics locaux. Les citoyens perdent ainsi leur pouvoir de contrôle et de sanction et ne sont plus à même d'apprécier l'efficacité de la politique publique locale.

L'Etat a ensuite procédé en 2015, à des reformes visant à améliorer le service public local et la mobilisation des ressources locales avec notamment : (i) la création de l'Agence Nationale de Salubrité Urbaine (ANASUR) intégrant le groupe de bénéficiaires des quotes-parts d'impôts rétrocédés au détriment des CT. Ainsi, la taxe de voirie et d'assainissement préalablement rétrocédée à 40% aux CT, revient désormais à 100% à l'ANASUR qui bénéficie en plus de 25% de l'impôt sur le patrimoine foncier; (ii) la centralisation au niveau national de la perception de la taxe spéciale sur les véhicules à moteur, initialement reversée aux CT. Ces reformes n'ont cependant pas été suivies d'une compensation de l'Etat aux CT ou d'une quote-part complémentaire comme le prévoit la loi 2003-489 en son article 113.

Tableau 4 : Clé de répartition des impôts rétrocédés après 2014

[43] 44% pour les communes d'Abidjan, 18% pour les communes de l'intérieur du pays ; 13% pour les régions et 25% pour les districts autonomes.

Impôts Rétrocédés	Avant 2014			En 2014 (arrêté interministériel n°285/MEMIS/MPMEF/MPMB du 21/07/2014)					
	Commune	Autre CT	Etat	Commune	Région	Fonds d'entretien routier	Organisme en charge de l'assainissement et du drainage	Organisme en charge de la gestion des ordures ménagères	Etat
Impôt sur le patrimoine foncier	43%	57%	0%	35%	30%	0%	10%	25%	0%
Impôt sur le revenu foncier									100%
Impôt foncier sur les exploitations agricoles				30%	60%				10%
Patentes et licences	40%	45%	15%	45%	15%	25%			15%
Impôt synthétique	40%	10%	50%	40%	10%				50%
Taxe spéciale sur les véhicules à moteur	20%	60%	20%	25%	25%	40%			10%
Taxe de voirie d'hygiène et d'assainissement	40%	50%	10%					100%	
Taxe d'habitation	40%		60%	40%					60%

Source : Annexes fiscales aux Lois de Finances et textes réglementaires

En ce qui concerne les recettes non-fiscales, elles sont constituées des recettes tirées des prestations et services que les collectivités rendent à leurs administrés et celles de l'exploitation de leur domaine.

Les ressources des prestations de services sont composées des recettes des différents services municipaux : services généraux, services sociaux, services économiques, services culturels et de promotion humaine. Quant aux revenus du patrimoine et de portefeuille, il s'agit des locations de terrains, d'immeuble du domaine privé, les revenus des biens communaux, des revenus de placement à terme et les revenus du patrimoine et de portefeuille et enfin des produits d'aliénation des biens du patrimoine et du portefeuille. Ces ressources concernent les taxes rémunératoires et les redevances qui sont la rétribution d'un service individualisé, les revenus du patrimoine et de portefeuille notamment les baux et les produits d'aliénation des biens du patrimoine et du portefeuille.

Ces recettes sont sous l'entière responsabilité des autorités locales qui fixent les taux et en assurent le recouvrement, contrairement aux impôts rétrocédés[44]. La législation autorise

[44] La fixation des taux de prélèvement est souvent encadrée par des taux planchés définis par l'Etat et varie selon la nature de la taxe.

également les CT à instituer certaines taxes perçues sur titre de recettes dont le recouvrement est assuré par les services municipaux notamment la taxe communale d'équipement, la taxe sur les taxis, etc. Si ces dispositions accordent une marge d'action pour améliorer la mobilisation locale, il n'en demeure pas moins que la base de ces ressources demeure restreinte. Le gouvernement central octroie un pouvoir élargi aux communes sur des taxes dont le rendement potentiel est si faible au regard des besoins locaux, que la ressource est très insuffisante pour assurer une véritable autonomie financière. Le tableau 5 récapitule l'exercice de l'autonomie des CT.

Tableau 5 : Récapitulatif de l'autonomie des CT

Exercice de l'autonomie	Les ressources des prestations de services	Impôts Rétrocédés
(a) Les CT déterminent le taux d'imposition et la base fiscale	**Oui**	Non
(b) Les CT déterminent le taux d'imposition uniquement	-	Non
(c) Les CT déterminent la base fiscale uniquement	-	Non
(d) Le rétrocession des impôts locaux:		
(d.1) Les CT déterminent la clé de répartition	-	Non
(d.2) la clé de répartition est modifiée uniquement avec le consentement des CT	-	Non
(d.3 la clé de répartition est modifiée de manière unilatérale par le gouvernement central	-	**Oui**
(d.4) Le gouvernement central détermine le taux d'imposition et la base fiscale	-	**Oui**

Source : Auteur sur la base du model OCDE (1999)

3. Faits stylisés : La ville de Daloa

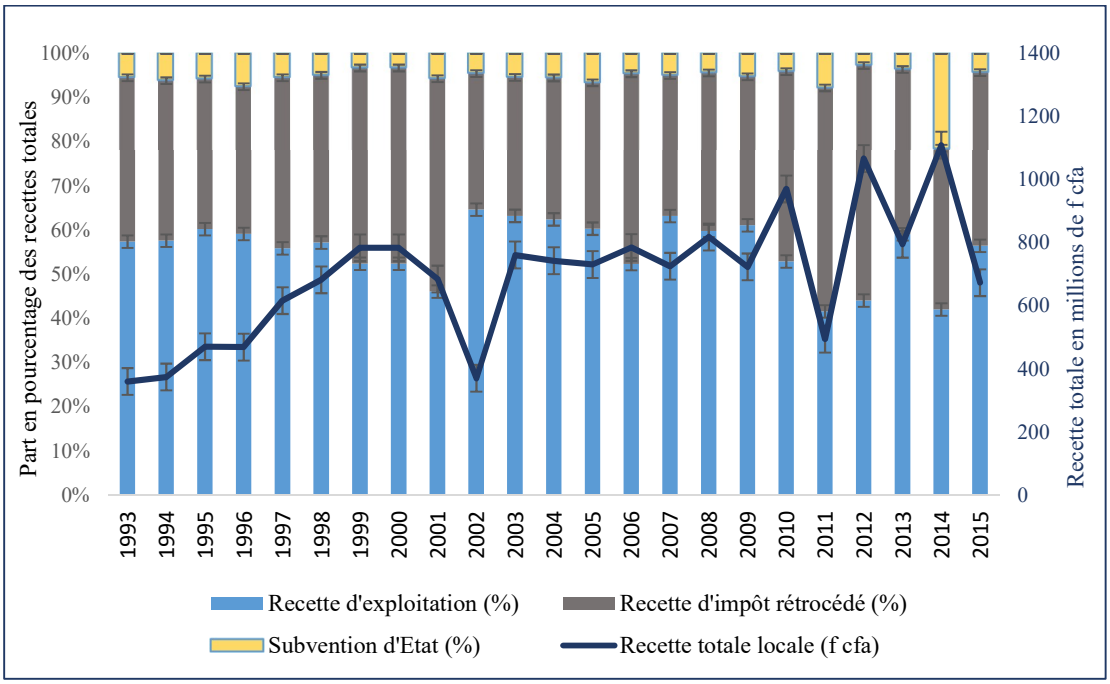
Cette section présente les faits stylisés de la commune de Daloa[45]. Cela permet d'illustrer l'évolution et la structure des recettes locales, représentative des communes du pays.

Le graphique 1 présente l'évolution des recettes totales ainsi que leur composition de la commune de Daloa de 1993 à 2015. Il apparait que les recettes totales ont connu une croissance régulière marquée par une forte chute consécutive au début de la crise qu'a connu le pays en

[45] Le choix de la commune de Daloa est motivé par la disponibilité de données qui plus fournies. Voir l'annexe pour les spécificités de la ville de Daloa.

2002 et de la crise poste électorale de 2011. On constate également une forte instabilité de la recette totale après 2011. Cela pourrait s'expliquer en partie par une chute des recettes d'impôts rétrocédés et d'une grande variabilité des subventions d'Etat. Le graphique montre, par ailleurs, que les recettes de la commune sont composées principalement des recettes d'exploitation, de prestations de services et du patrimoine qui représentent en moyenne 55% des recettes totales. Les recettes fiscales viennent en deuxième position avec l'impôt rétrocédé représentant en moyenne 35% des recettes totales. La troisième source est composée des subventions de l'Etat avec moins de 10% en moyenne des recettes totales. Ces subventions sont composées de la dotation globale de fonctionnement et autres subventions pour la période 1993 à 2001 et de la dotation globale de fonctionnement et d'investissement pour la période 2001 à 2015. La contribution de ces ressources a connu une légère augmentation après la crise poste électorale de 2010 pour atteindre 19% en 2014. Cela pourrait s'expliquer par la baisse de recettes d'impôts rétrocédés due à l'arrêté n°285 du 21/07/2014 abordé dans la section précédente. Toutefois, l'évolution décrite dans ce graphique masque de fortes spécificités dans l'évolution des taxes et impôts de chaque type de ressource.

Graphique 1 : Structure des recettes de la commune de Daloa de 1993 à 2015



Source : Calcul de l'auteur à partir des données de la mairie de Daloa

La répartition de la ressource totale entre les différents types de recettes est relativement stable sur la période (Tableau 6). Néanmoins, globalement la part des recettes des prestations et services collectées exclusivement par la commune a légèrement augmenté au détriment des recettes fiscales. Cette hausse proviendrait d'un effort significatif de mobilisation des recettes des services économiques. Celles-ci ont connu une augmentation continue depuis 2013. La mise en application de l'arrêté interministériel n°285 du 21/07/2014 engendre progressivement des pertes sur les principaux impôts concernés. Par exemple, la contribution des patentes a chuté de 5% à 1% des recettes totales et celle des licences est devenue nulle à partir de 2014.

Le tableau 6 révèle également un déséquilibre dans la composition des recettes de la commune. Il apparaît par exemple que les recettes de fiscalité rétrocédées aux communes ont joué un rôle beaucoup plus important que les recettes non-fiscales. L'impôt foncier composé de la contribution foncière des propriétés bâties, la contribution foncière des propriétés non bâties, et la surtaxe foncière sur les propriétés insuffisamment bâties représentent près de 49% en 2016. De plus, la part de ces impôts a connu une hausse allant de 3,1 points pour la contribution

foncière des propriétés bâties à 1,3 point pour la contribution foncière des propriétés non bâties. Dans la mesure où ces impôts rétrocédés sont collectés par les services des impôts et disposent d'un fort potentiel, la faible collaboration, entre les différents services, abordée dans la section précédente peut constituer un véritable préjudice au renforcement de la mobilisation de ressources locales. Par ailleurs, plusieurs impôts et taxes restent inexploités au niveau local (voir structure complète en annexe).

Tableau 6 : Evolution des recettes fiscales et non-fiscales de la commune de Daloa de 2010 à 2016, en pourcentage des recettes totales locales.

RECETTES COMMUNALES EN POURCENTAGE DES RECETTES TOTALES*							
	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
RECETTES FISCALES							
Contribution foncière des propriétés bâties	15,75	19,22	31,60	37,49	40,10	39,80	48,86
Contribution foncière des propriétés non bâties	0,37	0,46	0,75	0,89	0,95	0,84	0,25
Surtaxe foncière sur les propriétés insuffisamment bâties	1,50	1,83	3,01	3,57	3,82	3,35	0,99
Taxes des biens de main morte	1,12	1,37	2,26	2,68	2,86	2,52	0,75
Contribution des patentes	16,44	12,00	10,55	7,08	4,28	1,96	0,78
Contribution des licences	0,51	0,37	0,32	0,22	0,13	0,00	0,00
Sous-total 1 : Impôts dont le produit est attribué aux communes	**35,70**	**35,25**	**48,49**	**51,94**	**52,15**	**48,47**	**51,62**
Taxe forfaitaire des petits commerçants et artisans	16,69	15,01	10,99	7,47	4,57	13,80	12,22
Taxe sur les locaux loués en garnis	0,73	1,27	0,12	0,04	0,01	0,00	0,00
Sous-total 2 : Taxes communales perçus par voie de rôle	**17,42**	**16,29**	**11,10**	**7,51**	**4,58**	**13,80**	**12,22**
Taxe sur les pompes distributrices de carburants	0,11	0,00	0,07	0,05	0,03	0,37	0,39
Taxe sur les charrettes	1,84	1,60	1,44	1,07	0,71	1,00	0,92
Taxe sur les spectacles et galas	0,00	0,00	0,00	0,00	0,00	0,04	0,01
Taxe sur les établissements de nuit	0,03	0,14	0,07	0,09	0,11	0,06	0,03
Sous-total 3 : Taxes communales perçus sur titres de recette propre aux communes	**1,98**	**1,74**	**1,58**	**1,21**	**0,85**	**1,47**	**1,36**
Taxe sur les taxis	1,78	0,85	0,81	0,45	0,23	2,00	1,97
Taxe sur la publicité	1,08	0,00	0,70	0,47	0,29	0,00	0,06
Sous-total 4: Taxes communales perçus sur titres de recettes par les communes	**2,85**	**0,85**	**1,50**	**0,93**	**0,52**	**2,00**	**2,02**
RECETTES DES PRESTATIONS ET SERVICES ET SERVICES							
Légalisation de signatures et certifications	0,45	0,93	1,00	1,25	1,41	0,45	0,55
Délivrance de livrets de famille et autres documents	3,52	3,26	2,08	1,34	0,78	4,12	4,50
Autres recettes de prestations et services au titre de l'industrie et du commerce	0,10	0,20	0,14	0,14	0,12	0,27	0,32
Taxe de séquestre	0,06	0,01	0,01	0,00	0,00	0,01	0,03
Sous-total 1 : Recettes des services généraux	**4,13**	**4,41**	**3,23**	**2,73**	**2,31**	**4,85**	**5,41**
Taxes ou redevances de bornage	1,07	8,04	0,92	0,71	0,50	0,01	0,03
Autres recettes de prestations et services au titre de l'urbanisme, l'environnement	0,14	0,72	0,35	0,47	0,56	0,58	0,49
Taxe d'enlèvement des ordures ménagères	1,41	1,27	5,87	10,03	15,44	0,00	0,00
Taxes d'inspection sanitaire des produits alimentaires	0,16	1,19	0,37	0,47	0,55	0,10	0,08
Inhumations et exhumations	0,13	0,00	0,08	0,05	0,03	0,08	0,07
Concessions de sépultures	0,12	0,24	0,18	0,19	0,18	0,12	0,18
Sous-total 2 : Recettes des services de collectivité	**3,02**	**11,45**	**7,77**	**11,92**	**17,25**	**0,88**	**0,85**
Administration des activités culturelles	0,01	0,00	0,00	0,00	0,00	0,02	0,04
Centres Culturels	0,05	0,00	0,01	0,00	0,00	0,07	0,03
Autres recettes de prestations et services au titre des activités culturelles	0,11	0,03	0,07	0,05	0,03	0,01	0,03
Autres recettes des services sociaux, culturels	0,02	0,00	0,02	0,01	0,01	0,07	0,07
Sous-total 3: Recettes des services sociaux, culturels et de promotion humaine	**0,18**	**0,03**	**0,09**	**0,06**	**0,04**	**0,16**	**0,17**
Administration des transports et des communications	0,52	0,56	0,40	0,29	0,19	0,56	0,38
Transports par routes-Gares routières-stationnement de taxis	6,82	5,32	4,67	3,24	2,02	0,11	0,07
Autres recettes de prestation et service au titre des transports	0,47	0,13	0,00	0,00	0,00	0,14	0,05
Abattoirs, conservation et transports de viande	0,45	0,61	0,27	0,17	0,10	0,34	0,29
Marchés	12,92	16,20	8,38	5,66	3,44	15,10	14,13
Autres recettes de prestations et services au titre de l'industrie et du commerce	0,00	0,00	0,00	0,00	0,00	0,03	0,01
Sous-total 4 : Recettes des services économiques	**21,19**	**22,84**	**13,72**	**9,36**	**5,76**	**16,29**	**14,91**
REVENUS DU PATRIMOINE ET DU PORTEFEUILLE							
Baux à loyer	2,90	3,37	1,93	1,32	0,81	2,62	2,51
Droits de pacage	0,04	0,02	0,01	0,01	0,00	0,01	0,01
Occupations sur permissions administratives	2,55	2,55	1,41	0,88	0,49	0,70	0,29
Concessions sur accord conventionnel	0,00	0,04	0,03	0,00	0,00	0,51	0,36
Droits de dépôts temporaires	0,01	0,01	0,02	0,03	0,05	0,00	0,00
Sous-total : Revenus du patrimoine immobilier	**5,49**	**5,99**	**3,41**	**2,24**	**1,36**	**3,85**	**3,17**
AIDE DE L'ETAT, FONDS DE CONCOURS, AIDES EXTERIEURES							
Sous-total 1 : Dotation globale de fonctionnement	2,27	0,00	2,56	2,28	1,82	3,66	2,43
Sous-total 2 : Subventions d'équipement de l'Etat	2,02	0,77	6,53	9,84	13,36	4,49	5,76
RECETTES DIVERSES							
Amendes forfaitaires	0,00	0,00	0,00	0,00	0,00	0,00	0,08
Autres versements (ristournes des patentes par anticipation, vignettes autos)	3,74	0,40	0,00	0,00	0,00	0,08	0,00
Sous-total : Recettes diverses	**3,74**	**0,40**	**0,00**	**0,00**	**0,00**	**0,08**	**0,08**
TOTAL	**100**	**100**	**100**	**100**	**100**	**100**	**100**

*Sont exclues, toutes les recettes dont la contribution est nulle sur toute la période 2010-2016. La structure complète est présentée en annexe
Source : Calcul de l'auteur à partir de données de la mairie de Daloa

4 Méthodologie

4.1 Données et mesures des principales variables

a. Mesure des indicateurs d'inégalités de revenu

La littérature a mis en évidence la difficulté à mesurer les inégalités de revenu au sein d'un pays ou d'une localité (Lessmann 2009; Meloche 2012). La première difficulté réside dans le choix de l'indicateur économique adéquat servant de base de calcul. Les études macroéconomiques utilisent par exemple le revenu régional par tête tel que le PIB par tête, les revenus personnels ou les revenus d'emploi (Rodríguez-Pose & Ezcurra 2010; Lessmann 2009). Quant aux études relatives à un seul pays, les revenus totaux par habitant sont couramment (Meloche 2012). Ces revenus sont approximés dans les enquêtes Niveau de Vie des Ménages (ENV) par la dépense agrégée par individu ou ménage enquêté. Cette étude se limite à utiliser cette variable comme base de calcul des inégalités car le revenu des individus n'est pas disponible au niveau des collectivités décentralisées de Côte d'Ivoire. La deuxième difficulté provient de la définition du niveau de découpage territorial adéquat. Il importe de choisir le niveau de collectivités décentralisées qui permettrait d'avoir les unités les plus homogènes possibles. A cet égard, le niveau du département est retenu dans le cadre de la cadre de cette étude. En ce qui concerne les différents indicateurs de mesure, trois mesures de dispersion des revenus sont généralement retenues dans la littérature. Il s'agit de l'indice de Gini, du coefficient de variation et de l'indice de Theil. Ces indicateurs ont la particularité de satisfaire aux principes de Pigou-Dalfon[46]. L'objectif est de mesurer les inégalités entre les individus sur la base de leur localité de résidence.

[46] Les principes de Pigou-Dalfon : la garantie d'anonymat des individus, le principe de transfert qui stipule la baisse des inégalités lorsqu'un transfert de revenu est effectué d'une personne riche vers une personne pauvre, et la normalisation i.e. que l'indicateur est compris entre 0 et 1.

L'indice de Gini

Soit une population mère N, où prévalent n unités de revenu : $y_i(i = 1, \dots, n)$, et μ la moyenne des revenus. L'indice de Gini global $Gini$, compris entre 0 et 1, mesure les différences moyennes de revenu entre les individus de la population mère P. Il caractérise l'intensité des inégalités à l'intérieur de N . Le coefficient de Gini s'écrit sous la forme :

$$Gini = \frac{\sum_{i=1}^{n} \sum_{r=1}^{n} |y_i - y_r|}{2n^2 \mu}$$

L'indice de Gini mesure l'écart moyen de revenu (en pourcentage de la moyenne) entre deux individus tirés au hasard dans N. Plus l'indice de $Gini$ se rapproche de 1 et plus la répartition des revenus est inégalitaire. Inversement, il se rapproche de 0 lorsque la répartition est égalitaire. Plusieurs autres méthodes statistiques permettant l'évaluation empirique des inégalités de revenu ont depuis été mises en évidence notamment les mesures comme l'entropie généralisée (GE) ou l'indicateur d'Atkinson[47] (Terreza et al. 2005).

Indices de l'entropie généralisée

L'étude retient l'indice de Theil et le coefficient de variation. De manière générale, l'indice de l'entropie généralisée GE se présente comme suit :

$$GE(\sigma) = \frac{1}{\sigma(\sigma - 1)} \left[\frac{1}{n} \sum_{i=1}^{n} \left(\frac{y_i}{Y} \right)^{\sigma} - 1 \right] \; pour \; \sigma \neq 0 \; et \; \sigma \neq 1$$

Avec σ, le paramètre qui permet de modifier la sensibilité de l'indice à l'une ou l'autre des extrémités de la distribution. Plus σ est grand, plus l'indice sera sensible aux changements en haut de la distribution et vice versa. Y est le revenu moyen des individus de l'échantillon.

L'indice de Theil fait partie de la famille des indices d'entropie généralisée pour le cas où $\sigma = 1$

$$GE(1) = Theil = \sum_{i=1}^{n} \frac{y_k}{Y} \log\left(\frac{N y_i}{Y}\right)$$

[47] Voir Atkinson (1970) pour le fondement théorique.

Le coefficient de variation n'appartient cependant pas à la famille de l'entropie généralisée, mais peut être obtenu à partir de l'indice d'entropie généralisée pour le cas où $\sigma = 2$ i.e. $GE(2)$. Le coefficient de variation peut ainsi être vu comme une mesure relative d'inégalité.

$$CV = [2GE(2)]^{1/2}$$

Ces trois indicateurs sont tous calculés pour les 58 départements de Côte d'Ivoire à partir de la série d'enquêtes du niveau de vie des ménages (ENV2002 2002; ENV2008 2008; ENV2015 2015)[48]. Plusieurs autres variables explicatives seront calculées à partir des données ENV pour contrôler le potentiel économique et social de chaque commune telles que le taux d'éducation, la part du secteur informel, la valeur ajoutée agricole, etc.

Le tableau 7 présente ces mesures d'inégalités pour les années d'enquêtes 2002, 2008 et 2015 pour les 58 départements de Côte d'Ivoire.

[48] Ces enquêtes sont effectuées par l'Institut national de statistique (INS) en partenariat avec la Banque mondiale.

Tableau 7 : Mesures d'inégalités à partir des données ENV 2012, 2008 et 2015

Département	Indice de Gini			Coefficient de Variation			Coefficient de Theil		
	2002	2008	2015	2002	2008	2015	2002	2008	2015
ABENGOUROU	0,40	0,38	0,38	0,86	0,81	0,79	0,27	0,25	0,25
ABIDJAN	0,50	0,38	0,38	1,29	0,83	0,83	0,47	0,26	0,26
ABOISSO	0,51	0,38	0,38	1,65	0,80	0,80	0,56	0,25	0,25
ADIAKE	0,36	0,32	0,33	0,82	0,63	0,71	0,24	0,18	0,19
ADZOPE	0,37	0,33	0,36	0,79	0,71	0,71	0,24	0,19	0,21
AGBOVILLE	0,40	0,36	0,41	0,80	0,71	1,14	0,26	0,21	0,34
AGNIBILEKRO	0,36	0,41	0,40	0,78	1,14	0,88	0,23	0,34	0,28
ALEPE	0,35	0,36	0,36	0,74	0,70	0,72	0,21	0,21	0,23
BANGOLO	0,40	0,40	0,37	0,82	0,90	0,72	0,27	0,28	0,23
BEOUMI	0,29	0,36	0,35	0,59	0,72	0,64	0,15	0,23	0,19
BIANKOUMA	0,43	0,37	0,28	1,02	0,72	0,56	0,34	0,23	0,13
BOCANDA			0,40			0,81			0,27
BONDOUKOU	0,45	0,35	0,42	1,24	0,64	0,90	0,40	0,20	0,30
BONGOUANOU	0,32	0,28	0,43	0,63	0,56	1,14	0,17	0,13	0,37
BOUAFLE	0,37	0,40	0,36	0,76	0,81	0,71	0,23	0,27	0,21
BOUAKE	0,43	0,42	0,39	1,03	0,90	0,82	0,34	0,30	0,27
BOUNA	0,42	0,46	0,39	0,86	1,24	0,94	0,30	0,43	0,29
BOUNDIALI	0,41	0,36	0,36	1,01	0,71	0,70	0,32	0,21	0,22
DABAKALA	0,39	0,39	0,39	0,80	0,82	0,75	0,26	0,27	0,25
DABOU	0,39	0,28	0,37	0,83	0,61	0,74	0,26	0,15	0,23
DALOA	0,40	0,39	0,41	0,85	0,94	0,87	0,27	0,29	0,29
DANANE	0,38	0,36	0,32	0,84	0,70	0,71	0,26	0,21	0,18
DAOUKRO	0,54	0,39	0,43	1,43	0,75	1,72	0,57	0,25	0,49
DIMBOKRO	0,37	0,37	0,35	0,79	0,74	0,74	0,24	0,23	0,22
DIVO	0,43	0,41	0,36	1,07	0,87	0,73	0,34	0,29	0,22
DUEKOUE	0,39	0,32	0,36	0,85	0,71	0,73	0,27	0,18	0,22
FERKESSEDOUGOU	0,45	0,43	0,34	1,02	1,72	0,67	0,36	0,49	0,19
GAGNOA	0,33	0,35	0,36	0,65	0,74	0,74	0,18	0,22	0,22
GRAND-BASSAM	0,37	0,37	0,39	0,75	0,85	0,84	0,23	0,25	0,27
GRAND-LAHOU	0,38	0,36	0,44	0,81	0,73	0,95	0,26	0,22	0,34
GUIGLO	0,57	0,36	0,36	1,94	0,73	0,71	0,76	0,22	0,21
ISSIA	0,37	0,34	0,30	0,80	0,67	0,56	0,24	0,19	0,15
JACQUEVILLE	0,41	0,32	0,25	0,86	0,64	0,45	0,29	0,17	0,10
KATIOLA	0,39	0,36	0,36	0,83	0,74	0,67	0,26	0,22	0,21
KORHOGO	0,41	0,44	0,44	1,01	0,95	1,07	0,32	0,34	0,36
LAKOTA	0,21	0,39	0,43	0,37	0,84	0,84	0,07	0,27	0,31
MAN	0,44	0,36	0,35	1,12	0,71	0,68	0,37	0,21	0,20
MANKONO	0,40	0,30	0,31	1,01	0,56	0,60	0,31	0,15	0,16
MBAHIAKRO	0,41	0,25	0,35	0,84	0,45	0,69	0,28	0,10	0,20
ODIENNE	0,40	0,36	0,44	0,93	0,67	1,10	0,29	0,21	0,36
OUME	0,31	0,44	0,42	0,58	1,07	1,16	0,15	0,36	0,35
SAKASSOU	0,32	0,44	0,48	0,70	0,88	1,46	0,19	0,33	0,50
SAN-PEDRO	0,41	0,34	0,39	1,00	0,68	0,87	0,31	0,20	0,27
SASSANDRA	0,44	0,35	0,31	1,79	0,68	0,61	0,48	0,20	0,16
SEGUELA	0,39	0,31	0,28	0,93	0,60	0,57	0,28	0,17	0,14
SINFRA	0,31	0,44	0,32	0,70	1,10	0,63	0,18	0,37	0,17
SOUBRE	0,37	0,42	0,38	0,82	1,15	0,74	0,25	0,35	0,23
TABOU	0,40	0,48	0,36	0,93	1,46	0,73	0,30	0,50	0,22
TANDA	0,51	0,39	0,40	1,06	0,87	0,84	0,44	0,27	0,28
TENGRELA	0,33	0,31	0,35	0,71	0,61	0,69	0,19	0,16	0,20
TIASSALE	0,41	0,32	0,32	0,81	0,63	0,63	0,27	0,17	0,18
TIEBISSOU	0,43	0,36	0,36	1,56	0,81	0,70	0,50	0,23	0,21
TOUBA	0,36	0,38	0,43	0,86	0,74	0,97	0,25	0,23	0,34
TOULEPLEU			0,28			0,61			0,15
TOUMODI	0,34	0,28	0,37	0,65	0,57	0,85	0,18	0,14	0,25
VAVOUA	0,33	0,36	0,31	0,73	0,73	0,63	0,19	0,22	0,17
YAMOUSSOUKRO	0,40	0,41	0,36	0,89	0,84	0,81	0,29	0,28	0,23
ZUENOULA	0,47	0,35	0,32	1,06	0,68	0,64	0,39	0,20	0,17
MOYENNE	**0,39**	**0.37**	**0.36**	**0.92**	**0.79**	**0.79**	**0.29**	**0.24**	**0.24**

Source : Calcul de l'auteur à partir des données d'enquêtes ENV 2002 ; 2008 et 2015 de l'INS

L'indice de Gini indique que la dispersion des revenus a connu une distribution plus égalitaire de 2002 à 2015 dans les quatre plus grands départements que sont Abidjan, Bouaké, Daloa et Man, bien que celle-ci soit restée supérieure à la moyenne du pays. Cette tendance se confirme pour le reste des départements excepté certains départements plus petits tels qu'Alépé, Touba, Sinfra, Vavoua et pour lesquelles les inégalités mesurées par l'indice de Gini ont augmenté. En ce qui concerne l'indice de Theil et le coefficient de variation, la tendance baissière des inégalités régionales se confirme. Par ailleurs, le tableau 7 révèle que la baisse des inégalités de revenu a été plus importante entre 2002 et 2008 qu'entre la période 2008 à 2015. Il existe par ailleurs des différences significatives dans la distribution de revenu entre les citoyens de différents départements. Pendant que les inégalités apparaissent assez faibles à Beoumi (indice de Gini inférieur à 0,3), le département d'Aboisso affiche une distribution fortement inégalitaire avec un indice de Gini supérieur à 0,50. Cette variabilité interdépartementale est plus importante pour le coefficient de variation. Le tableau 7 révèle que les inégalités diffèrent suivant les juridictions.

b. Mesure de l'autonomie financière des communes

Il existe plusieurs mesures de l'autonomie financière des CT (Bird & Vaillancourt 1998). Contrairement à la plupart des études précédentes qui utilisent la part des dépenses des gouvernements locaux dans les dépenses nationales, cette étude s'intéresse plutôt à la dimension des recettes des communes. La considération de la dimension des recettes permet de mesurer la capacité des communes à lever elles-mêmes des recettes et aussi à disposer de ces recettes pour les dépenses souhaitées. Ce choix se justifie par le fait que la part de la dépense locale dans le cadre de la Côte d'Ivoire reflète très peu le poids budgétaire des collectivités car ces dépenses ne sont souvent pas exécutées sous la responsabilité des autorités locales. La préoccupation fondamentale qui se pose est de savoir quelles sont les ressources propres sur

lesquelles les collectivités locales ont un pouvoir discrétionnaire ou une marge de manœuvre (Dafflon & Madies 2008). Deux variables s'avèrent appropriées pour mesurer l'autonomie financière au niveau local dans le contexte ivoirien. Il s'agit de la recette d'impôts partagés par habitant collectés par la DGI au profit des CT et la recette propre non-fiscale par habitant collectées exclusivement par les communes[49]. Ces mesures permettent d'apprécier l'effort de mobilisation du gouvernement local et contribuent à créer une certaine redevabilité en établissant un lien entre la pression fiscale locale et les prestations de services publics locaux (Chambas 2010). Les dispositions de la législation ivoirienne abordée dans la section précédente font de ces deux variables des bons indicateurs de l'autonomie financière des CT. De plus, elles s'accommodent bien avec la définition de l'autonomie financière de l'OCDE[50] qui retient surtout l'aspect des recettes propres des collectivités décentralisées.

En plus des recettes fiscales et non-fiscales, les communes reçoivent une dotation globale de fonctionnement et d'investissement[51]. Ces dotations reflètent leur degré de dépendance et représente ainsi un déterminant pertinent des inégalités de revenu.

Ces variables d'autonomie financière sus mentionnées, les dotations de l'Etat ainsi que les autres recettes diverses sont calculées en moyenne sur les sous-périodes 2001-2008 et 2009-2014 et sur un échantillon de 196 communes regroupées en 58 départements (Tableau 8).

Les statistiques descriptives présentées dans le tableau 8 montrent qu'en moyenne sur la période 2001-2014, le niveau des ressources locales totales par tête ne dépasse pas 18000 FCFA. Le tableau indique par ailleurs que les recettes d'impôts rétrocédés (5870 FCFA) par tête sont en moyenne supérieures aux recettes propres non-fiscales (3890 FCFA). Ceci reflète le contexte des pays de la zone UEMOA, où les recettes locales non-fiscales, généralement collectées par l'administration locale, sont assises sur une assiette à faible rendement alors que les impôts

[49] Voir tableau 6 pour les détails des composantes de chaque type de recettes.
[50] Voir OECD (1999) pour les détails de la définition de l'autonomie financière des collectivités locales.
[51] Voir Sanogo & Brun (2016) pour les critères d'allocation des subventions.

rétrocédés sont basés sur une matière imposable relativement plus importante. La liste des départements constituant l'échantillon utilisé est fournie en annexe.

Tableau 8 : Statistiques descriptives des variables principales

Variables	Obs.	Moyenne	Ecart- types	Minimum	Maximum
	Variables Dépendantes				
Indice de Gini	112	0,38	0,06	0,21	0,57
Coefficient de Variation	112	0,86	0,26	0,37	1,94
Indice de Theil	112	0,27	0,10	0,07	0,76
	Variables d'intérêt				
Impôt rétrocédé par tête	90	5,87	14,24	0,00	117,00
Recettes non fiscales par tête	90	3,89	8,31	0,00	74,39
Subvention versée par l'Etat par tête	90	5,91	5,45	0,00	34,21
Recettes locales totales par tête	90	17,93	40,07	0,00	296,66
	Variables de contrôles				
Autres recettes diverses	90	17,93	40,07	0,00	296,66
Revenu agricole par tête	111	36,54	16,12	0,00	736,8
Population départementale	108	186397	548104	13154	4354337
Taux de pauvreté multidimensionnel	112	0,28	0,11	0,08	0,61
Niveau d'éducation du département	112	0,18	0,07	0,02	0,39
Taux d'inégalité agricole dans le département	110	0,64	0,11	0,34	0,88
Dépense locale d'investissement	90	68,86	19,04	0,00	100
Intensité du conflit dans le département	90	31,45	84,30	0,00	378,00

Les données des revenus ou dépenses sont exprimées en millier de FCFA par habitant (sauf indication contraire). Les dépenses d'investissement des départements sont celles réalisées aussi bien par l'Etat que par les collectivités locales. Ce choix apparaît souhaitable car les dépenses de fonctionnement sont composées en grande partie de versements de salaire de la fonction publique mis à la disposition des collectivités et ne permet donc pas d'apprécier le niveau de développement économique local. De plus, ces dépenses de fonctionnement offrent une vision illusionniste des charges récurrentes qui pèsent sur les budgets locaux comme mis en évidence par Binet et al. (2010).
Le niveau d'éducation dans le département est défini comme le ratio du nombre d'individus disposant d'un niveau « entrée en sixième » d'éducation, rapporté à la population de chaque département.
Taux de pauvreté multidimensionnel est la part de la population étant privée dans au moins 30% des services de base (accès à l'éducation, à la santé et au sanitaire …). Voir Alkire & Foster (2010); Alkire & Foster (2011) pour la méthode de calcul de l'indicateur de pauvreté multidimensionnel que nous avons appliquée avec les données d'enquêtes ENV de la Côte d'Ivoire.

Les données sur les recettes sont issues de la Direction Générale de la Décentralisation et du Développement Locale (DGDDL) du Ministère de l'Intérieur.

4.2 Modèle et procédure d'estimation

Cette section présente le modèle utilisé pour estimer l'effet de l'autonomie financière sur les inégalités au sein des collectivités décentralisées de Côte d'Ivoire.

Le modèle d'estimation économétrique retenu est inspiré de ceux utilisés par Lessmann (2012) pour analyser un échantillon de 23 pays de l'OCDE et le modèle utilisé par Meloche (2012) dans le cadre des provinces canadiennes. Dans ce modèle, l'indicateur d'inégalité est expliqué

par les indicateurs de décentralisation et un ensemble de variables susceptibles d'expliquer les inégalités. Notre spécification diffère de celles utilisées par ces auteurs dans la mesure où elle intègre non seulement le contexte de conflit qu'a connu la Côte d'Ivoire de 2002 à 2011, mais aussi permet une distinction de l'effet des différents types de ressources locales. De plus, la méthode d'estimation tient compte de l'endogénéité potentielle des ressources locales et des effets spécifiques fixes et/ou qui varient de chaque localité.

L'équation de base peut être écrite de la façon suivante :

$$Inequal_{it} = \lambda + \theta_1 \ln(Autofin)_{it} + \theta_2 \ln(Depdcefin)_{it} + \theta_3 x_{it} + \eta_i + \varepsilon_{it} \qquad (1)$$

Avec $Inequal_{it}$ représentant l'indicateur d'inégalité de revenu de la localité i à l'année t et $Autofin_{it}$ est l'indicateur d'autonomie financière de la localité représentant les recettes fiscales ou les recettes non-fiscales collectées. x_{it} est un vecteur de variables de contrôle regroupant des déterminants pertinents de l'inégalité, η_i les effets spécifiques aux départements, supposés constants dans le temps, ε_{it} le terme d'erreur et θ_1, θ_2 et θ_3 sont les paramètres à estimer. $Depdcefin$ est l'indicateur de dépendance financière mesuré par les aides ou subventions de l'Etat reçues dans la localité i.

L'hypothèse sous-jacente derrière l'utilisation des modèles à effets fixes standards telle que présentée ci-dessus est que les effets spécifiques à chacun des départements sont constants dans le temps. Cette hypothèse apparaît très peu vérifiée dans plusieurs contextes (Bonhomme & Manresa 2015). Par exemple, le contexte ivoirien caractérisé par plusieurs séquences de conflits affectant les localités à différente intensité, laisse à penser que les effets spécifiques aux communes ne sont pas constants dans le temps. Cela est d'autant plus vérifié que les communes ne disposent pas du même potentiel aussi bien naturel qu'humain pour sortir leur économie des effets néfastes d'un évènement de trouble politique. Pour Bartolucci et al. (2015), de tels chocs pourraient induire des caractéristiques individuelles non observables qui varient dans le temps,

qu'il convient de contrôler par des modèles GFE[52]. Ainsi, le modèle 1 modifié pour tenir compte de ces effets spécifiques susceptibles de varier pendant la période d'études se présente comme suit :

$$Inequal_{it} = \lambda + \theta_1 \ln(Impretro)_{it} + \theta_2 \ln(Recnonfisc)_{it} + \theta_3 \ln(Depdcefin)_{it} + \theta_4 x_{it} + \alpha_{g_i t} + \eta_i + \varepsilon_{it} \quad (2)$$

Le modèle se distingue par la présence du terme $\alpha_{g_i t}$ contrôlant les effets spécifiques variant dans le temps. $g_i \epsilon \{1, \dots, G\}$ est l'indice qui classifie les départements dans les différents groupes de manière endogène et selon les paramètres de notre spécification, de sorte à avoir les groupes les plus homogènes possibles. Le nombre optimal de groupe est défini selon un critère d'information Bayésien et se fixe à 4 groupes dans le cadre de cette étude[53]. Dans ce modèle, l'autonomie financière est représentée par l'impôt rétrocédé $Impotretro_{it}$ et les recettes propres non-fiscales $Recnonfisc_{it}$ de chaque localité i à l'année t. L'étude utilise les variables de contrôle présentées dans le tableau 8 ci-dessus.

4.3 Stratégie d'identification

L'équation (2) est tout d'abord estimée par la méthode des moindres carrés ordinaires (OLS), sans inclure des effets spécifiques départements (colonnes 1, 4, 7 du Tableau 9). Afin de comparer les résultats, les mêmes spécifications sont ensuite reprises mais cette fois-ci en incluant des effets individuels départements[54]. L'inclusion de ces effets permet de contrôler uniquement les caractéristiques individuelles fixes et propres à chaque département et qui sont

[52] Sanogo & Brun (2016) donnent justifient l'opportunité d'utiliser le modèle GFE dans le contexte ivoirien.

[53] Le calcul du nombre optimal de groupe est fait à partir de cette équation :

$\text{BIC (G)} = \frac{1}{NT}\sum_{t=1}^{N}\sum_{t=1}^{T}\left(y_{it} - x'_{it}\hat{\theta}^{(\widehat{G})} - \hat{\alpha}_{it}^{(G)}\right)^2 + \hat{\sigma}^2 \frac{GT+N+K}{NT}[\ln(NT)]$ Avec $\hat{\sigma}^2 = \frac{1}{NT - G_{max}T - N - K}\sum_{i=1}^{N}\sum_{t=1}^{T}(y_{it} - \acute{x}_{it}\hat{\theta} - \hat{\alpha}_{\hat{g}it})^2$

Avec G le nombre de groupe, $\hat{G}$ nombre optimal de groupes qui minimise le BIC, le nombre maximal de groupe (borne supérieure) est $\hat{G}_{max}$, $\hat{\sigma}^2$ est un minimum du biais d'estimation de la variance du terme d'erreur, K le nombre de paramètres utilisés dans l'estimation.

[54] Pour souci de simplification, nous nous limitons à présenter les résultats obtenus sans effet spécifiques départements et ceux obtenus avec l'estimateur GFE.

difficilement observables, sans toutefois corriger l'endogénéité potentielle des ressources locales. En raison du contexte spécifique de la Côte d'Ivoire, il importe aussi de contrôler les effets spécifiques variant dans le temps comme expliqué dans la section précédente. Ces résultats sont présentés pour chacune des trois mesures (colonnes 2, 5, 8 du Tableau 9). Par ailleurs, les études analysant la relation entre la décentralisation financière et les inégalités de revenu, ont mis en évidence la nécessité de contrôler l'endogénéité des ressources locales afin d'éviter les biais d'estimation y afférant (Lessmann, 2009)[55]. L'endogénéité des ressources locales peut provenir de plusieurs sources : Les erreurs de mesure, qui sont inhérentes à ces variables, peuvent produire un biais de variables omises. Par ailleurs, l'omission de variables corrélées à la fois avec les inégalités et les variables explicatives est aussi une source importante d'endogénéité. Par exemple, les chocs externes (chocs climatiques ou politiques), sont susceptibles d'augmenter les inégalités et d'être également corrélés avec les différentes recettes des collectivités. En outre, l'endogénéité entre l'inégalité de revenus et les ressources locales peut provenir du fait que les localités ayant une plus forte inégalité collectent plus d'impôts locaux et/ou reçoivent plus de subvention pour y faire face. La relation de double causalité résultante est susceptible de biaiser nos estimations. Le biais de variable omise est pris en compte dans l'utilisation de l'estimateur « GFE » à travers les effets spécifiques fixes et/ou variant de chaque département. Cependant, les biais d'erreurs de mesure et de causalité inverse sont quant à eux, contrôlés par l'utilisation de la méthode des variables instrumentales appliquée au GFE (GFE-VI des Colonnes 3, 6, 9, Tableau 9).

Les variables instrumentales utilisées sont inspirées des travaux de (Martinez-Vasquez et al. 2011).

[55] Le test de Hausman pour l'endogénéité rejette aussi l'hypothèse nulle selon laquelle les moindres carrées ordinaires seraient un estimateur convergent pour la relation entre les ressources locales propres et les inégalités de revenu, donnant ainsi plus de crédit à l'utilisation de la méthode des variables instrumentales.

En effet, nous instrumentons les variables des recettes fiscales et non-fiscales avec la moyenne pondérée du ratio impôt pour tous les autres départements de l'année correspondante, où la pondération est l'inverse de la distance entre les deux départements comme décrit ci-dessous. La valeur de la variable instrumentale pour le département i à l'année t est calculée comme suit:

$$Retloc\_VI_{it} = \frac{1}{\sum_{j-1}^{n}\frac{1}{d_j}}\sum_{j-1}^{n}\frac{1}{d_j}\ Retloc_{jt}$$

Où d_i est la distance entre la plus grande ville (chef-lieu) du département i et celle du département j. $Retloc$ représente la ressource locale, soit l'impôt rétrocédé par tête ou la recette propre non-fiscale par tête du département i à l'année t. Les hypothèses sous-jacentes sont que cette variable n'a pas d'impact direct sur l'évolution des inégalités, son impact étant celui indirect transitant par le canal de l'autonomie financière. La deuxième est que la mobilisation locale dans un département est affectée par les politiques de mobilisation locales dans le département voisin. En raison du caractère souvent centralisé des décisions de reformes de décentralisation fiscale en Côte d'Ivoire, cette hypothèse est vraisemblablement vérifiée dans le cadre de cette étude. La validité de cet instrument est confirmée par la statistique du test de surindentification de Sargan-Hansen reportée pour chacune des spécifications. La p-value est en effet supérieure à 10% pour la plupart des spécifications, ce qui suggère qu'il n'existe aucune corrélation entre nos instruments et le terme d'erreur du modèle explicatif des inégalités de revenu[56]. Les statistiques d'Anderson-canon, dont la p-value est inférieure au seuil conventionnel de 5%, attestent bien que les instruments expliquent de manière significative les variables soupçonnées d'endogéneité. Ces tests attestent de la bonne qualité de la stratégie d'identification utilisée dans cette analyse.

[56] Nous ne pouvons pas rejeter l'hypothèse d'exogénéité des instruments.

Il convient d'ailleurs de noter qu'une fois que nous contrôlons pour les effets inobservés variant de chaque département et pour l'endogénéité, l'impact de l'autonomie sur les inégalités de revenu semble se renforcer pratiquement dans toutes les spécifications (Tableau 9).

5 Résultats

Cette section s'intéresse aux résultats d'estimation de l'effet de la décentralisation fiscale sur les inégalités de revenu, mesurées aussi bien par l'indice de Gini que par le coefficient de variation et l'indice de Theil.

Les résultats indiquent que l'autonomie financière a un effet significatif sur les inégalités. Cependant le sens de cet effet diffère selon le type de ressources locales considéré. En effet, les résultats (colonnes 3, 6 et 9 du tableau 9) où les biais d'endogénéité sont corrigés par la méthode des variables instrumentales, suggèrent que les impôts rétrocédés contribuent à réduire les inégalités au sein des collectivités décentralisées. Un accroissement de 10% de la mobilisation de l'impôt local réduit les écarts de revenu mesurés par l'indice de Gini des populations de 0. 013%. A contrario, une plus grande mobilisation des ressources locales propres non-fiscales semble creuser l'écart de distribution des revenus des citoyens[57]. Nous expliquons ce résultat par le fait que les ressources non-fiscales locales sont assises sur une assiette à faible rendement composée de petits commerces généralement détenus par les pauvres. Les impôts rétrocédés aux CT sont basés sur une matière imposable possédée en grande partie par les opérateurs économiques relativement plus riches. Son imposition contribue de ce fait à lisser le niveau de revenu des ménages et constitue un instrument important d'équité comme mis en évidence par Piketty (1997). Cet effet significatif des ressources locales sur les inégalités contraste avec celui obtenu par Meloche (2012) qui trouve un effet non-significatif de la décentralisation fiscale sur les inégalités de revenu au sein des provinces canadiennes. Cette différence est due

[57] Comme indiqué dans la section 2, il existe deux principaux types de recettes propres : les impôts d'Etat collectés par le DGI rétrocédés aux collectivités et les recettes non-fiscales collectées par les communes.

probablement à la méthode d'estimation qui ne corrige pas le risque d'endogénéité et la courte variabilité temporelle utilisée dans l'étude sur les provinces canadiennes. La différence s'explique aussi par le fait qu'au Canada, la grande majorité de la population paie cet impôt avec un effort fiscal moyen de 90%[58] alors qu'en Côte d'Ivoire, la collecte se limite aux opérateurs économiques.

Les subventions de l'Etat semblent avoir un effet de péréquation significatif sur la distribution interne du revenu. Les coefficients de cette variable sont négatifs et significatifs à 5% de seuil d'erreur pour les trois mesures des inégalités utilisées. Les critères d'allocation de ces subventions pourraient constituer des éléments explicatifs de cet effet. Une partie de la dotation globale de fonctionnement est attribuée selon la taille de la population de chaque localité.

Les signes des autres variables de contrôle suivent ceux de la littérature analysant les inégalités de revenus en général et plus particulièrement celles existant au sein des CT.

Nombreuses études mettant l'accent sur le rôle de l'éducation comme l'un des principaux facteurs qui influent le degré d'inégalité des revenus. Même si les décideurs justifient généralement les dépenses d'éducation comme un moyen efficace de réduction des inégalités de revenus, les prédictions théoriques au sujet de cette relation restent ambiguës et les résultats appliqués ne sont guère compatibles. De Gregorio & Lee (2002) trouvent une relation négative entre le niveau d'éducation et l'inégalité des revenus, tandis que Knight & Sabot (1983) concluent à l'existence d'une relation ambiguë entre l'amélioration du niveau de l'éducation et les inégalités de revenu. Nos résultats montrent que le niveau d'éducation mesuré comme la part de la population ayant atteint le cycle primaire rapporté à la population totale de la localité, tend à accroitre les écarts de revenus entre les populations bien que cet effet reste non

[58] De plus au Canada, l'impôt foncier est un taux fixe au sein de chaque province et n'est pas proportionnel au revenue : Les petits commerçants et les magasins de grandes chaînes d'une même artère commerciale paient le même taux d'impôt foncier pour une valeur foncière similaire (Mcmillan & Dahlby, 2014).

significatif pour le coefficient de variation et l'indice de Theil. Ce résultat contredit celui de Li et al. (1998) qui suggèrent qu'une augmentation du niveau d'éducation est susceptible de réduire les inégalités.

En ce qui concerne l'impact du niveau de richesse des localités, nous utilisons le revenu agricole par tête des départements. Il ressort de l'analyse que les localités les plus riches sont celles où les disparités sont les plus importantes. Ce résultat est confirmé par le signe positif et significatif du coefficient de l'indicateur de pauvreté multidimensionnel.

La dépense publique d'investissement au niveau local semble avoir un effet non significatif sur les inégalités de revenu contrairement aux attendes de l'Etat. Cela illustre l'inefficacité de la politique locale d'investissement caractérisée par le manque de coordination et l'absence d'une franche collaboration entre les autorités locales et les différents ministères en charge d'exécuter le budget. Ces ministères opèrent souvent individuellement dans l'exécution des budgets alloués aux dépenses d'investissement locales, ce qui probablement réduit son effet sur les couches les plus vulnérables. Costa-i-Font & Rodriguez-Oreggia (2005) trouvent un effet contraire des dépenses d'investissement sur les inégalités au Mexique.

Les inégalités des revenus ont toujours été considérées comme étroitement liée aux conflits (Esteban & Ray 2011). Bien que, les études antérieures mettent l'accent sur le rôle des inégalités dans l'explication des conflits, des travaux plus récents commencent à s'intéresser à l'effet inverse −− à analyser l'impact des conflits dans l'évolution des inégalités (Bircan et al. 2016). L'inclusion de l'intensité du conflit de chaque localité permet de vérifier ainsi si le conflit contribue ou non à augmenter les écarts de distribution des revenus. La situation de conflit pourrait en effet affecter les activités économiques locales et entraîner un lissage des revenus au sein du département. Le signe positif et significatif (colonne 3) indique bien que les inégalités

de revenu mesurées par l'indice de Gini ont augmenté pendant la guerre. Ce résultat est proche de celui de Bircan et al. (2016) qui suggère que les conflits accentuent les inégalités de revenus.

Tableau 9 : Effet de l'autonomie financière des communes sur les inégalités de revenu, régressions OLS, GFE et GFE-IV

Variable dépendante	Indice de GINI			Coefficient de Variation (CV)			Indice de Theil		
	OLS	GFE	GFE-IV	OLS	GFE	GFE-IV	OLS	GFE	GFE-IV
	1	2	3	4	5	6	7	8	9
Impôt rétrocédé	-0,00121*	-0,0008***	-0,00137***	-0,00241	-0,0018***	-0,0037***	-0,00068	0,003**	0,00087
	(0,00068)	(0,00017)	(0,00034)	(0,0018)	(0,00049)	(0,0013)	(0,00059)	(0,0001)	(0,00119)
Recettes locales propres	0,00251**	0,00141***	0,00213***	0,00510*	0,00856***	0,0101***	0,00145	0,0003	-0,000577
	(0,00110)	(0,000269)	(0,000466)	(0,00294)	(0,000936)	(0,00118)	(0,000959)	(0,0003)	(0,00154)
Subventions de l'État	-0,0034**	-0,0078***	-0,00906***	-0,008**	-0,011***	-0,006***	-0,0027**	-0,006*	-0,005***
	(0,0013)	(0,00052)	(0,00087)	(0,0036)	(0,0013)	(0,00212)	(0,0011)	(0,0005 5)	(0,00058)
Autres recettes locales	0,00123	0,00257***	0,00288***	0,00354	0,00792***	0,00779***	0,00106	0,002**	0,0022***
	(0,00118)	(0,000192)	(0,000231)	(0,00315)	(0,0004)	(0,00064)	(0,00103)	(0,0002)	(0,00026)
Revenu agricole par tête	-0,00212	0,00200	0,00173**	-0,00919	0,0257***	0,0219***	-0,00240	0,012**	0,0129***
	(0,00538)	(0,00121)	(0,00079)	(0,0143)	(0,00361)	(0,00338)	(0,00467)	(0,0015)	(0,00223)
Indicateur de pauvreté multidimensionnelle	0,00266	0,00164***	0,00128***	0,00678	0,00703***	0,00394	0,00190	0,0016*	0,00148**
	(0,00255)	(0,00055)	(0,00045)	(0,0068)	(0,00162)	(0,00269)	(0,00222)	(0,0005)	(0,00074)
Niveau d'éducation	0,0183	0,0233***	0,0230***	0,0304	0,0110	0,0223	0,00767	0,019**	0,0108
	(0,0116)	(0,00279)	(0,0038)	(0,0308)	(0,00916)	(0,0150)	(0,0101)	(0,002)	(0,00721)
Inégalité du secteur agricole	0,0194**	0,0123***	0,0128***	0,0455**	0,00614	-0,00549	0,0144**	-0,002*	-0,00072
	(0,007)	(0,0015)	(0,0014)	(0,0188)	(0,0036)	(0,0068)	(0,0061)	(0,001)	(0,0015)
Dépense locale d'investissement	0,00147	-0,00090	-0,00112	0,00678	0,00301	0,000760	0,00150	0,0017*	0,0018***
	(0,0033)	(0,00082)	(0,00072)	(0,00878)	(0,0020)	(0,0022)	(0,0028)	(0,0008)	(0,0005)
Population départementale	0,00083	0,00037	0,00033	-0,00126	0,00927***	0,0111***	-0,00024	0,001**	0,0016***
	(0,00116)	(0,000450)	(0,00027)	(0,003)	(0,0009)	(0,0011)	(0,001)	(0,0004)	(0,0002)
Intensité du conflit	0,00120	0,000320*	0,000452***	0,000604	-0,001***	-0,002***	-0,000783	-0,007*	-0,005***
	(0,00057)	(0,00017)	(0,00013)	(0,0015)	(0,00026)	(0,00037)	(0,00049)	(0,0001)	(0,00012)
Constante	-0,0288	-0,0199***	-0,0208***	-0,0641	-0,218***	-0,234***	-0,0180	-0,04**	-0,0448**
Observations	91	91	81	91	91	81	91	91	81
R-squared	0,498	0,984	0,983	0,415	0,969	0,965	0,395	0,972	0,975
Sargan-Hansen p-value		-	0,13	-	-	0,09	-	-	0,11
Cragg-Donald Wald F statistic		-	54,21	-	-	78,5	-	-	65,32
Anderson canon (P-value)		-	0,00	-	-	0,00	-	-	0,00
Effets spécifiques variant	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Effets spécifiques département	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes

Entre parenthèses, les écarts types robustes corrigés de l'hétéroscédasticité *significatif à 10% ** significatif à 5% et ***significatif à 1%, La variable dépendante est soit l'indice de Gini, soit le coefficient de variation, soit l'indice Theil

Dans la section précédente, les résultats ont confirmé nos hypothèses d'effets spécifiques de chaque type de ressources sur les inégalités de revenu au sein des localités. La robustesse de ces résultats est analysée dans cette section où l'échantillon est reparti en deux : zone anciennement occupée par la rébellion[59] "Zone ex-occupée" contre la zone sud du pays restée

[59] Suite au coup d'Etat avorté de 2002, une rébellion armée a occupé la partie nord du pays pendant environ 8 années. Les services municipaux ont continué à fonctionner dans la plupart des localités. Cependant, les

sous contrôle des forces gouvernementales “Zone de confiance”. Cette analyse constitue par ailleurs un test appliqué de l’existence d’une hétérogénéité régionale dans la relation entre ressources des collectivités et les inégalités locales. En effet, étant donné les caractéristiques spécifiques à chaque région, on peut supposer que le type de ressource locale privilégiée dans chaque zone soit différent, et qu’ainsi l’effet sur les inégalités varie suivant les zones. La robustesse de nos résultats est également testée par l’utilisation de l’estimation du modèle « Generalized Method of Moments » GMM en panel dynamique qui combine l’équation en différence première avec l’équation à niveau. Dans le cadre de cette analyse, elle a pour avantage de permettre le contrôle de l’endogénéité potentielle des variables explicatives provenant surtout de la double causalité entre ces dernières et les inégalités de revenu.

Le coefficient de l’autonomie financière reste toujours significatif comme dans les régressions précédentes pour tout l’échantillon avec l’utilisation de l’estimateur GMM (colonne 1, Tableau 10). L’impôt rétrocédé et les subventions de l’Etat jouent un rôle de lissage des revenus des individus pendant que l’accroissement des ressources propres non-fiscales contribue à augmenter les inégalités de revenu. Cependant, la répartition de l’échantillon révèle un constat bien différent. En effet, bien que les signes de l’effet de l’autonomie financière se confirment pour chaque indicateur et dans chaque zone, l’impôt rétrocédé a un effet statistiquement non significatif dans la zone anciennement occupée par la rébellion. Ce résultat pourrait s’expliquer par le fait que les directions régionales des impôts ont été absentes dans cette zone à cause du conflit armé. Pour confronter les résultats obtenus ci-dessus, les régressions ont été faites pour chacun des deux autres indicateurs d’inégalités (le coefficient de variation et l’indice de Theil). Globalement, les résultats sont identiques (colonnes 4 et 5, Tableau 9).

localités à forte intensité de conflit avaient été privées des services de l’administration centrale dont la DGI, en charge de la collecte de l’impôt rétrocédé.

Il est à noter que pour les régressions du tableau 10, les tests liés à l'estimateur du system GMM sont concluants. Le test de Hansen ne nous permet pas de rejeter l'hypothèse de validité des instruments et le test d'autocorrélation ne rejette pas l'hypothèse d'absence d'autocorrélation du second ordre. Les statistiques des tests sont reportées pour chacune des spécifications.

Tableau 10 : Test de robustesse, effet de l'autonomie locale sur les inégalités de revenus, régressions GMM par zone

Variable dépendantes	Régressions GMM				
	Index de Gini			**Coefficient de Variation**	**Index de Theil**
	Tout	**Zone de confiance**	**Zone ex-occupée**		
	1	**2**	**3**	**4**	**5**
Impôt rétrocédé	-0,00135***	-0,00352**	-0,00091	-0,00143	0,00374
	(0,00038)	(0,00156)	(0,00061)	(0,00152)	(0,00390)
Recettes local propres (Non-fiscale)	0,00199***	0,00262***	0,00092*	0,00961***	-0,00337
	(0,00066)	(0,00073)	(0,00085)	(0,00254)	(0,00461)
Subventions de l'État	-0,00891***	-0,0107***	-0,0058***	-0,00962*	-0,00527**
	(0,00112)	(0,00224)	(0,00155)	(0,00538)	(0,00225)
Autres recettes	0,0029***	0,0036***	0,0023***	0,00819***	0,00152*
	(0,00023)	(0,0012)	(0,0003)	(0,00059)	(0,00084)
Revenu agricole par tête	0,00177**	0,00278	0,00354	0,0267***	0,0165**
	(0,000776)	(0,00365)	(0,00285)	(0,00448)	(0,00814)
Indicateur de pauvreté multidimensionnelle	0,00113**	0,00428***	0,000788	0,00744	0,00426
	(0,000464)	(0,00108)	(0,00184)	(0,00623)	(0,00336)
Niveau d'éducation	0,0221***	0,00490	0,00125	0,00014	-0,000279
	(0,00507)	(0,00621)	(0,00512)	(0,0045)	(0,0224)
Inégalité du secteur agricole	0,0130***	0,02415	0,00236	-0,00396	-0,00358
	(0,00151)	(0,01265)	(000398)	(0,00696)	(0,00712)
Dépense locale d'investissement	-0,00104	0,000755	-0,000851	0,00141	0,00145
	(0,00074)	(0,00195)	(0,00142)	(0,00585)	(0,00276)
Population départementale	0,000397	0,00056	0,00208***	0,0112***	0,000844
	(0,00035)	(0,00058)	(0,00071)	(0,00221)	(0,00125)
Intensité du conflit	0,00047***	-0,00031	-0,000195	-0,0019***	-0,000368
	(0,00095)	(0,0004)	(0,0003)	(0,00032)	(0,00052)
Constante	-0,0218***	-0,0387	-0,0241*	-0,245***	-0,0178
Observations	90	24	27	81	81
R-squared	0,983	0,866	0,912	0,957	0,716
Hansen J statistic	0,09	0,12	0,08	0,14	0,9
Kleibergen-Paap P-value	0,01	0,00	0,02	0,03	0,05
Group FE	No	No	No	No	No
Year FE	YES	YES	YES	YES	YES
Département FE	Yes	Yes	Yes	Yes	Yes

Entre parenthèses, les écarts types robustes corrigés de l'hétéroscédasticité *significatif à 10% ** significatif à 5% et ***significatif à 1%, La variable dépendante est soit l'indice de Gini soit le coefficient de variation soit l'indice Theil

6 Conclusion

Ce chapitre étudie l'impact de l'autonomie financière des communes sur les inégalités de revenus au sein des communes en Côte d'Ivoire, en testant l'hypothèse que son effet varie selon la spécificité de la ressource locale considérée : les ressources d'origine fiscale constituées des impôts rétrocédés et les ressources locales non-fiscales notamment les recettes d'exploitation et des services.

A partir d'un échantillon de 196 municipalités regroupées en 58 départements observées sur la période 2001-2014, les résultats d'estimation obtenus à l'aide de la méthode des « Grouped fixed Effect » combinée à celle des variables instrumentales en double moindre carrée, montrent que l'effet diffère selon la ressource locale. Il apparaît en effet que les impôts rétrocédés tendent à réduire les inégalités de revenu pendant qu'un accroissement des recettes non-fiscales propres contribue à accroitre les écarts de distribution de revenu. Ce résultat semble être expliqué par le fait que les recettes non-fiscales locales sont prélevées sur les petits commerces et sur les couches défavorisées de la population. A contrario, les recettes d'impôt rétrocédées aux collectivités locales sont basées sur une matière imposable plutôt appartenant en grande partie aux opérateurs économiques relativement plus riches. Son imposition contribue de ce fait, à lisser le niveau de revenu local et constitue un instrument d'équité comme mis en évidence par Piketty (1997). Il apparaît ainsi opportun de mettre en œuvre une fiscalité locale adaptée aux réalités des collectivités locales à travers une franche collaboration entre ces dernières et le gouvernement central. Une telle réforme viserait à élargir l'assiette d'imposition en incluant davantage les biens immobiliers détenus par les particuliers et de constituer des bases de données fiscales plus fiables. L'Etat pourrait progressivement augmenter l'autonomie des CT en leur confiant la détermination de l'assiette et la détermination des taux, à l'intérieur de fourchettes prédéfinies, d'une partie des impôts aujourd'hui rétrocédés aux CT, notamment l'immobilier résidentiel des classes moyennes et supérieures. Cela permettrait de réduire la

charge d'imposition des recettes non fiscales notamment les taxes locales et recettes d'exploitation qui reposent sur les plus pauvres. A l'inverse, la détermination de l'assiette et le recouvrement de l'impôt foncier des entreprises grandes et moyennes doivent demeurer de la compétence de la DGI, pour respecter le principe de l'interlocuteur fiscal unique. Ce schéma a d'ailleurs été suggéré par Fjeldstad et al. (2014) pour les pays francophones en développement. Les ressources collectées devraient être attribuées à la collectivité de la circonscription concernée afin d'une part, de renforcer le lien entre les impôts et taxes payés par les populations et les services rendus et d'autres parts d'encourager les collectivités à participer activement à la collecte des impôts et taxes locaux[60].

L'analyse fait ressortir par ailleurs l'existence d'une hétérogénéité régionale dans la relation entre ressources des collectivités et les inégalités locales. L'impôt rétrocédé semble avoir un effet statistiquement non significatif dans la zone anciennement occupée par la rébellion pendant la crise.

Les résultats révèlent également que les subventions du gouvernement réduisent les inégalités. Cela implique que des efforts soient entrepris de la part des autorités nationales pour renforcer les transferts vers les collectivités locales. En plus de la dotation générale de fonctionnement et d'investissement allouée, le partage des recettes de TVA entre les CT et l'État devrait permettre de garantir un flux de ressources stables aux CT et servir à mieux redistribuer les ressources. Cette subvention additionnelle augmenterait aussi la mobilisation de ressources locales (Sanogo & Brun 2016). Les modalités de ce partage devraient faire l'objet d'études particulières pour une mise en œuvre effective.

[60] En effet, les populations sont plus disposées à payer pour des services qui répondent à leurs priorités surtout si elles ont participé à la prise de décision concernant la fourniture de ces services. C'est l'efficacité fiscale qui constitue l'un des avantages de la décentralisation fiscale.

Annexes

Annexe A

Table A1 : Liste des départements dans l'échantillon*

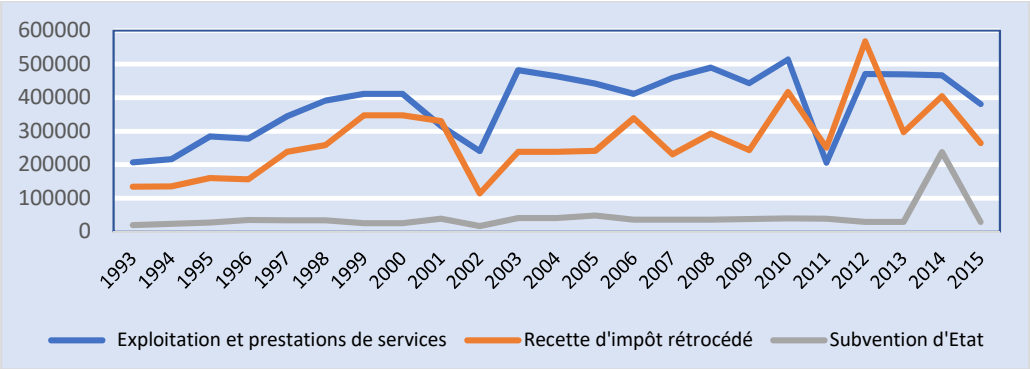
Liste des Départements dans l'échantillon							
Abengourou	**Alépé**,	Bouaké,	**Daoukro,**	**GrandLahou,**	Man,	**Sassandra**,	**Tiassalé,**
Abidjan	Bangolo	Bouna,	**Dimbokro,**	Guiglo,	Mankono,	Séguéla,	**Tiébissou,**
Aboisso	Beoumi	Boundiali,	**Divo**,	**Issia,**	**M'Bahiakro,**	**Sinfra**,	Touba,
Adiaké	**Biankouma**	Dabakala,	Duekoue,	**Jacqueville,**	Odienné,	**Soubré**,	**Toumodi**,
Adzopé	**Bondoukou**	**Dabou**,	Ferkessédougou,	Katiola,	**Oumé,**	Tabou,	Vavoua,
Agboville	**Bongouanou**	**Daloa**	**Gagnoa**	Korhogo,	**Sakassou**,	Tanda,	**Yamoussoukro**
Agnibilekro	**Bouaflé**	Danane,	**Grand-Bassam**	**Lakota,**	**San-Pedro**,	Tengrela,	**Zuénoula**.

* Les départements en gras sont ceux restés sous contrôle des forces gouvernementales i.e. appartement à la « zone de confiance »
Source : Auteur

Encadre A 1 : La ville de Daloa

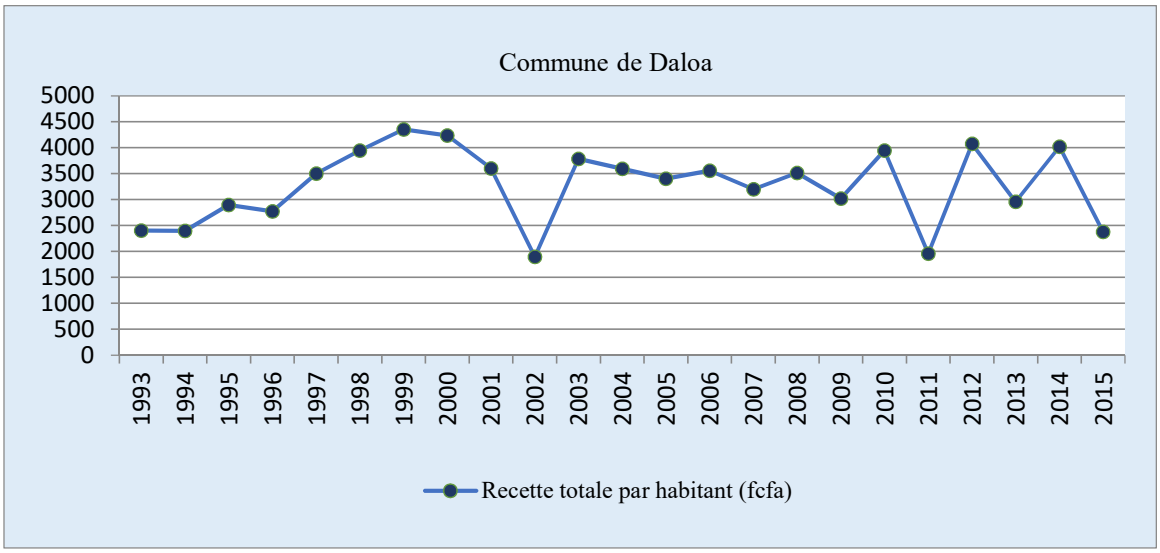
Daloa est la 3e ville la plus peuplée de Côte d'Ivoire après Abidjan et Bouaké située au Centre-Ouest. Ce chef-lieu du département homonyme et de la région du Haut-Sassandra, Daloa est située à 383 km d'Abidjan, la capitale économique. En 2014, elle compte 320974 habitants avec une superficie de 530,5 ha = 5,305 (RGPH, 2014). Daloa est caractérisée par une forte diversité ethnique composée principalement de bété (la langue vernaculaire) et le dioula. L'activité économique est basée sur les ressources commerciales et agricoles dont le café, le cacao, l'hévéa, le palmier à huile et l'exploitation du bois. Cette diversité justifie son choix pour illustrer l'évolution des recettes d'impôts locales en Côte d'Ivoire. La ville a également fait l'expérience d'un maire provenant de l'opposition qu'appartenant au parti au pouvoir en ce qui concerne notre période d'analyse. De 1993 à 2001, le maire de Daloa Mr Bahi Zahiri du PDCI-RDA était du parti au pouvoir jusqu'en 1999. De 2001 à 2009, la commune fut dirigée par Mr Guédé Guina du RDR, un parti d'opposition et ensuite en 2009 par Mr Séry Kossougro du PDCI-RDA. Depuis la crise poste électorale de 2010, la commune a successivement connu comme maire Mr Diabaté Kramoko et Mr Samba Coulibaly tous deux du RDR, le parti au pouvoir.

Graphique A1 : Evolution des recettes de la commune de Daloa de 1993 à 2015



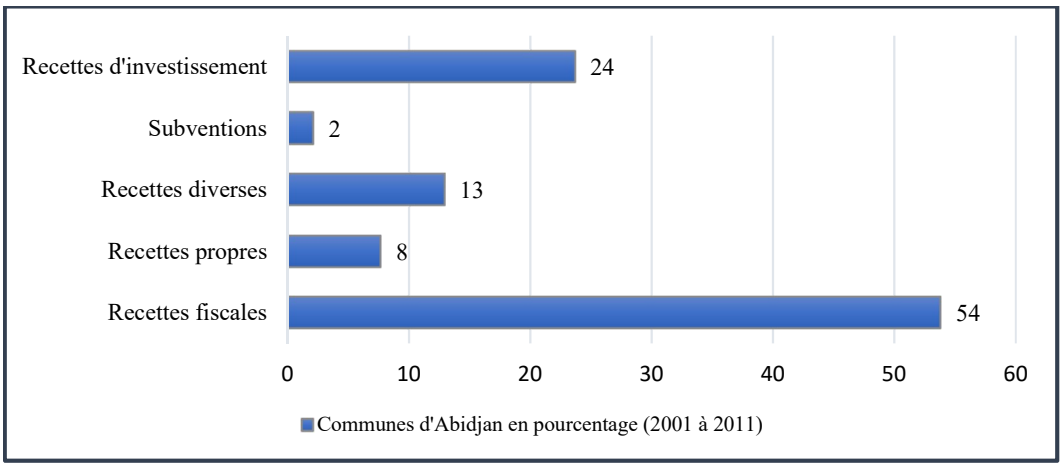
Source : Calcul de l'auteur à partir des données de la mairie de Daloa

Graphique A2 : Evolution des recettes totales par habitant, commune de Daloa de 1993 à 2015



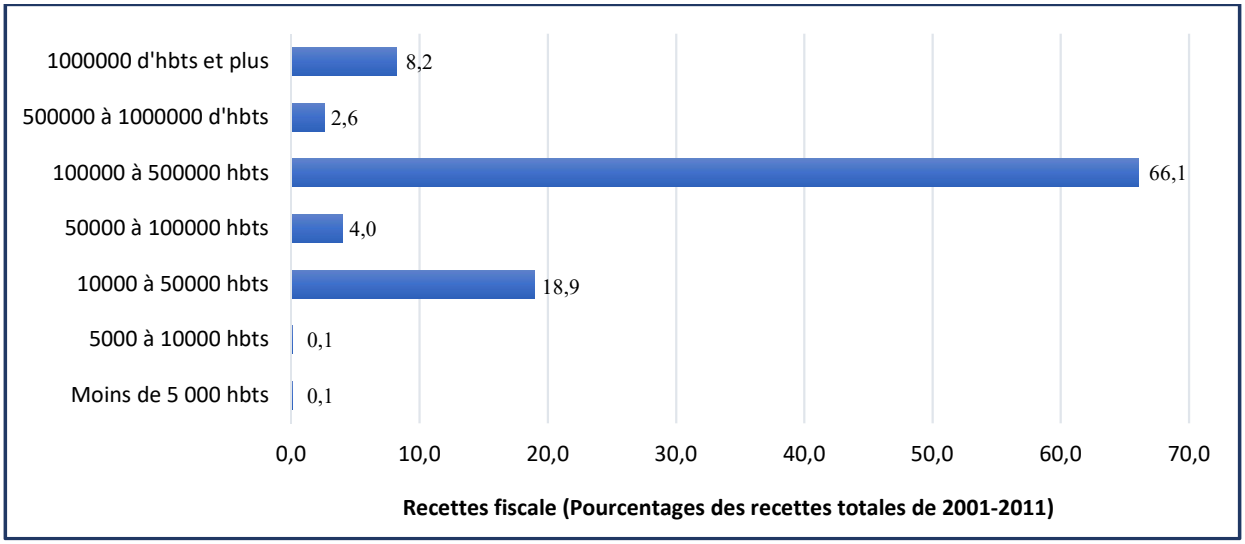
Source : Calcul de l'auteur à partir des données de la mairie de Daloa

Graphique A3 : Recettes des communes d'Abidjan en pourcentage des recettes totales entre 2001 à 2011



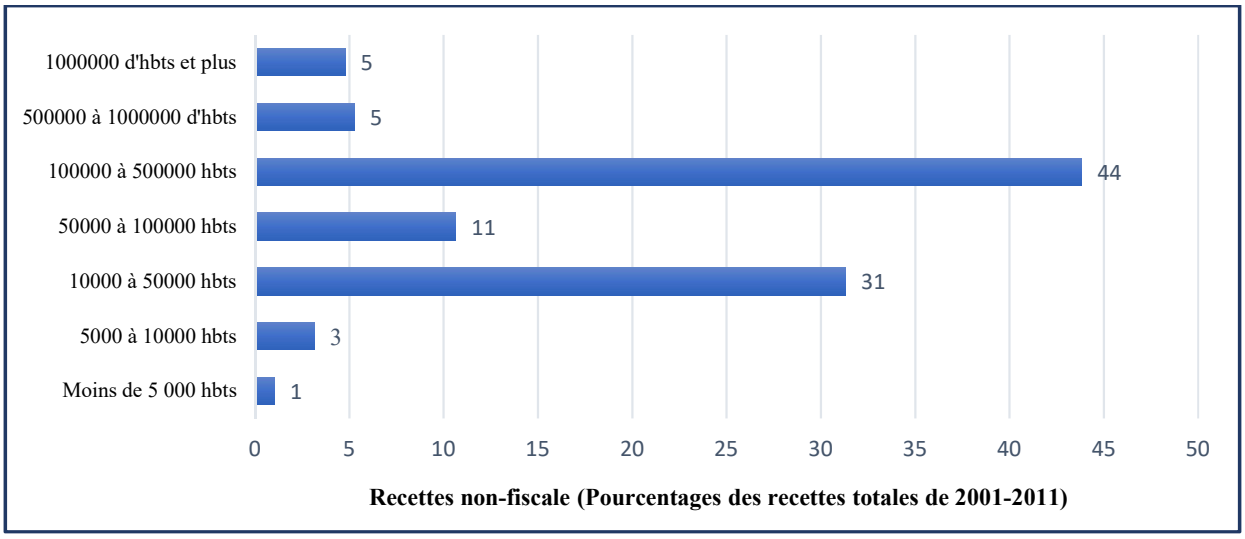
Source : Direction de la décentralisation et du développement local, Ministère de l'Intérieur

Graphique A4 : Recettes fiscales de l'ensemble des communes du pays par tranche de population (2001 à 2011)



Source : Direction de la décentralisation et du développement local, Ministère de l'Intérieur

Graphique A5 : Recettes fiscales de l'ensemble des communes du pays par tranche de population (2001 à 2011)



Source : Direction de la décentralisation et du développement local, Ministère de l'Intérieur

Table A2 : Structure des ressources des communes

STRUCTURE DES RESSOURCES DES COMMUNES			
Numero compte	**SECTION DU COMPTE**	**CHAPITRE**	**LIBELLE**
7000	RECETTES FISCALES	Impôts dont le produit est attribué aux communes	Contribution foncière des propriétés bâties
7001			contribution foncière des propriétés non bâties
7002			Surtaxe foncière sur les propriétés insuffisament bâties
7003			Taxes des biens de main morte
7004			Contribution des patentes
7005			Contribution des licences
7020		Taxes communales perçus par voie de rôle	Taxes sur le revenu net des propriétés bâties
7021			Taxes de voirie et d'hygiène
7022			Taxe sur la valeur vénale des propriétés non bâties
7023			Taxe sur la valeur locative des locaux professionnels
7026			Taxe forfaitaitaire des petits commerçants et artisans
7027			Taxe sur les locaux loués en garnis
7030		Taxes communales perçus sur titres de recettes par les communes	Taxe sur les pompes distributrices de carburants
7031			Taxe sur les charrettes
7034			Taxe sur les entrées payantes aux manifestations sportives
7036			Taxe sur les spectacles et galas
7037			Taxe sur les spectacles cinématographiques
7038			Taxe sur les établissements de nuit
7040		Taxes communales perçus sur titres de recettes par les communes	Taxe portuaire et aéroportuaires
7041			Taxe sur les taxis
7042			Taxe sur la publicité
71000	RECETTES DES PRESTATIONS ET SERVICES	Recettes des services généraux	Légalisation de signatures et certifications
71001			Délivrance de livrets de famille et autres documents
71006			Autres recettes de prestations et services de l'Administration générale (Location de la salle des fêtes de la Mairie)
71010			Taxes sur délivrance des permis d'habiter
71030			Taxe de séquestre
71031			Produits des ventes effectuées au titre de la fourrière
71120		Recettes des services de collectivité	Taxes ou redevances de bornage
71126			Autres recettes de prestations et services au titre de l'urbanisme et de l'environnement (autorisation de construire)
71130			Taxe d'enlèvement des ordures menagères
71131			Redevances de vidange et curage
71134			Taxes d'inspection sanitaire des produits alimentaires
71136			Autres recettes de prestations et service d'hygiène et salubrité publique, hydrolyque, addiction d'eau
71150			Inhumations et exhumations, creusements de tombes
71152			Morgues, dépots de cercueils
71154			Concessions de sépultures
71242		Recettes des services sociaux, culturels et de promotion humaine	Manifestations sportives
71250			Administration des activités culturelles
71251			Bibliothèques publiques
71255			Centres Culturels
71256			Autres recettes de prestations et services au titre des activités culturelles
7126			Autres recettes des services sociaux, culturels et de promotion humaine
71330		Recettes des services économiques	Adtion des transports et des communications
71331			Transports par routes-Gares routières-stationnement de taxis
71336			Autres recettes de prestation et service au titre des transport
71341			Abattoirs, conservation et transports de viande
71344			Marchés
71345			Foires et expositions
71346			Autres recettes de prestations et services au titre de l'industrie et du commerce
71353	REVENUS DU PATRIMOINE ET DU PORTEFEUILLE	Revenus du patrimoine immobilier	Hôtellerie, Hébergements
72000			Baux à loyer
72002			Baux emphythéotiques
72020			Droits de pacage
72030			Occupations sur permissions administratives
72031			Concessions sur accord conventionnel
72032			Droits de dépôts temporaires
7300	AIDE DE L'ETAT, FONDS DE CONCOURS, AIDES EXTERIEURES	Dotation gbobale de fonctionnement	Partie minimale
7301			Partie complémentaire, versement général
7302			Partie complémentaire, versement spécial
401		Dotation gbobale d'investissement	Subventions d'équipement de l' Etat
7341		Aide	Aides bilatérales
7403	RECETTES DIVERSES	Recettes diverses	Amendes forfaitaires
7406			Autres versements (ristournes des patentes par anticipation, vignettes autos)
7436			Autres recettes accidentelles
110	PRODUITS DE L'ALIENATION DES BIENS DU PATRIMOINE	Produits de l'alienation des biens du patrimoine	Patrimoine mobilier des services généraux
111			Patrimoine mobilier des services de collectivités
420			Equipement des services généraux
421			Equipement des services de collectivité
422			Equiepement des services sociaux
423			Equipement des services économiques

PART II: FISCAL DECENTRALIZATION AND DOMESTIC REVENUE MOBILIZATION

CHAPTER 3: EFFECT OF CENTRAL TRANSFERS ON MUNICIPALITIES' OWN REVENUE MOBILIZATION: DO CONFLICT AND LOCAL REVENUE MANAGEMENT MATTER?

Abstract

This chapter analyzes the effect of the transfers from central government to municipalities on the revenue mobilization by municipalities in Côte d'Ivoire over the period 2001-2014. The analysis is based on a new carefully-constructed dataset covering the conflict and post conflict periods for 115 municipalities. A two-stage least squares estimator is combined with the Grouped Fixed Effects estimator to address a potential endogeneity bias and to allow for unobserved heterogeneity varying over time. The results show a statistically significant and positive effect of central transfers on revenue mobilization by municipalities for both tax revenue and non-tax revenue. The effect of transfers is found to be higher for tax revenue than for non-tax revenue. The conflict eroded the capacity of municipalities to raise revenue. During the conflict, a 10 percent increase in transfers is associated with a 3.3 percent increase in revenue mobilized by municipalities, while this increase reaches 5.9 percent after the conflict.

Keywords: Fiscal decentralization, Municipality revenue, grouped fixed effect, conflict, Côte d'Ivoire.

JEL Codes : H3, H7, O1.

1. Introduction

Since the 1980s, many Sub-Saharan African countries have considered fiscal decentralization as a main reform to foster development. However, in most of these countries, central governments have been reluctant to delegate taxing responsibilities to local governments resulting in a considerable imbalance between responsibility for expenditure and revenue collected (Bird 2010; Dahlberg et al. 2008). Therefore, transfers from central government constitute an important source of revenue for local governments. In recent years, a growing literature has highlighted the potential (dis)incentive effect of transfers from central government to local governments on local revenue mobilization. The dependence of local governments on central transfers has led to a number of effects which have been analyzed in the literature (E. Caldeira & Rota-Graziosi, 2014; Cyan et al., 2013; B. Knight, 2002). Local governments may be discouraged from collecting their own revenue, thus reducing their financial autonomy and accountability to citizens. Transfers are often tied to specific projects, with limited decision-making responsibilities for local authorities (Rajaraman & Vasishtha, 2000). However, central transfers can also stimulate local revenue mobilization when the distributional formula includes local tax effort as a determinant of the amount of transfers (Bahl, 1999; Jean-Paul, 2014).

In Côte d'Ivoire, where the process of fiscal decentralization started in the 1980s, transfers represent nearly 80 percent of total local revenue in some municipalities (DDLD, 2014a). This dependence on central transfers may have increased with the conflict that the country experienced from 2001 to 2008[61]. Moreover, the conflict may have eroded the local tax base and affected the capacity of municipalities to raise taxes. Central government may also have diverted revenue away from municipalities to military/security spending.

[61] The 2007 peace agreement was signed by all political parties in the country, and marked the end of tension. Both sides agreed to a free and fair general election to be held in 2008. We believe that this agreement might have induced a change in the behavior of municipal government.

The purpose of this chapter is to look at the impact of central transfers on revenue mobilization by municipalities in Côte d'Ivoire, and also to explore the channels through which they operate. The hypothesis is that the effect of transfers is different for the mobilization of municipal tax revenue from for the mobilization of municipal non-tax revenue[62]. Indeed, the conflict might affect the municipal tax base and municipal non-tax base differently, because the municipal tax base appears to be more regular than the municipal non-tax base. This study also investigates whether the effect of transfers on revenue mobilization by municipalities was different in the conflict period from the post-conflict period[63].

This chapter makes 3 contributions to the literature. First, the chapter analyses the effect of central transfers both during the conflict period and the post-conflict period. Second, it uses a new database for Côte d'Ivoire, consisting of municipal revenue combined with conflict indicators and the national Household Living Standard Survey (HLSS). To the best of our knowledge, this study is the first to analyze the effect of transfers on municipal revenue mobilization with such a disaggregated dataset for Côte d'Ivoire. Third, the chapter uses an improved econometric method based on Grouped Fixed Effects (GFE), which estimates group membership from the data, and controls for both time-varying and time-non-varying heterogeneity. Previous studies assume that unobserved heterogeneity is constant over time. The principal finding is that central transfers increase municipal revenue mobilization. This result is opposite to those of Mogues & Benin (2012), who find that external transfers to Ghana's districts do not encourage local revenue-raising. A possible explanation is that the effect differs depending on the specific country context, including the scope of the delegation

[62] According to legislation, municipal own revenue has two principle components: revenue collected by municipalities, and revenue collected on behalf of municipalities by the General Tax Directorate and shared according to a formula.

[63] In Côte d'Ivoire property tax, essentially based on urban residential and commercial buildings and local businesses, represents the most important part of the municipal tax base. It appears to be more stable and less likely to be affected by conflict than municipal non-tax revenue, which is based on fees and charges – as shown in Sections 2.2 and 2.3.

of revenue raising responsibilities to municipalities, the local government's discretion in setting local tax rates, and other potential constraints which affect its ability to increase its own revenue. Another potential explanation comes from the allocation formula in Ghana, which does not contain a criteria which encourages improvements in local revenue mobilization, as shown by Mogues & Benin (2012).

The difference might also be explained by the econometric method used in this study which allows for controlling of time-varying heterogeneity. As expected, the effect of transfers is bigger for tax revenue than for non-tax revenue. The results also suggest that conflict has a negative and significant impact on revenue performance. This effect seems to work mainly by diverting revenue away from transfers to conflict related expenditures.

The remainder of the chapter is organized as follows. Section 2 provides an overview of the literature, highlighting channels through which transfers might affect revenue mobilization by municipalities. Section 3 focuses on the characteristics of the decentralization process in Côte d'Ivoire. Section 4 contains a statistical analysis of Côte d'Ivoire's transfer system and presents the potential correlation of transfers with local revenue mobilization. Section 4 describes the data and econometric approach used. The main results are presented and interpreted in section 5 which also contains robustness tests. Section 6 concludes and discusses the policy implications.

2. Intergovernmental transfers and local revenue mobilization in the literature

The theory of fiscal federalism has long studied the optimal design of the transfer between different levels of governments and proposes that various equalization schemes may be adopted to address the issue of fiscal imbalances between local governments. These transfer systems can generate efficiency gains by internalizing the fiscal externality (R. Bird & Slack, 1990;

Boadway & Flatters, 1982; Wildasin, 1983). In addition, Hines & Thaler (1995) conclude that central transfers equalize the citizens' access to public services across local governments by adding resources to locally generated revenue (Emilie Caldeira & Rota-Graziosi, 2014). Wildasin (1983) highlights the features of transfers as the main determinant of their effects on local revenue mobilization. Based on a general equilibrium model, Wildasin (1984) shows that matching transfers are preferable to lump-sum transfers. This is particularly relevant when transfers can be optimally designed for each local government.

Caldeira & Rota-Graziosi (2014) highlight a virtuous circle between transfers from central government and local own revenue using an optimal tax theory model and unconditional central transfers. Central transfers can increase local public spending, which improves public service delivery and reinforces the accountability of local authorities. The resulting higher accountability in turn leads to stronger voluntary tax compliance boosting local own revenue mobilization.

However, these positive views on transfers have been challenged by the second generation of fiscal federalism. Weingast (2009) argues that equalization transfers may have adverse fiscal incentives. Local governments are more likely to improve public services delivery, and to increase revenue mobilization, if they are able to withhold a substantial share of their local revenue[64].

Transfers might be perceived as a kind of windfall resource in recipient municipalities, crowding out local own revenue. Transfers may also reduce local tax compliance by severing the connection between local authorities and taxpayers.

According to Oates (1993), the preferences of the citizens are better accounted for, when local authorities are provided with increased tax-raising responsibilities. The assumption that being

[64]Buettner (2006) finds that the amount of transfers can lead to more inequality among German municipalities.

taxpayers who expected services will be more tax compliant, resulting in less resistance to cost-recovery of user charges (Bahl, 1999). Bahl & Linn (1992) and Moore (2008) argue that in developing countries a high dependence on central transfers can make local governments less accountable for their fiscal decisions and reduce local tax effort. The improved efficiency in service delivery predicted by the first generation of fiscal federalism literature is based on competition between local governments (Tiebout, 1959). This competition is based on a budget constraint for local governments which must bear the full financial consequences of their policy decisions (Weingast 2009). Thus, in a context of soft budget constraints, the dependence on matching transfers may mitigate the expected results from fiscal decentralization, and as a consequence reduce local revenue mobilization. Transfers between levels of government may also worsen local revenue performance due to corruption. Prud'homme (1995) suggests that 'local politicians and bureaucrats are likely to be more subject to pressing demands from local interest groups'. Therefore, local authorities can divert transfers away from their intended objectives for personal gain, especially in countries where local elections are based on tribal and/or on political affiliation (Banful 2011). According to Bucovetsky & Smart (2006), equalization transfers designed to increase equity in revenue across local governments, induce excessive local tax rates, and so increase the dead-weight loss from distortionary taxation when tax bases are immobile. However, beyond the theoretical arguments, the empirical effects of central transfers on local revenue mobilization are inconclusive. Dahlberg et al. (2008) establish a crowding-in effect in a study which addresses the potential endogeneity of transfers. They find that larger external transfers do not significantly affect local tax rates nor local tax revenue. Caldeira & Rota-Graziosi (2014) investigate the incentive effect of unconditional transfers collected centrally, and allocated to municipalities according to population size, in Benin. They find support for an incentive effect of transfers on local own revenue. However, the analysis is concerned only with road tax. J. Brun & Elkhdari (2016) assess the fiscal incentive effect of

both unconditional and conditional transfers in Morocco. Their results support the existence of a significant incentive effect of unconditional transfers and a nonsignificant effect of conditional transfers. The assignment criteria for transfers play a key role in the relationship between central transfers and revenue mobilization by local governments. Bird & Vaillancourt (2006) conclude that assignment criteria should not discourage local authorities from collecting their own revenue. Unfortunately, in most countries, the allocation is often motivated by political rather than economic and social considerations (Chambas, 2010; Solé-Ollé & Sorribas-Navarro, 2008). However, many studies empirically identify a negative effect of transfers from central governments to local governments. Zhuravskaya (2000) shows that local governments in Russia have no incentive to exert any tax-raising effort when transfers from higher level government increase. A high transfer dependency is likely to induce a lack of fiscal discipline among local governments (Martinez-Vazquez & Rider, 2006). Indeed, in a context in which transfers are used to loosen local budget constraints, local governments have an incentive to increase their deficit as they expect support from central government (Bordignon, Manasse, & Tabellini, 2001). Along these lines, Rodden (2005) and Martell & Smith (2004), focusing on Germany and the United States respectively, find that local governments expecting a bailout tend to borrow more than those that do not. Local governments facing soft budget constraints are potentially suffering from 'flypaper effect'[65]. This is likely to create instability, which will, in turn, reduce tax effort (Richard M Bird, 2010; Ter-Minassian, 1997; Weingast, 2009)[66].

[65] According to the flypaper effect, an increase in transfers leads to greater local public spending rather than a rise in the private revenue of the local population (Filimon, Romer, & Rosenthal, 1982; Hines, 1995; Knight, 2002).

[66] Local authorities are also more likely to spend efficiently the resources they have raised themselves locally than external resources as highlighted by Bird & Smart (2002).

3. Fiscal decentralization in Côte d'Ivoire

3.1 Overview of Côte d'Ivoire

Côte d'Ivoire is a sub-Saharan African country; more than 54 percent of its population lives in urban areas (World Bank, 2015). Since 1980, Côte d'Ivoire has attempted to implement decentralization by transferring responsibility for expenditure and revenue-raising to local governments, with the aim of improving effectiveness and efficiency in the delivery of public services. From 2001 to 2008 the country experienced a political conflict marked by sporadic events of different intensity across the municipalities. A peace agreement was signed by all political parties, and marked the end of tension in 2007. Both sides agreed to a free and fair general election to be held in 2008[67]. This agreement might have induced a change in the behavior of municipalities. Thus, the study considers the post conflict period starting from 2008. The revenue structure of local government in Côte d'Ivoire is largely inherited from the colonial period. Law No. 55-1489 of 18 November 1955 established municipalities in Abidjan, Bouaké, and Grand Bassam, but they did not have financial autonomy. After independence in 1960, decentralization, especially the financial autonomy of municipalities, was clearly not a priority for the central government. Although municipal council members and mayors were elected, the central government only started the process of decentralization under Law No. 80-1162 of 17 October 1980. This law defined a specific status and electoral regime for municipalities, and created 37 municipal councils in addition to Abidjan. In 2000, the government adopted a new constitution, which sets out the principles of administration and financial autonomy of local authorities. This constitution divides the country into a multi-tiered system with 19 regions which are sub-divided into 58 départements led by département councils, which are again sub-divided into 197 municipalities. Since 2011, although the number of municipalities has

[67] Although some events may have occurred after 2008, but these events are less likely to influence the overall effect of central transfers (see appendix B for the distribution of conflicts events in the country).

remained unchanged, the central government has reorganized the country into 14 districts (with full autonomy for Abidjan and Yamoussoukro), 31 regions, 95 départements, and 197 municipalities, each with an elected mayor. The Directorate in charge of decentralization and local development (DDLD), part of the Ministry of Interior, manages the decentralization process. The Ministry of Economy and Finance collaborates with the DDLD to define the amount of transfers and their allocation. These administrations interact with municipalities organized in the Côte d'Ivoire association of cities and municipalities. The relationship between central and local government is organized through a trusteeship system with two levels, in which central administration approves decisions and provides assistance to municipalities. In the process of strengthening the fiscal autonomy of municipalities, more than 35 legislative decrees and laws have been passed to delegate expenditure responsibilities, tax base and revenue raising capacities to municipalities. These responsibilities are often related to the provision of important public services such as health and education facilities, water and sanitation, local urbanization, and also include responsibility for raising revenue.

3.2 Structure of local revenue in Côte d'Ivoire

In Côte d'Ivoire, as in many developing countries, total local revenue represents a small fraction of GDP. Figure 1 shows as a percentage of GDP, the contribution of different types of local revenue. Total local revenue represented only 0.64 percent of GDP in 2004 and 0.53 percent in 2005[68]. Local tax revenue represents the largest share of this total revenue, with, on average, 0.26 percent of GDP for the 2 years. At the same time, central transfers account for 0.20 percent of GDP. Local non-tax revenue, collected by local governments was 0.13 percent of GDP. Other revenue accounted for about 0.1 percent of GDP in 2005.

[68] The data used do not allow creation of a graph for more recent years as they are aggregated for all sub-national levels (figure 1). These data represent all levels of sub-government in the country (districts, regions, départements and municipalities) while the figure 3 concerns only the municipal level.

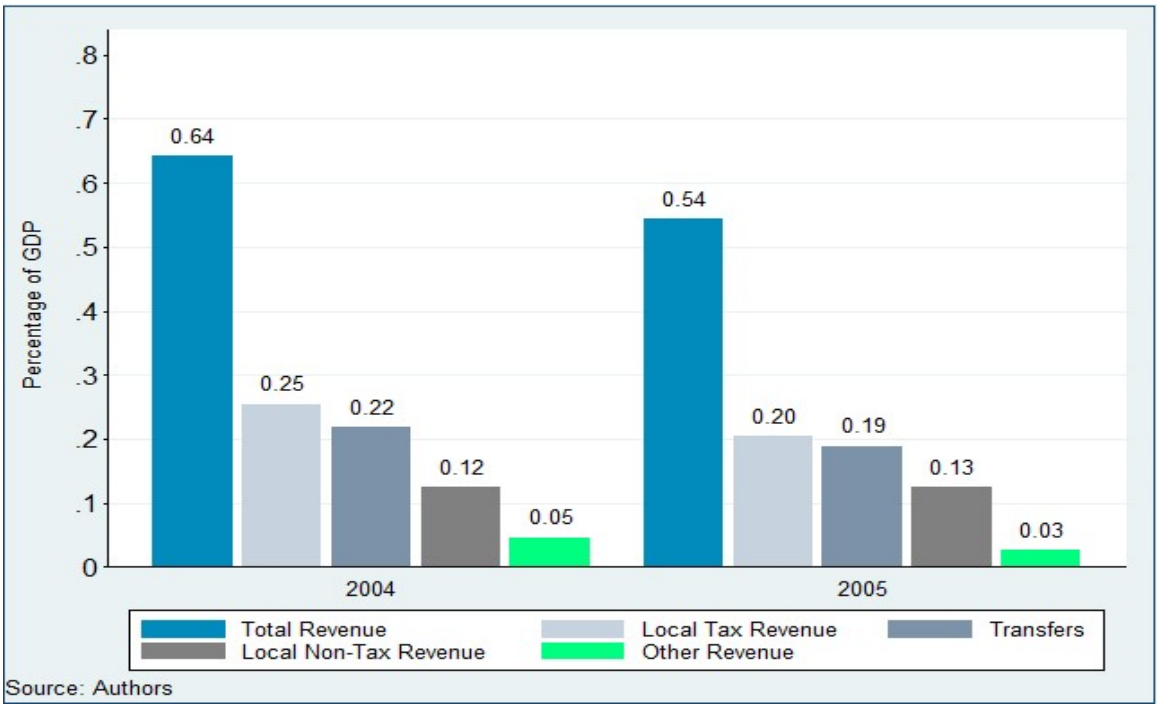


Figure 1: Local government revenue structure as percentage of GDP, Côte d'Ivoire 2004 and 2005 (all levels of sub-central government)

Figure 2 shows that municipal own revenue has three components: The first component is the revenue collected on behalf of the municipality by the central General Tax Directorate (GTD), called Municipal tax revenue (MTR) and paid to municipalities[69]. The second is the revenue collected by municipalities, called Municipal non-tax revenue (MNTR)[70]. The third component is named Other Revenue. MTR is raised with the help of municipalities. For instance, the identification of the tax base requires an effective participation by municipalities. Moreover, some of them provide central government with a significant number of staff and resources (e.g. Bouaké, Daloa, San-Pedro).

[69] Central government transfers this revenue excluding management costs.

[70] Municipal non-tax revenue, although called non-tax, contains municipal revenue that can be classified as taxes.

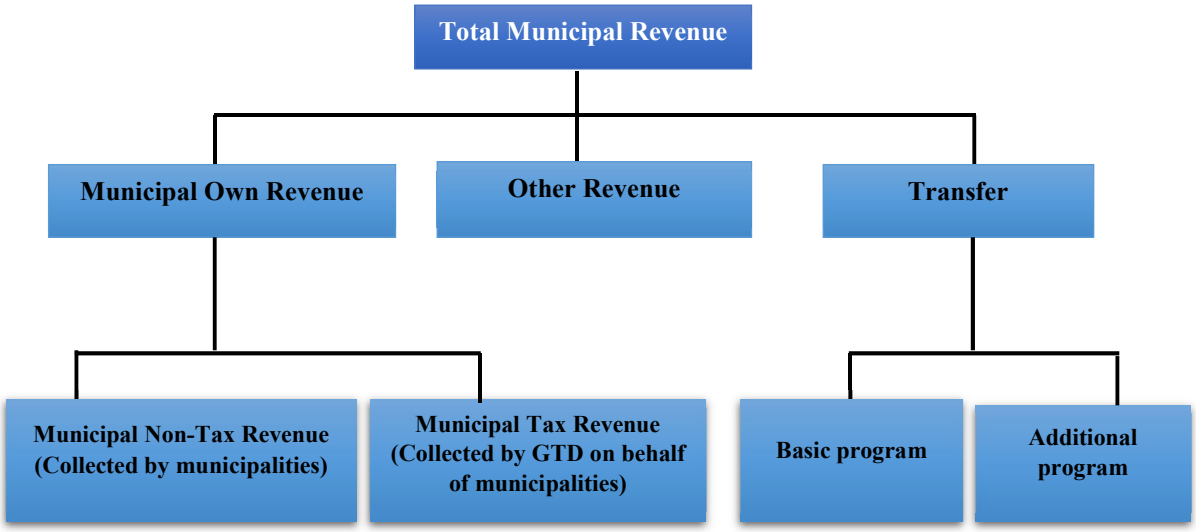


Figure 2: Municipal revenue structure

Figure 3 presents the composition of total municipal revenue from 2001 to 2014. Transfers from central government contributed, on average, more than 50 percent of total municipal revenue. The share of transfers slightly decreased in the three-year period leading up to the 2010 national election[71]. MNTR accounted for, on average, less than 25 percent of municipal total revenue while MTR was on average, 20 percent, and was relatively constant in absolute terms in the years up to 2014. Adding these 2 components, own revenue is 45 percent of municipal total revenue. This share is relatively low compared to some developing countries like Benin, where municipalities' own revenue contributed 69 percent of total revenue over the period 2003 to 2008.

[71] This trend suggests a possible reassignment of resources to election expenditure, since the allocation criteria of these transfers remain mostly under the discretion of central government.

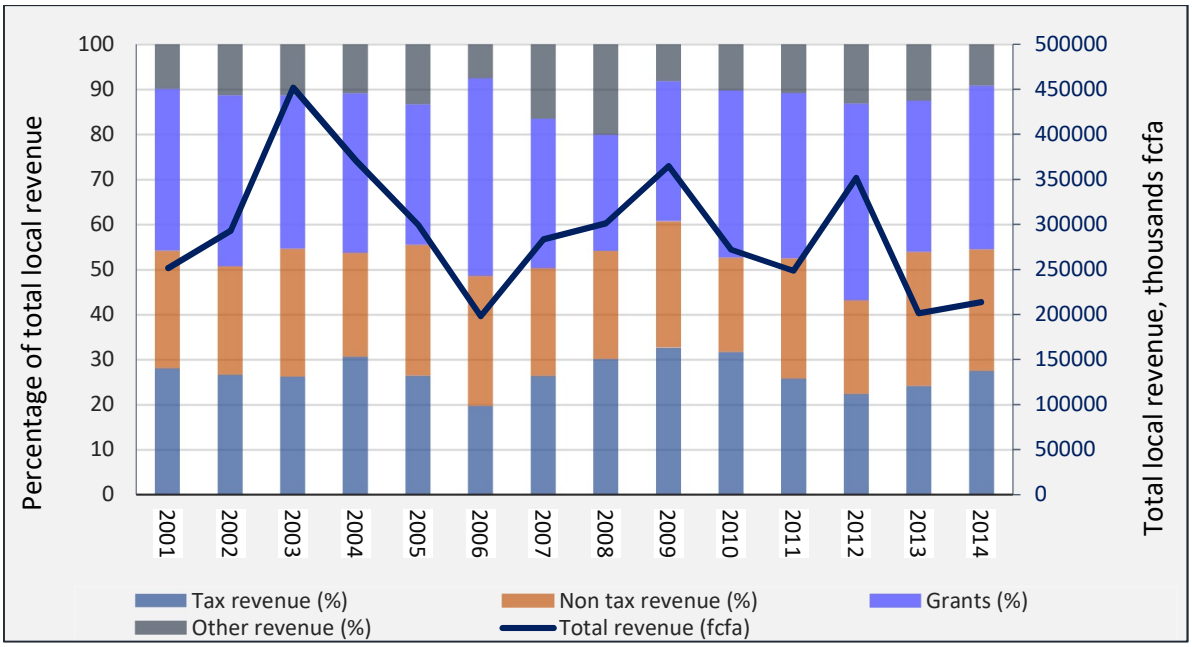


Figure 3: Composition of municipality revenue as a percentage of total municipality revenue, Côte d'Ivoire 2001-2014.

As noted by Bahl (2000) for developing countries, Côte d'Ivoire is characterized by wide revenue disparities between regions particularly between the large urban municipalities and the rural ones. Table 1 shows for 2012, the structure of total municipal revenue according to population size. Municipalities in Abidjan District and large urban municipalities (e.g. Daloa and Korhogo) internally mobilize (MNTR) for more than 45 percent of their total revenue. Small municipalities (e.g. Bédiala and Kaniasso) collect less than 10 percent of total revenue, and so are heavily dependent on transfers from central government. Some northern municipalities (e.g. Kanakono and Kouto) collect almost no revenue, and MNTR accounts for less than 1 percent of their total revenue (DDLD, 2014). These disparities justify the use of transfers to reduce the inter-regional inequality in revenue potential. In order to make this equalization policy more effective and pro-poor, as well as to improve local revenue mobilization, a number of issues must be considered: the type of these transfers, the formula used to allocate resources, and the expenditure responsibilities of local government.

Table 1: Revenue structure across different categories of municipalities, Côte d'Ivoire, 2012

Category	Municipality	Tax revenue		Non-tax revenue		Central transfers		Other		Total revenue
		Value* Millions Fr CFA	% TLR	Value Millions Fr CFA	% TLR	Value Millions Fr CFA	% TLR	Value Millions Fr CFA	% TLR	value
Abidjan	Adjame	923.85	44.12	973.03	46.47	197.21	9.42			2094.09
	Abobo	581.26	25.80	911.59	40.46	179.09	7.95			2252.83
Large	Daloa	241.59	25.13	441.53	45.92	278.40	28.95			961.52
	Kohorgo	168.40	34.19	200.28	40.67	51.15	10.39	72.67	14.75	492.49
Middle	Tanda	37.83	21.45	26.58	15.07	98.70	55.97	13.23	7.50	176.35
	Biankouma	8.72	6.89	24.46	19.32	47.74	37.71	45.68	36.08	126.60
Small	Bédiala	0.38	0.40	11.18	11.61	82.33	85.52	2.38	2.48	96.27
	Kaniasso	0.30	0.47	1.79	2.86	60.06	95.87	0.50	0.80	62.65

*Base data - millions of Franc **(Fr)** CFA unless otherwise specified. TLR – Total Local Revenue
Source : Calculation by authors with Côte d'Ivoire data from the Ministry of Interior (DDLD).

3.3 Transfers from central government and municipality own revenue

Central transfers are the most important source of financing for a large number of municipalities in Côte d'Ivoire. There are two main components of central transfers: unconditional transfers and a conditional transfer program [72]. For the unconditional transfers, the total amount of the transfers is determined annually by the Directorate General for budget in collaboration with local governments and approved by the Parliament. It is a mix of finance for capital expenditure, and finance for operating expenditure[73]. The mix aims to help municipalities to provide a minimum level of public services to their citizens. The distributional formula is based on several indicators: size of population, presence of decentralized entities of central government, tax capacity, etc. The amount of transfers for capital expenditure is largely discretionary. The conditional transfers serve to cover exceptional expenditures faced by Abidjan, Bouaké, Korhogo and Yamoussoukro according to legislation[74].

[72] It is called 'aide exceptionelle'.

[73]The transfers for capital expenditure are called 'dotation générale pour investissement'; and the transfers for recurrent expenditure are called 'dotation générale de fonctionnement'.

[74] The conditional transfers are called "aide exceptionelle"

Figure 4 shows that over the 3 post-conflict years, transfers made for current expenditure are higher than those made for capital expenditure for all municipalities[75]. In the regions, most affected by the conflict (western and northern regions), transfers for capital are almost equal to transfers for current expenditure[76]. This may reflect the central government's goals of improving the supply of basic services after the conflict and reducing regional disparities. The literature has shown that transfer systems organized to reduce differences between regions (horizontal imbalance), can have disincentive effects. Some municipalities can free-ride and under-exploit their tax potential, as shown by Weingast (2014).

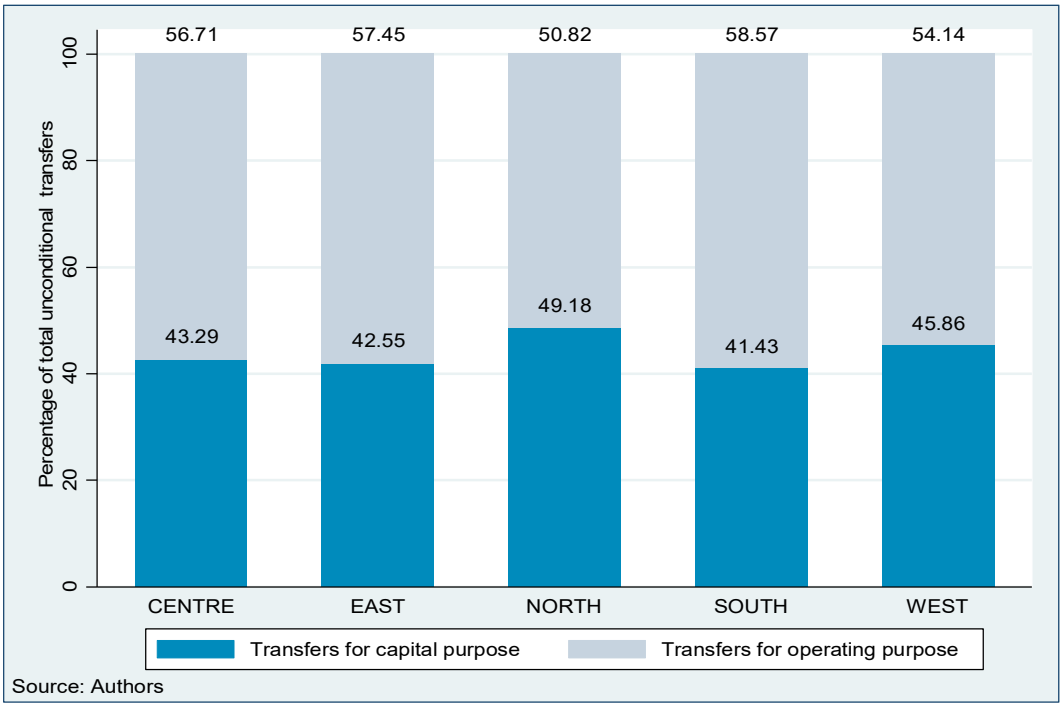


Figure 4 Composition of unconditional transfers, post-conflict Côte d'Ivoire, 2010-2012

Figure 5 presents the main components of MNTR for the period 2002 to 2007: business licenses, residential tax, and various fees (for business, market, construction permits, bars, shows, advertising, hotels, etc.); service fees (water, sanitation, waste collection, etc.); and motor

[75] Data not available for the most recent years.

[76] Disaggregated data do not allow to report for the recent years.

vehicle tax. On average, the tax on small businesses and licenses contributed most to MNTR, more than 26 percent, lease charges were less than 6 percent. Market fees and residential tax together were almost 50 percent of municipal own revenue (DDLD, 2014).

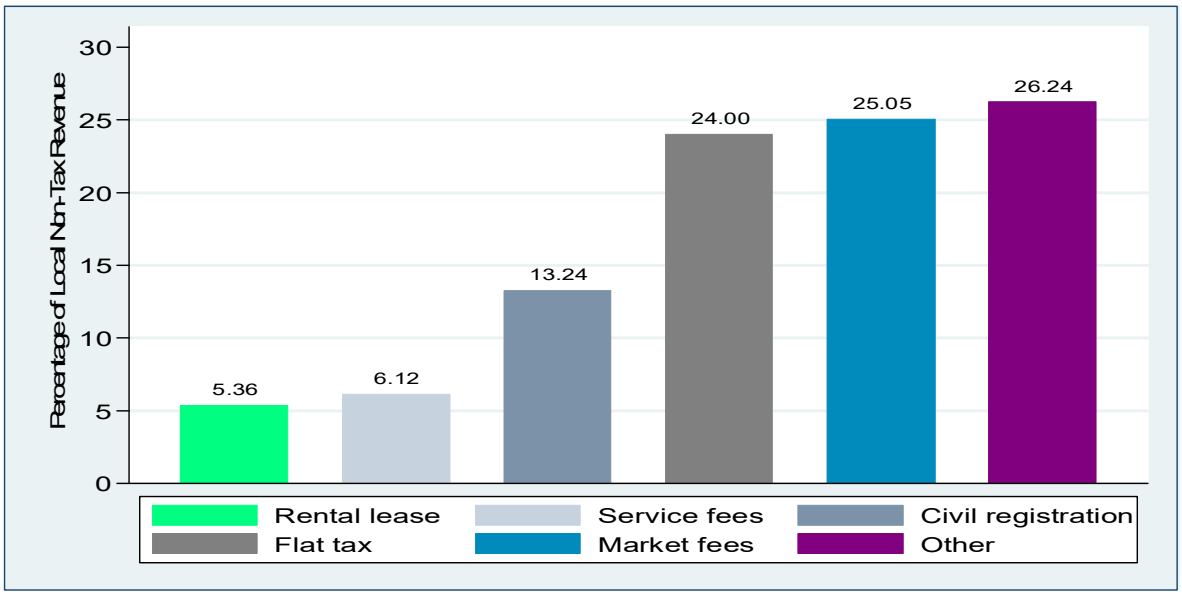


Figure 5 Composition of municipal non-tax revenue, Côte d'Ivoire, 2002-2007

Table 2 presents the formula for the distribution of the local tax revenue. The collection of local tax by central tax administration on behalf of local governments aims to increase the efficiency of the tax system because the administrative capacity of municipalities is often limited. Local tax revenue includes property tax[77], public road network tax, water and sanitation fees. These taxes are distributed between six levels of governments (municipalities, cities[78], départements, regions, districts, and central government). Other taxes consist of motor vehicle tax, synthetic tax, business licenses, and gambling tax (casino). Except for Motor vehicle tax, 40 percent of these taxes are allocated to municipalities. As municipalities are the only level of local

[77] In Côte d'Ivoire, the availability of relevant property registers is limited and agricultural land is not yet included in the property tax base.

[78] The legislation introduces exceptionally the notion of "city" in the distributional formula. Only the cities of Abidjan and Yamoussokro are concerned, receiving 5 percent of the revenue from business license, motor vehicle tax, property tax and land tax.

government with tax-raising responsibilities, this redistribution scheme may negatively affect their tax effort.

Table 2 Distributional formula for the revenue collected by GTD in Côte d'Ivoire

Type of revenue		Distributional formula					
		Municipality	City	District	Département	Region	Central government
Other taxes	Business licenses	40%	5%	5%	25%	15%	10%
	Synthetic tax	40%	no	no	25%	10	15%
	Tax on casinos	no	no	100%	no	no	no
Vignette	Motor vehicle tax	20%	5%	10%	30%	15%	20%
Property tax	Tax on public road network, hygiene and sanitation	40%	5%	5%	25%	15%	10%
	Property tax	40%	5%	5%	25%	15%	10%
	Land tax (non-built or vacant lands)	40%	5%	5%	25%	15%	10%
	Local residence tax	40%	no	no	no	no	60%

Source GTD-Côte d'Ivoire

Table 3 summarizes the distribution of tax revenue between local governments in 2012. Central government kept more revenue than would be expected according to the formula. Municipalities received slightly less than the predefined 40 percent. On average, this share was 35.4 percent (FCFA 36.87 billion). Only the revenue from the motor vehicle tax complies with the distributional formula, with 20 percent allocated to municipalities (FCFA 2.13 billion). The central government withheld 29 percent of local tax revenue. Even though business licenses are intended to be a significant revenue source for local government, the share retained by the central government is more than 25.2 percent, well above the 10 percent fixed by the law.

Table 3 Local tax revenue collected by GTD and distributed between different levels of government, post-conflict Côte d'Ivoire, 2012.

Government level *	Business licenses				Synthetic tax	Gambling tax	Motor vehicle tax	Stamp duties	Property Tax	Sub-Total 2	Total
	Purchasers	Traders	Public Transport	Sub-Total 1 Business licenses							
Central Government	75.99	8912.47	769.92	9758.39	2715.50	0	1756.24	4290.5	11727.89	20490.15	30248.54
	32.66%	**25.12%**	**26.08%**	**25.24%**	**52.49%**	**0.00%**	**16.49%**	**97.7%**	**26.01%**	**31.3%**	**29.05%**
District	0.8	10182.92	546.45	10730.18	441.53	161.28	3394.18	0	10269.54	14266.55	24996.73
	0.34%	**28.70%**	**18.51%**	**27.75%**	**8.53%**	**100.00%**	**31.89%**	**0.00%**	**22.78%**	**21.80%**	**24.01%**
Département	67.37	2194.01	474.48	2735.88	101.68	0	976.57	0	1536.05	2614.3	5350.18
	28.95%	**6.18%**	**16.07%**	**7.07%**	**1.96%**	**0.00%**	**9.17%**	**0.00%**	**3.41%**	**3.99%**	**5.14%**
Municipality	88.46	14181.63	1160.63	15430.73	1914.19	0	2138.67	0	17387.6	21440.47	36871.21
	38.02%	**39.98%**	**39.32%**	**39.91%**	**37.00%**	**0.00%**	**20.09%**	**0.00%**	**38.57%**	**32.76%**	**35.42%**
Other	0	0	0	0	0	0	2378.31	100.74	4164.51	6643.57	6643.57
	0%	**0%**	**0%**	**0%**	**0%**	**0%**	**22.34%**	**2.29%**	**9.24%**	**10.15%**	**6.38%**
TOTAL	232.64	35471.04	2951.50	38655.19	5172.92	161.28	10643.99	4391.24	45085.59	65455.04	104110.24

* Base data - millions of Franc CFA, unless otherwise specified.

Source: Calculation by authors with Côte d'Ivoire data from Directorate General of Taxation.

4. Empirical analysis

4.1 Data

The analysis draws on 3 sources of data: The local government revenue and expenditure dataset is constructed from the Administrative Accounts of municipalities collected by the DDLD, and the National Accounts from the Ministry of Economy and Finance. This dataset provides information for 115 municipalities over the period 2001-2014. It includes Municipal Own Revenue, transfers from central government, other revenue, and data on expenditure. The socioeconomic and demographic variables are taken from the national Household Living Standard Survey (HLSS) for the years 2002 and 2008. The HLSS is a national demographic and economic survey which provides information on living conditions, infrastructure, poverty, education, employment, and other covariates[79]. The design of the HLSS ensures a representative sample of Côte d'Ivoire's 196 municipalities. Approximately 10,800 households

[79] The surveys provide information on whether the household has access to several facilities like running water, electricity, health, and education services. They also contain information about households own durable goods such as fridge, computer, car, etc.

were surveyed in 2002 and 13,657 households in 2008. Additionally, information relative to geographical distribution of the population from the Institut National des Statistiques (National statistical office) is used to calculate the density of population and the share of urban population for the period under study. The conflict indicators were computed from the Armed Conflict Location and Event Dataset (ACLED) (Raleigh, Linke, Hegre, & Karlsen, 2010). ACLED contains information on the exact dates and location of political violence, the conflict events, and a fatality index which measures the intensity of each event. The conflict events selected in this data include battles (violence against civilians and rioting), protests (non-violent demonstrations), and other non-violent events[80]. As the data for the 2008 HLSS survey are not available at the municipal level, the data are aggregated at département level. Thus, the dataset covers 14 years (2001-2014) for 35 département[81].

The conflict indicators were computed from the Armed Conflict Location and Event Dataset (ACLED) (Bonhomme & Manresa, 2015). ACLED contains information on the exact dates and location of political violence, the conflict events, and a fatality index which measures the intensity of each event. The conflict events selected in this data include battles (violence against civilians and rioting), protests (non-violent demonstrations), and other non-violent events[82].
As the data for the 2008 HLSS survey are not available at the municipal level, the data are aggregated at *département* level. Thus, the dataset covers 14 years (2001-2014) for 35 *département*[83].

[80] As the period under study period is characterized by political instability and sporadic conflict events, it is reasonable to think that this context may have negatively affected the capacity of local government to raise taxes.

[81] Since the original revenue data are at the municipal level, the paper continues to use the term "municipal revenue".

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[83] Since the original revenue data are at the municipal level, the paper continues to use the term "municipal revenue".

4.2 Summary and Descriptive statistics

Table 4 presents descriptive statistics. For the whole sample, the average transfer per capita is FCFA 1551.2 with a standard deviation of 3491.7. This amount is higher in the Southern département (4099.6) than in the Northern département (1067.3), which suffered from a higher incidence of conflict. The difference between the northern and southern areas is also seen in household living conditions and tax base. For example, the mean poverty headcount in the north is 42 percent, but only 36 percent in the south. The correlation between municipal revenue mobilization and transfers from central government. The Logarithm of per capita own revenue (tax and non-tax) is used to measure municipal revenue mobilization.

Table 4 Summary statistics

Variable	All Sample			Northern		Southern	
	Obs.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Population	385	98190	116880	126560	180587	85188	67276
Poverty headcount	385	0.38	0.16	0.42	0.18	0.36	0.14
Density (people per km^2 land area)	385	56.36	41.09	27.21	13.29	69.72	42.59
Urban (share of urban population)	352	0.45	0.23	0.46	0.16	0.44	0.26
Household annual consumption	385	930755.9	545811	841559.2	521151.1	971637.7	552910
Illiteracy rate	385	0.6	0.14	0.73	0.12	0.54	0.1
Education (primary school degree-CEPE)	385	0.3	0.08	0.28	0.08	0.31	0.08
Share with no access to electricity	380	0.44	0.21	0.51	0.2	0.41	0.2
Informal (share of informal sector)	380	0.61	0.1	0.62	0.09	0.61	0.1
Share of households with no access to water	365	0.57	0.2	0.59	0.18	0.56	0.21
Population health index	380	0.16	0.09	0.16	0.09	0.16	0.1
Conflict events (number of conflict events)	385	5.99	9.36	4.74	5.14	6.57	10.71
Conflict events (weighted with fatality index)	378	899.49	4264.63	63.6	312.93	1260.44	5059.12
Share with access to credit	365	0.45	0.4	0.5	0.41	0.42	0.39
Local Non-Tax Revenue (LNTR) per capita	385	666.33	767.19	109.45	344.99	921.57	772.65
Local Tax-Revenue (LTR) per capita	385	662.26	1068.76	100.91	287.06	919.54	1191.11
Total Local Own Revenue per capita	385	2213.49	3636.71	811.01	1199.53	4163.44	31933.32
Central transfers per capita	385	1551.24	3491.70	710.10	1067.34	1936.76	4099.59
Miscellaneous revenue per capita	385	378.85	1564.62	135.95	390.41	490.18	1861.51
Total Expenditure	385	3062994	19000000	79808.01	89162.37	4430288	22900000

Figures 6 and 7 show the relationship between central transfers, municipal tax revenue and non-tax revenue respectively during the conflict (2001-2008). Figure 6 suggests that an increase in

transfers seems to positively affect the revenue collected by municipalities (MNTR) (correlation = 0.28). However, Figure 7 shows that the trend of this relationship is different for MTR (correlation = 0.130). Figures 8 and 9 compare the same positive correlation in the post conflict period (2009-2014). However, the magnitude of the correlation is lower than that for the conflict period. Nevertheless, these graphs suggest a positive relationship between the transfers received by municipalities and their performance in raising their own revenue, although this correlation appears to be higher for MNTR. This difference between MNTR and MTR in terms of correlation also reveals the importance of disaggregating local own revenue when assessing the relationship between transfers and municipal revenue performance, which will be examined in detail in the following section. There is also a need to distinguish the conflict period from the post-conflict period in the empirical analysis.

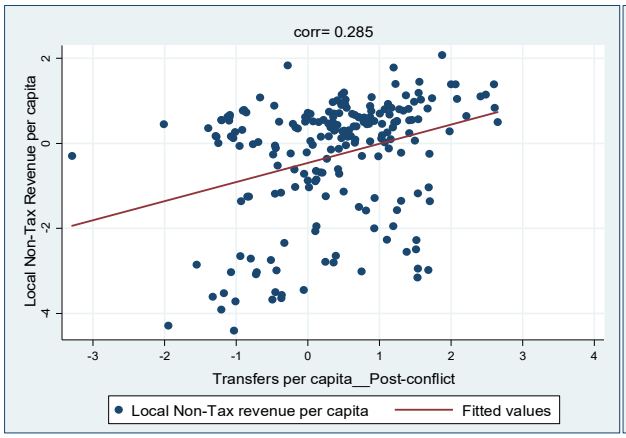


Figure 6 Municipal non-tax revenue vs Central transfers (2001-2008)

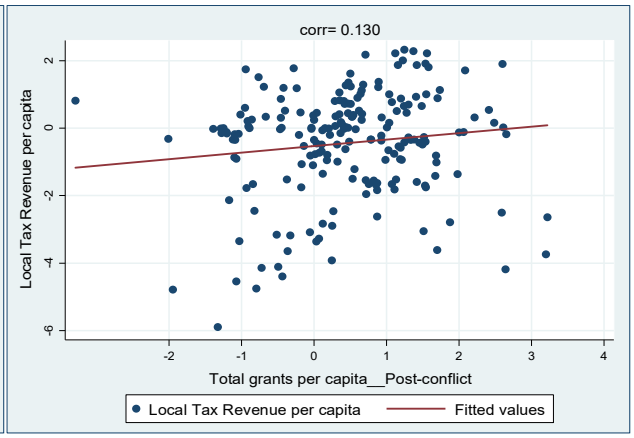


Figure 7 Municipal tax revenue vs Central transfers (2001-2008)

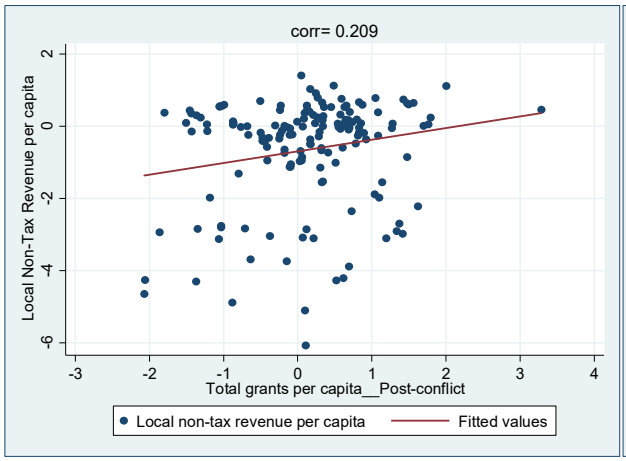


Figure 8 Municipal non-tax revenue vs Central transfers, post conflict (2009-2014)

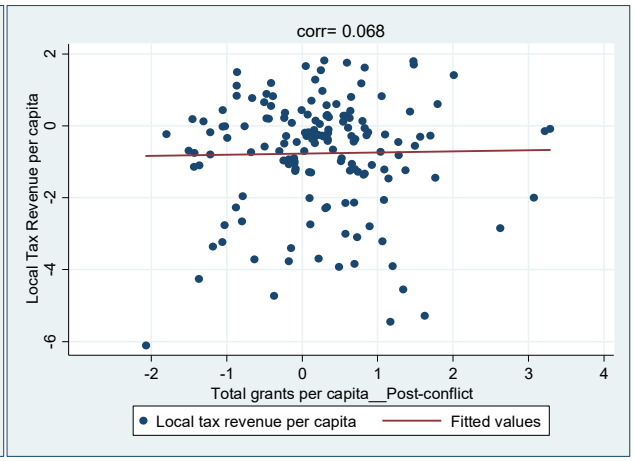


Figure 9: Municipal tax revenue vs Central transfers, post conflict (2009-2014)

Source: Calculation by authors with Côte d'Ivoire data collected by DDLD.

4.3 Choice of estimator and econometric specification

We start by adopting Mogues & Benin (2012) specification in which local revenue is measured by per capita local own revenue and depends on the level of central transfers. However, contrary to their approach, we assume that local governments' unobserved heterogeneity is not constant over the period under study. The Grouped Fixed Effects (GFE) model allows for time-varying unobservable characteristics (Bonhomme & Manresa 2015).

There are several other reasons for using the GFE estimator rather than the FE estimator to control for local government's unobserved specific characteristics in this study. First, the conflict that the country experienced was characterized by several rounds of events with

different intensity and location across the département as shown by Dabalen et al (2012). Combined with the capacity of each département to recover from an economic downturn, conflict tends to cluster département in time and space in terms of revenue performance[84]. The conflict shocks affect each département differently. As argued by Bartolucci, Belotti, & Peracchi (2015), the omitted individual shocks may induce time-varying unobservable individual characteristics. They also highlight the importance of accounting for these time varying effects by using GFE methods. Second, the GFE method is well-suited to deal with the characteristics of data with short time periods (2001-2011), and which have a small within variance for transfers. Also according to Bonhomme & Manresa (2015), the GFE produces consistent estimates as long as the number of groups is correctly identified.

Thus, the specification incorporates time-invariant fixed effects and time-variant grouped effects using the following equation:

$$\ln(MGOR)_{it} = \lambda + \theta_1 \ln(MGOR)_{it-1} + \theta_2 \ln(transfer)_{it} + \theta_3 X_{it} + \alpha_{g_i t} + \eta_i + \varepsilon_{it} \quad (1)$$

The dependent variable $\ln(MGOR)_{it}$ is the logarithm of per capita Municipal own revenue (MNTR or MTR) generated by municipality in *département* i at time t. The variable of interest $\ln(transfer)_{it}$ is the logarithm of transfers per capita to municipalities in *département* i at time t (unconditional and conditional allocation). The lagged tax revenue may affect the current decisions taken by municipalities, it is thus included as a regressor in equation (1).

The control variables (X_{it}) are taken from literature and include economic, demographic, and social characteristics (ref. Table 4). The conflict is controlled for with 2 indices: The first is the number of conflict events by municipality and the second is this number weighted by the fatality

[84] See the maps (Figures 13; 14 and 15) for the distribution of the conflict around the country.

index of each event by municipality. The fatality index reports the number of deaths due to each event; the scale is from 1 to 10 with higher numbers representing a higher incidence of violence.

An important contribution of this chapter is the inclusion of the group-specific unobservable effects $\alpha_{g_i t}$ where $g_i \epsilon \{1, \dots, G\}$ is a group membership which maps individual units into groups that are estimated endogenously with the estimation of parameters. Both the group-specific time patterns and individual group membership are left unrestricted and estimated from the data. ε_{it} represents an idiosyncratic disturbance. The *département* fixed effects (η_i) are also included in equation 1.

Endogeneity is an important issue when analyzing the effect of central transfers on the revenue performance of municipalities. First, simultaneity bias arises if municipal own revenue affects transfers from central government. For instance, central government may reward municipalities which are more efficient in providing public services from their own revenue (Knight 2002). A second potential source of endogeneity bias is that some features of municipalities, such as effectiveness of tax collecting, are unobservable. The omitted variables may induce bias by being correlated with an explanatory variable such as transfers. It is therefore impossible to consider the transfers as an exogenous variable.

We follow Knight (2002) in using the political affiliation of local government as an instrumental variable for central transfers. Thus, a dummy variable takes 1 if the département has the same political affiliation as central government, and 0 otherwise. Being a member of the majority party is a key determinant for a local government to receive a greater share of transfers[85].

Moreover, the dataset allows calculation of the rate of budget implementation for each municipality. This rate is aggregated at the département level and calculated from municipal

[85] The central government allocates more finance to members of their own party across the country in order to increase the likelihood of re-election of their fellow party members, and therefore to increase the probability retaining majority control (Knight 2002).

budget expenditures as the difference between budgeted and actual expenditure at the end of each fiscal year through the following formula:

$$Rate_t = \frac{Expenditures\ executed_t}{Forcasts\ of\ Expenditure_t} * 100$$

The rate of implementation of the budget is a good instrumental variable for transfers since the municipality that spends more than the amount budgeted receive larger transfers the following year. Thus, the rate of implementation is likely to be correlated with transfers allocated. The rate of implementation is also unlikely to be directly correlated with revenue collected by municipality, because the central government applies a formula for setting the overall amount of transfers for each municipality.

Following Bonhomme & Manresa (2015), equation (1) is estimated in first-difference as presented in equation (2):

$$\Delta \ln(MGOR)_{it} = \beta_1 \Delta \ln(MGOR)_{it-1} + \beta_2 \Delta \ln(transfer)_{it} + \beta_3 \Delta x_{it} + \Delta \alpha_{g_i t} + \Delta \varepsilon_{it} \quad (2)$$

5. Main results

5.1 Estimation results

This section presents the empirical results from estimating several specifications of equation (2) above, for 115 municipalities over 14 years covering conflict and post-conflict periods[86].

The results of the regression for total municipal revenue are presented in table 5, which shows estimations with ordinary least square (OLS), fixed effects (FE), GFE, GFE correcting for endogeneity. The GFE estimator has a better explanatory power (57 percent, Column 3) than OLS and FE (Column 1 and 2 respectively). Moreover, the parameter estimates for GFE are consistent with the signs predicted by theory, and are significant at the 5 percent level. A 10

[86] The regressions are made at the département level since the 2008 HLSS data are note available at the municipal level as explained in section 4. Thus the 115 municipalities are aggregated into 35 département.

percent increase in total central transfers to local government induces approximately a 4.2 percent increase in municipal own revenue (Column 3). The subsequent columns show the results of the two-stage least squares (GFE 2SLS) procedure. We check the validity and the relevance of the instrumental variables used for estimation. The Hansen p-values reported for all specifications are relatively high, and exceed the 5 percent level of significance. The joint null hypothesis (exogeneity) cannot be rejected at any reasonable significance level. This suggests that the instruments are valid. The relevance of the instruments is tested by looking at the p-values for their coefficients in the first-stage estimates. The results do not reject that that the instruments are relevant. The Anderson-Canon p-values confirm that the instruments are correlated with the endogenous regressors (transfers). We reject the null hypothesis that the equations are under-identified. The Cragg-Donald Wald F statistic for weak identification test exceeds the Stock-Yogo critical values at any size. that these instruments are not weakly correlated with the endogenous regressors[87].

The baseline specification is shown in column 4. Central transfers have a positive and statistically significant effect on revenue collected by municipalities and the standard deviation of lag municipal own revenue decreases. The unweighted conflict index has no impact on municipal revenue mobilization (columns 5 and 7, Table 5). This result highlights the importance of weighting the conflict event with the intensity of each event as shown in column 7 and 8. The sign and significance of the interaction terms between conflict and total transfers (columns 7 and 8) suggest that municipal revenue mobilization was negatively affected by the joint effect of conflict and central transfers.

[87] The results are available on request to the authors.

Table 5: The effect of central transfers on total municipal revenue OLS, FE, GFE and GFE 2SLS estimations

Dependent Variable: total revenue	OLS	FE	GFE	GFE_2SLS	GFE_2SLS	GFE_2SLS	GFE_2SLS	GFE_2SLS
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Central transfers	0.481***	0.644***	0.427***	0.645***	0.650***	0.491***	0.753***	0.843***
	(0.0814)	(0.0740)	(0.131)	(0.118)	(0.118)	(0.112)	(0.174)	(0.289)
Lag_local own revenue			0.454***	0.404***	0.403***	0.221***	0.390***	0.221**
			(0.126)	(0.0666)	(0.0682)	(0.0800)	(0.0674)	(0.0864)
Education	3.362***	-0.190	2.095**	1.698**	1.678**	0.886	1.931***	1.721**
	(0.672)	(0.943)	(0.775)	(0.723)	(0.737)	(0.734)	(0.736)	(0.776)
Poverty headcount rate	-1.894***	-0.274	-0.135	-0.589	-0.589	-0.367	-0.457	-0.384
	(0.596)	(0.713)	(0.686)	(0.654)	(0.661)	(0.626)	(0.656)	(0.666)
Informal sector part	-0.589	-0.163	-1.650	-2.801**	-2.850**	-2.945***	-3.981***	-4.254**
	(1.024)	(1.155)	(1.051)	(1.143)	(1.161)	(1.082)	(1.441)	(1.710)
Other revenue	0.0753**	0.0483*	0.0586	0.0231	0.0223	0.0208	0.0254	0.0285
	(0.0308)	(0.0256)	(0.0433)	(0.0228)	(0.0231)	(0.0207)	(0.0230)	(0.0221)
Density	0.00740***	-0.00989	0.00477**	0.00555***	0.00564***	0.00535***	0.00435***	0.00342**
	(0.00193)	(0.0104)	(0.00183)	(0.00148)	(0.00151)	(0.00148)	(0.00146)	(0.00151)
Conflict events					-0.0127		-0.254	
					(0.0969)		(0.116)	
Conflict_event_weighted						-0.0949**		-0.894*
						(0.0427)		(0.674)
Conflict_transfers							-0.279*	
							(0.146)	
Conflict_weighted transfers								-0.165*
								(0.0911)
Constant	-0.454	2.802	0.763	1.521	1.574	2.072	2.452*	2.744
	(1.121)	(1.740)	(1.338)	(1.283)	(1.303)	(1.263)	(1.489)	(1.674)
No. of Observations	251	251	216	163	163	144	163	144
R-squared	0.307		0.566	0.496	0.494	0.530	0.485	0.448
Sargan-Hansen (P-value)				0.15	0.16	0.16	0.16	0.14
Cragg-Donald Wald F statistic				74.17	88.18	68.37	88.591	87.31
Anderson canon (P-value)				0.00	0.00	0.00	0.00	0.00
Group FE	No	No	No	Yes	Yes	Yes	Yes	Yes
Year FE	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Department FE	No	No	Yes	Yes	Yes	Yes	Yes	Yes

Table 6 compares the effect of central transfers during and after the conflict with the same specifications. The results are consistent with the findings in the Table 5. The transfers from central government to municipalities have a statistically significant effect on municipal revenue mobilization. However, the magnitude of the coefficient is higher after the conflict. A 10 percent increase in total transfers to municipalities is associated with approximately a 3.3

percent increase in municipal revenue mobilized during the conflict, and this increases to 5.9 percent after the conflict (columns 4 and 8 of Table 6).

Table 6: The effect of central transfers on total municipal revenue GFE 2SLS estimation during and after conflict

Dependent Variable: total revenue	During Conflict (2001-2008)				Post-Conflict (2009-2014)			
	OLS	**FE**	**GFE**	**GFE_2LS**	OLS	FE	GFE	GFE_2ls
	1	2	3	4	5	6	7	8
Central transfers	0.477***	0.606***	0.253***	0.334***	0.364**	0.971***	0.175**	0.594***
	(0.0907)	(0.0774)	(0.0781)	(0.0655)	(0.142)	(0.173)	(0.0750)	(0.148)
Lag_local own revenue			0.183**	0.0411			0.288***	0.341***
			(0.0731)	(0.0657)			(0.0667)	(0.0911)
Education	2.764***	-1.290	0.759	0.889*	3.816***	-4.045	-1.219	-1.509*
	(0.769)	(1.125)	(0.475)	(0.519)	(0.928)	(18.15)	(0.795)	(0.838)
Poverty headcount rate	-2.387***	-0.623	-0.237	-0.624	-0.936	-18.33	-1.203**	-1.197**
	(0.689)	(0.915)	(0.565)	(0.453)	(0.754)	(29.83)	(0.533)	(0.581)
Informal sector part	-1.035	-0.513	-1.387**	-1.569***	-0.390	-20.34	-3.952***	-5.134***
	(1.138)	(1.414)	(0.564)	(0.582)	(2.009)	(15.94)	(0.978)	(1.279)
Other revenue	0.0581*	0.0360	0.211***	0.159***	0.241***	0.0847	0.134***	0.105**
	(0.0332)	(0.0267)	(0.0444)	(0.0467)	(0.0607)	(0.0584)	(0.0408)	(0.0426)
Density	0.00835***	-0.00493	0.00319***	0.00394***	0.00545***	0.0291	0.00130**	0.00268**
	(0.00246)	(0.0168)	(0.00101)	(0.00111)	(0.00201)	(0.0407)	(0.000491)	(0.00108)
Constant	0.380	3.346	0.740	-1.634**	-0.880	24.19*	5.139***	6.056***
No. of Observations	180	180	155	113	150	150	125	91
R-squared	0.322		0.878	0.857	0.323		0.897	0.822
Sargan-Hansen (P-value)				0.16				0.14
Cragg-Donald Wald F statistic				57.32				85.71
Anderson canon (P-value)				0.00				0.00
Group FE	No	No	No	Yes	No	No	No	Yes
Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Départements FE	No	No	Yes	Yes	No	No	Yes	Yes

The first part of Table 7 (columns 1 to 6) shows the results of equation (2) during and after the conflict, using as dependent variable the municipal non-tax revenue per capita. The second part (columns 7 to 12) replicates equation (2) but using the municipal tax revenue as the dependent variable. Column 3, which corrects for endogeneity, provides evidence that per capita central transfers to municipalities are likely to increase their non-tax revenue. A 10 percent increase in total to municipalities is associated with an approximately 3.6 percent increase in non-tax

revenue. Transfers do not have a disincentive effect on revenue mobilized by municipalities, rather, they boost the local tax base as demonstrated in the literature (Boadway & Anwar 2007; Hindriks et al 2008). However, the effect increases during the post conflict period, when a 10 percent increase in transfers leads to an approximately 7 percent increase in non-tax revenue. Interestingly, although tax revenue is not directly mobilized by municipalities, transfers from central government have a positive and statistically significant effect on municipal tax revenue mobilization (columns 7 to 12). It is worth noting that the coefficients of the effect on municipal tax revenue are higher than those on municipal non-tax revenue during the conflict. A plausible explanation for this difference might be that the tax base for municipal revenue is less sensitive to conflict. In addition, central administration was less affected by the conflict than the municipal administrations which faced problems of staff displacement. This supports the idea that some parts of local taxes can be well managed by the central government, as Bird (2000) argues[88].

These results are consistent with those of Caldeira & Rota-Graziosi (2014) who report a positive impact of transfers on Benin's communes' own-source revenue, but contradict those of Mogues & Benin (2012), who find that bigger previous transfers to Ghana's district governments discourage local revenue generation.

A possible explanation for the divergent results is that the effect depends on the specific country context, such as the scope of local government revenue responsibility, the discretion in setting tax rates, and other potential constraints which affect the ability of local governments to increase their own revenue. It seems that the effect of transfers on municipal revenue mobilization depends on the characteristics of the process of fiscal decentralization that the country adopts. The difference might also be explained by the method applied in this study, which allows for controlling for time-varying specific unobserved municipal characteristics.

[88] For example, residential property in urban areas and property tax on big companies.

Another potential explanation comes from the allocation formulas in Ghana which do not contain sufficient criteria to encourage improvements in municipal revenue mobilization, as shown by of Mogues & Benin (2012). A distributional formula including a predetermined percentage of revenue allocated to local governments, as presented in Section 2.3, seems to encourage internal revenue generation in Côte d'Ivoire. Our results are consistent with the theoretical prediction from the fiscal federalism theory supported by Bahl (2000), who argues that transfers to local government might increase their fiscal capacity. The other explanatory variables have the expected sign on tax and non-tax revenue mobilization. For example, the lagged own revenue, which controls for intertemporal dependence has a positive and statistically effect at 10 percent (Table 7). The share of households where an occupant has a primary school qualification has a positive effect on municipal revenue mobilization. When controlling for endogeneity, the poverty headcount ratio has a negative effect on municipal revenue mobilization for the 2 types of municipal own revenue both during and after the conflict (column 3; Table 7). This unexpected result can be explained by the fact that during the conflict poverty increased and the wealthier people probably moved to more secure areas and thus avoided municipal taxation. The share of the informal sector has a negative and significant effect on municipal revenue mobilization, especially for non-tax revenue. This is intuitive as municipal collects MNTR from small businesses.

Table 7: The effect of central transfers on municipal tax and non-tax revenue during and after conflict, GFE 2SLS estimation

Dependent Variable	Municipal Non-Tax revenue (Collected by municipalities)						Municipal Tax Revenue (Collected by central administration)					
	During Conflict (Before Peace agreement)			After Conflict (After Peace Agreement)			During Conflict (Before Peace agreement)			After Conflict (After Peace Agreement)		
	OLS	GFE	GFE_2LS	OLS	GFE	GFE_2LS	OLS	GFE	GFE_2LS	OLS	GFE	GFE_2LS
	1	2	3	4	5	6	7	8	9	10	11	12
Central Transfers	0.395***	0.259***	0.368***	0.282*	0.402***	0.703*	0.467***	0.488***	0.392***	0.272*	0.286***	0.372***
	(0.0956)	(0.0544)	(0.0763)	(0.46)	(0.0774)	(0.468)	(0.107)	(0.136)	(0.083)	(0.141)	(0.094)	(0.123)
lag _Total Municipal revenue		0.128**	-0.00653		0.0691	0.112*		0.133	-0.112		0.133	-0.112
		(0.0617)	(0.0856)		(0.0583)	(0.0621)		(0.105)	(0.0748)		(0.105)	(0.0748)
Education	2.602***	0.377	1.137**	4.057***	-0.550	-0.675	4.006***	0.650	-0.480	4.006***	0.650	-0.480
	(0.810)	(0.417)	(0.539)	(0.920)	(0.861)	(0.767)	(0.906)	(0.809)	(0.670)	(0.906)	(0.809)	(0.670)
Poverty headcount	-1.990***	1.014**	1.265**	0.463	-1.781***	-1.851***	-2.224***	-0.318	-0.772*	-2.224***	-0.318	-0.772*
	(0.726)	(0.442)	(0.511)	(0.748)	(0.554)	(0.505)	(0.820)	(0.704)	(0.565)	(0.820)	(0.704)	(0.565)
Informal sector	-0.382	-1.955***	-1.869***	-0.619	-4.867***	-5.474***	-0.934	-3.515***	-3.724***	-0.934	-3.515***	-3.724***
	(1.200)	(0.625)	(0.685)	(1.994)	(0.980)	(1.036)	(1.317)	(0.916)	(0.818)	(1.317)	(0.916)	(0.818)
Other revenue	0.0564	-0.0231	-0.0319*	0.239***	0.145***	0.106***	0.0463	0.105***	0.231***	0.0463	0.105***	0.231***
	(0.0350)	(0.0256)	(0.0172)	(0.0602)	(0.0265)	(0.0273)	(0.0381)	(0.0193)	(0.0570)	(0.0381)	(0.0193)	(0.0570)
Population Density	0.00713***	0.00258**	0.00367***	0.00478**	0.00340***	0.00344***	0.00827***	0.0112***	0.0104***	0.00827***	0.0112***	0.0104***
	(0.00259)	(0.00107)	(0.00133)	(0.00199)	(0.0007)	(0.0008)	(0.0028)	(0.0018)	(0.0017)	(0.0028)	(0.0018)	(0.0017)
Constant	-0.882	1.490*	-0.481	-1.983	5.628***	7.989***	-1.273	2.654*	3.618***	-1.273	-0.181	1.007
No. of Observations	180	154	112	150	124	90	173	144	109	173	144	109
R-squared	0.243	0.864	0.842	0.303	0.927	0.911	0.276	0.774	0.753	0.276	0.774	0.753
Sargan-Hansen (P-value)			0.14			0.15			0.13			0.16
Cragg-Donald Wald F statistic			56.24			65.32			77.54			66.34
Anderson canon (P-value)			0.00			0.00			0.00			0.00
Group FE	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Year FE	No	No	Yes	No	Yes	Yes	No	Yes	Yes	No	No	Yes
Départements FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes

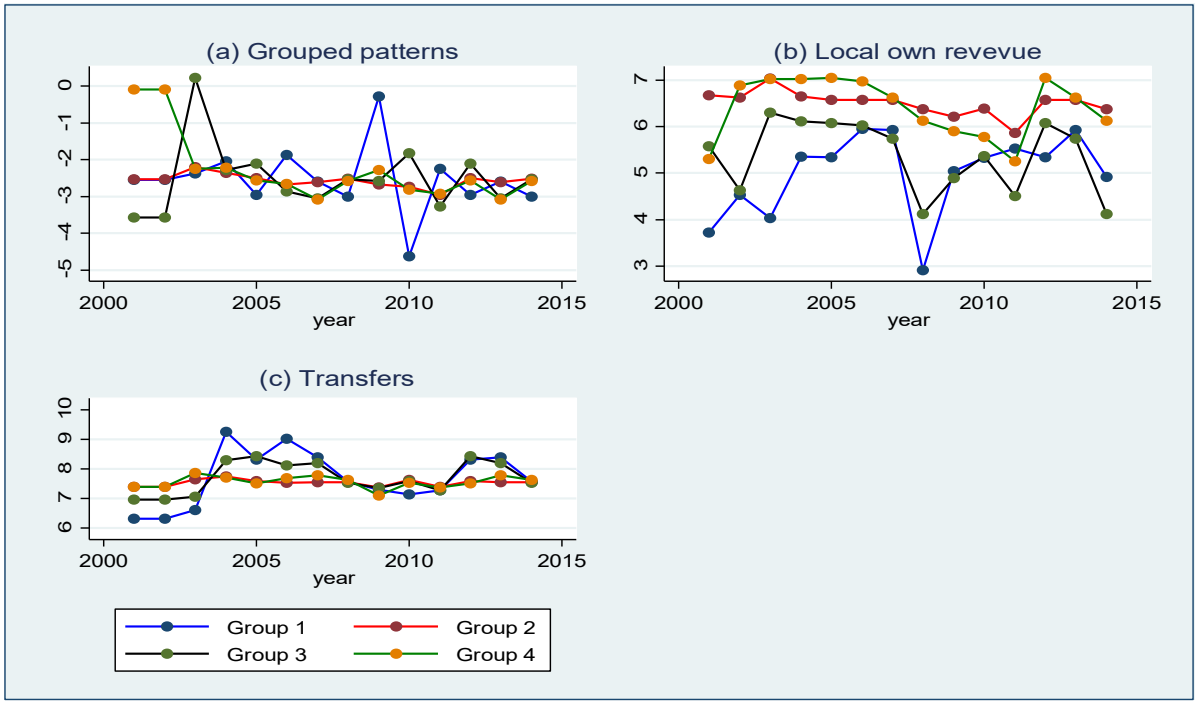
Robust standard errors clustered at the *départemen*t level in parentheses / significant at 10%; ** significant at 5%; *** significant at 1%

5.2 GFE patterns and robustness

This section presents the robustness of the GFE estimator to the Ivorian context by highlighting the presence of heterogeneities that vary over time. The optimal number of groups, which is 4, is calculated using a Bayesian Information Criterion (Appendix B). Figure 10 displays the unobserved trends. Across the 4 groups, time-varying patterns are present, highlighting unstable paths of revenue performance over time. For example, panel (a) shows a big variability in the pattern of groups although this variability tends to decrease in the post conflict period[89] ; it also shows that the group-specific time effects αgit varies over time. For panels (b) and (c), the paths of transfer and local own revenue differ from one group to another, though groups 2 and 4 follow similar paths. Thus, robust evidence of départements heterogeneity has been found, which implies that départements must be grouped according to their revenue mobilization performance and the amount of transfers received. These heterogeneities could not be accounted for by only considering the standard fixed effects[90]. The figures show also that the heterogeneity between the groups tends to reduce up to 2014, which reflects the fact that the country was recovering from the conflict.

[89] As the départements are affected differently by conflict and characterized by disparities in revenue potential, the trend of their revenue performance may follow different paths according to their specific unobserved characteristics.

[90] For example, Knight (2002) demonstrates that some aspects of US states' preferences are unobservable, and that a fixed effect may not correct this endogeneity problem if these unobservable characteristics within a state vary over time.



Source: authors

Figure 10 Group-specific time effects

The assignment of the *départements* to the 4 groups is made according to their local revenue autonomy. Local own revenue is divided into 3 percentiles (high, middle, and low). The results show that group 4 contains 85% of the *départements* with high revenue ("High-revenue localities"), while group 1 is 100% composed of *départements* with low revenue autonomy ("Low-revenue localities"). Group 3, which includes 64% of the *départements* with relatively high autonomy, is then classified as Upper/middle-revenue localities. Group 2 is classified as Lower/middle-revenue localities (Table 8). Although group membership does not assume a particular spatial distribution, the maps show its geographical basis (Figure 11). The departments of "Low-revenue" and "Lower/middle-revenue" are located in the Northern region while the other departments ("High-revenue" and "Upper/middle-revenue") are located in the South of the country. This reflects the distribution of revenue potential across departments, the southern areas have high revenue potential with cocoa, coffee, heveas as principal sources of revenue while the northern areas are relatively poor with cotton.

Table 8 Départements, group membership and revenue autonomy

Group	Local revenue autonomy	Percentage of each category in the groups
Group 4 "High-revenue localities"	Low autonomy	7.14
	Middle autonomy	7.14
	High autonomy	85.71
Group 3 "Upper/middle-revenue localities"	Low autonomy	7.14
	Middle autonomy	28.57
	High autonomy	64.29
Group 1 "Low-revenue localities"	Low autonomy	100.00
	Middle autonomy	0.00
	High autonomy	0.00
Group 2 "Lower/middle-revenue localities"	Low autonomy	33.33
	Middle autonomy	16.66
	High autonomy	50

Source: authors

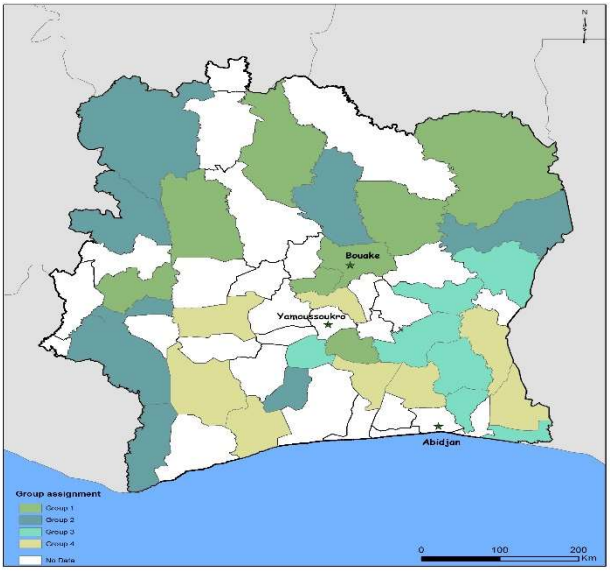


Figure 11 : Pattern of heterogeneity

6. Conclusion

This study analyses the effect of the transfer from central government to municipalities on revenue mobilization by municipalities in Côte d'Ivoire during the period 2001-2014. The study relies on the existing literature to highlight the relevant channels through which central transfers may affect revenue mobilization of municipal governments. Based on a carefully constructed new dataset, the analysis uses an appropriate econometric estimator (Grouped Fixed Effects, GFE). The GFE method assumes that unobserved heterogeneity can be constant and/or varying over time among *départements*. An instrumental variable regression in a two-stage least squares procedure is combined to the GFE to control for endogeneity of transfers. The first hypothesis is that the effect of transfers is different for the collection of municipal tax revenue and the collection of municipal non-tax revenue. Conflict might affect the municipal tax base and municipal non-tax base differently, as the former appears to be more regular than the latter. The second hypothesis investigates whether the effect of transfers on municipal revenue mobilization varies between the conflict period and the post-conflict period. The first finding is

that central transfers increase municipal revenue mobilization. These results contradict those of Mogues & Benin (2012) who find that greater past external transfers to Ghana's districts discourage internal revenue-raising. A possible explanation for the difference is that the effect might differ depending on the specific country's fiscal decentralization policy process – such as the scope of the delegation of revenue raising to municipal governments, local government's discretion in setting rates on their tax and fee bases, and other potential constraints affecting the ability of local governments to increase their own revenue. In addition, the method used in this study which allows controlling for time-varying heterogeneities could explain the difference. The second finding is that the magnitude of the effect of central transfers differs between the two components of municipal own revenue. This can be explained by the fact that the tax base for municipal revenue is less sensitive to conflict. Also, the central administration was less affected by the conflict than the municipal administrations, which were affected by staff displacement. The effect of transfers is higher for municipal tax revenue than municipal non-tax revenue, especially during the conflict. The third finding is that the impact of transfers is different between the conflict period and the post-conflict period. This study finds that the conflict experienced by the country negatively affected the capacity of local government to raise revenue. The magnitude of the coefficient is higher after the conflict. During the conflict, a 10 percent increase in total transfers to municipalities is associated with approximately a 3.3 percent increase in municipal revenue mobilized, but this increases to 5.9 percent after the conflict. The heterogeneity between local governments tends to decrease up to 2014 reflecting the fact that the country was recovering from conflict effects. However, it appears that a considerable difference remains between the northern and southern municipalities, this difference needs to be tackled with a strong and well-designed fiscal policy.

Appendices Chapter 1

Appendix A1: Revenue structure and statistics

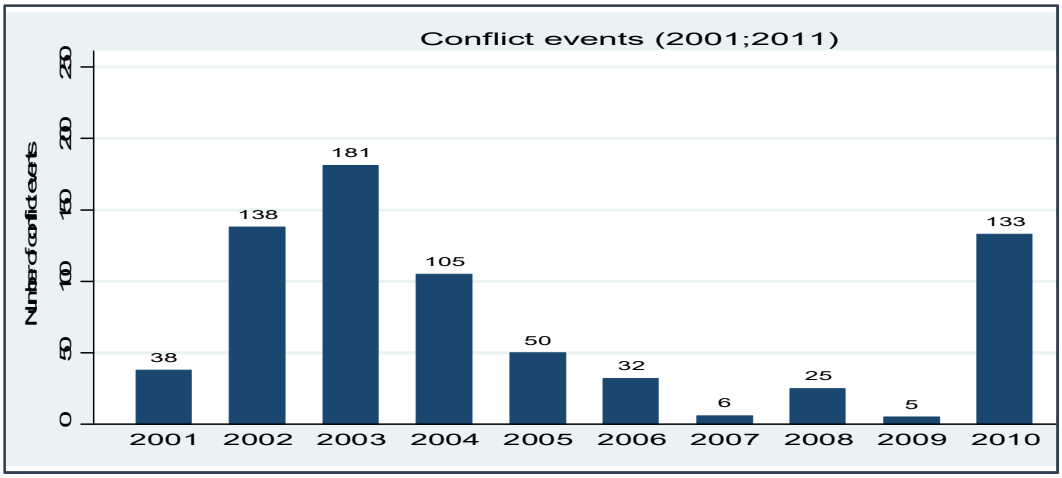
Table A1 Municipal tax revenue collected by GTD and distributed across governments, post-conflict Côte d'Ivoire, 2012

Government level*	Business licenses				Synthetic tax	Game tax	Vignette	Stamp duties	Property Tax	Sub-Total2	Total
	Purchasers	Traders	Public Transport	Sub-Total1 Patent							
Central Government	75.99	8912.47	769.92	9758.39	2715.50	0	1756.24	4290.5	11727.89	20490.15	30248.54
	(32.66)	**(25.12)**	**(26.08)**	**(25.24)**	**(52.49)**	**(0.00)**	**(16.49)**	**(97.7)**	**(26.01)**	**(31.3)**	**(29.05)**
District	0.8	10182.92	546.45	10730.18	441.53	161.28	3394.18	0	10269.54	14266.55	24996.73
	(0.34)	**(28.70)**	**(18.51)**	**(27.75)**	**(8.53)**	**(100.00)**	**(31.89)**	**(0.00)**	**(22.78)**	**(21.80)**	**(24.01)**
Département	67.37	2194.01	474.48	2735.88	101.68	0	976.57	0	1536.05	2614.3	5350.18
	(28.95)	**(6.18)**	**(16.07)**	**(7.07)**	**(1.96)**	**(0.00)**	**(9.17)**	**(0.00)**	**(3.41)**	**(3.99)**	**(5.14)**
Municipality	88.46	14181.63	1160.63	15430.73	1914.19	0	2138.67	0	17387.6	21440.47	36871.21
	(0.00)	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(20.09)**	**(0.00)**	**(38.57)**	**(32.76)**	**(35.42)**
Other	0	0	0	0	0	0	2378.31	100.74	4164.51	6643.57	6643.57
	0	**(0)**	**(0)**	**(0)**	**(0)**	**(0)**	**22.34)**	**(2.29)**	**(9.24)**	**(10.15)**	**(6.38)**
TOTAL	232.64	35471.04	2951.50	38655.19	5172.92	161.28	10643.99	4391.24	45085.59	65455.04	104110.24

*Percentage of different revenue allocated to each level of government

Source: Calculation by authors with Côte d'Ivoire data from Directorate General of Taxation

Figure A1 Number of conflict events in Côte d'Ivoire



Source: Authors

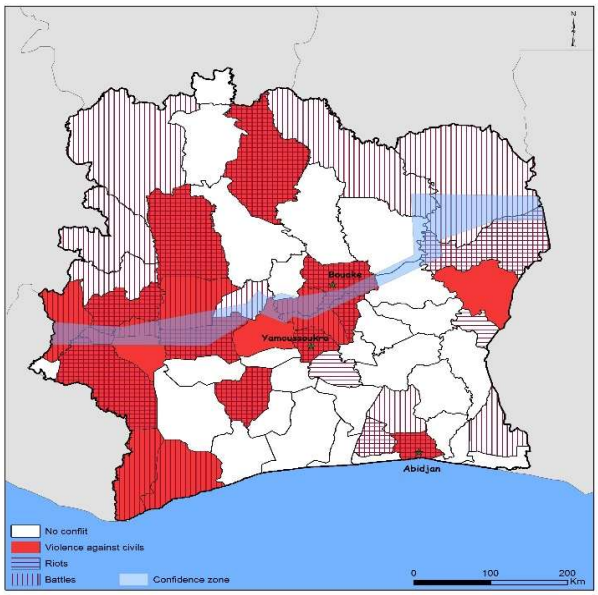


Figure B1: Conflict distribution

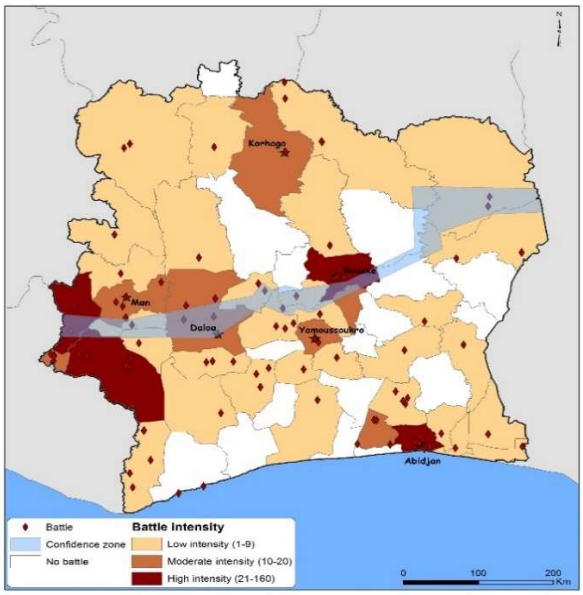


Figure B2: Battle distribution

Source : Authors

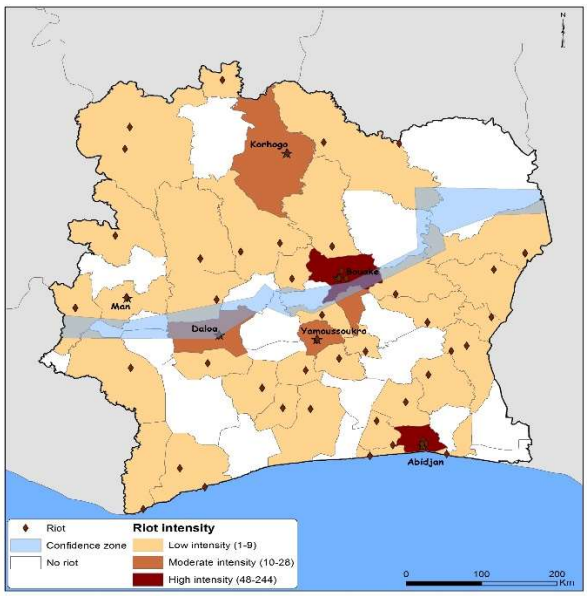


Figure B3: Riot distribution

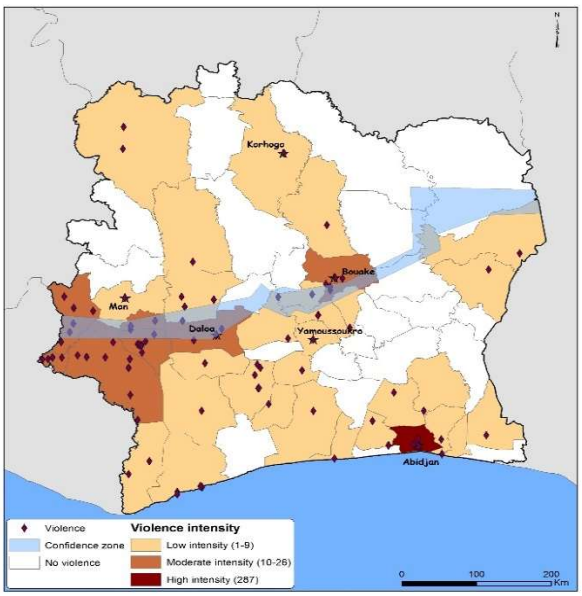


Figure B4: Violence distribution

Source : Authors

Table B2 Group assignment and départements' revenue autonomy

SOUTH			NORTH		
Département	**Group membership**	**Revenue autonomy (Quantile)**	**Département**	**Group membership**	**Revenue autonomy (Quantile)**
ALEPE	1	Middle	BONDOUKOU	1	High
BONGOUANOU	1	High	BOUNA	1	High
MAN	1	High	DABAKALA	1	High
SAKASSOU	1	High	BOUNA	1	High
TIEBISSOU	1	High	DABAKALA	1	High
TOULEPLEU	1	High	KATIOLA	1	High
ABENGOUROU	2	High	SAKASSOU	1	High
ABOISSO	2	High	SEGUELA	1	Low
ADIAKE	2	Middle	TOUBA	2	Low
ADZOPE	2	High	BOUAKE	2	High
AGBOVILLE	2	High	KOHORGO	3	Low
AGNIBILEKRO	2	High	ODIENNE	3	Low
DALOA	2	High	TANDA	4	Low
MBAYAKRO	2	High			
SANPEDRO	2	Middle			
SASSANDRA	2	Middle			
TIASSALE	2	High			
DAOUKRO	2	Middle			
TOUMODI	3	Low			
BANGOLO	4	High			
GUIGLO	4	High			
LAKOTA	4	Low			
OUME	4	High			
SOUBRE	4	Middle			

Source: Authors

CHAPTER 4: CAN DECENTRALIZING PROPERTY TAX RESPONSIBILITIES TO SUBNATIONAL GOVERNMENTS INCREASE CITIZENS COMPLIANCE?

Abstract

This chapter examines factors determining property tax compliance behavior in Côte d'Ivoire municipalities. Using the fifth round of Afrobarometer survey data for Côte d'Ivoire, and a multilevel mixed-effects logit model, the paper examines whether the correlation of property tax compliance with government responsiveness differs between central government and municipalities. The paper also investigates the role played by the quality of institutional environment in exacerbating or in alleviating such correlation, and analyses the correlation of citizens understanding of property tax system with their compliance attitude.

First, the paper concludes that increased public service provision (fiscal contract) is positively correlated with property tax compliance for public services provided both by central government and municipalities. Second, citizens' trust in municipalities and central tax administration is positively associated with the likelihood of citizens having compliant attitude with property taxation. However, individual's satisfaction with service provision by municipalities is found to have a greater correlation with property tax compliance than those of services provided by central governments.

Third, the study suggests that citizen understanding of tax system is positively correlated with the likelihood of their compliance with property tax. This highlights the need for strengthening awareness of property tax and simplifying property tax system. Fourth, the effect of corruption is found to be more important for municipalities than central government consistently with the literature of fiscal federalism to which, local authorities are likely to be under pressure from elites and prone to corruption.

Ultimately, although decentralizing property tax responsibilities to municipalities might increase citizens compliance, it, therefore, remains crucial to address the issue of corruption that may occur from property-owned local elites.

1. Introduction

Property tax is considered to have a great potential to finance equitable development and reduce governments' dependence from international aids, especially in developing countries (IMF, 2017; Moore, 2004; Norregaard, 2013)[91]. Raising property taxes remains also part of fiscal consolidation efforts to create fiscal space and constitutes a priority for most Sub-Saharan African (SSA) countries (Richard M. Bird & Slack, 2004). Property tax represents on average less than 0.5% of GDP in many African countries. Despite a recognition of this untapped resource available, few countries have yet effectively raised significant revenue from property taxes (Richard M. Bird & Slack, 2004). One explanation is that effective implementation of a property tax requires a sizable up-front investment in administrative infrastructure and strong technical capacity. However, many studies recently concluded that low property tax efforts are explained by widespread tax avoidance and evasion (Moore, 2004).

Thus, explaining determinants of successful property tax reform and ultimately finding ways for strengthening compliance have become a greater priority. According to Moore (2004), a central challenge, therefore, is to create conditions for increasing citizens' compliance with property tax.

This paper examines the correlation of property tax compliance attitude with government responsiveness. The research hence focuses on the fiscal contract and political legitimacy theories using a country case study. More precisely, it provides responses to the questions of whether the correlation differs between responsiveness of central government and those of municipalities using afro-barometer survey data for Côte d'Ivoire.

Increasing property tax revenue is accepted by economists as an efficient and equitable way of improving tax efforts (Allingham & Sandmo, 1972; Sandmo, 2005). Developing countries have

[91] Though it property tax can have many forms, it is generally levied as an annual tax on the value of real property such as land and buildings. Capital invested on land, and non-residential activities like businesses are often included in property tax base.

thus introduced property tax reforms of varying degrees and varieties (Alm, Betty, & Mckee, 1992). Only a relatively few countries have achieved substantial outcomes from that reforms with a significant revenue generated from property tax[92]. One reason, as R. Bird, (2001) suggests, is the confusion in tax collection responsibilities between central and local governments. However, a common challenge that countries face in implementing property tax reform is its unpopularity. Literature examines factors that determine such non-compliance attitude toward tax in SSA which are often applicable to property taxes. The theory of fiscal contract suggests that government performance affects tax compliance and that fostering governments' accountability to citizens increases their willingness to voluntarily comply with and to support state's actions. In this perspective, increased provision of public goods and services is found to boost tax compliance as a contractual relationship between taxpayers and the government (Ali et al., 2014; Alm et al., 1992). Ali et al., (2014) find that this correlation depends on the specific service in question, but they do not consider a specific type of tax, such as property tax which is particularly salient and highly untapped[93]. The theory of economic deterrence also plays a key role in determining the non-compliant tax attitude. It proposes that taxpayers decide whether to comply with tax in the light of rational cost–benefit calculations of gain from compliance and non-compliance (Ali et al., 2014)[94]. The third most important explanation of tax compliance stems from the political legitimacy theory which posits that tax compliance is approximated by the extent to which taxpayers trust their governments (Shah, 2007).

[92] Some countries have been influenced by British experience while some have been following French administrative structure where property tax is a national tax earmarked for local governments.

[93] Analysing tax compliance by considering all taxes are likely to overestimate voluntary compliance because compliance with the individual income tax remains relatively high as they are often withheld by the tax administration.

[94] Individuals who perceive tax evasion as difficult are more likely to have tax compliant attitude (Ali et al 2014).

Since the 1990s, Côte d'Ivoire is considering reforming property taxes as part of its attempt to boost domestic revenue. Although, the property tax revenue is relatively high, representing on average 49% of total local revenue over the period 1995-2008 (Rota-Graziozi, Caldeira, & Chambas, 2015), the country is facing important constraints in carrying out successfully property tax reforms. As, in many countries, less than one-half of property value is taxed. To deal with this, the government has legislated many reforms. In 2014, as an effort to expand the tax base, the government removed the exemption on buildings owned by the central administration. More recently, in 2015, the Ivorian government decided to reduce property tax rate for family occupied property as a tentative to increase property tax compliance. Thus, these rates changed as follow: (i) from 11% to 9% for tax on land assets owned by families and (ii) from 4% to 3% for tax on land income[95]. Rather than increase property tax compliance as expected, lower tax rates led to a substantial loss in revenue collected, which was estimated to FCFA 6.848 billion (GTD, 2016). At the same time, the legislation has reintroduced the process of withholding property tax based on property occupied by the national forces army (Article 11). In addition, to reduce regional inequality of tax potential, the government reformed property tax revenue allocation through creating a unique fund of property tax revenue and redistributing the tax collected each fiscal year according to a predefined rule (Arrêté n°285 du 21/07/2014)[96]. Yet, property tax revenue remains unexploited and tax avoidance is high, raising the need for analyzing the determinants of individual compliance with property tax.

[95] See more « Code général des Impôts articles 156 ». It is worth noting that these rates first increased in 2009, from 4% to 11% for land assets and decreased from 11% to 4 % for land income.

[96] "L'arrêté n°285 du 21/07/2014 portant modalité de répartition de la quote-part des impôts rétrocédés aux collectivités territoriales et au Districts Autonomes". 44% pour les Communes d'Abidjan, 18% pour les Communes de l'intérieur du pays ; 13% pour les régions et 25% pour les Districts Autonomes. In Côte d'Ivoire, property tax is collected on behalf of municipalities by the central administration and shared according to a predefined formula. Before this reform, property revenue was allocated to local government where the tax is collected.

Previous studies explaining tax compliance mainly focus on the nature of the fiscal contract, the economic deterrence, and the political legitimacy theories by considering all taxes mostly in developed countries. Only a few has empirically tested how government responsiveness shapes citizens' compliance toward property taxation in developing countries. In addition, the literature does not investigate whether it makes sense to distinguish the effect of subnational governments' responsiveness from those of central governments on property tax compliance. This issue is important in most sub-Saharan African countries such as Côte d'Ivoire for many reasons. One is that, although property tax has many characteristics of being an adequate local tax, its collection is under the responsibility of the central government. Countries have started fiscal decentralization where municipalities are getting involved in property tax collection, but these reforms often remain incomplete (Joanis, 2014) and there is often a gap between countries "announcement" of embarking and the real implementation of the process. This shared responsibility between municipalities and central tax administration may affect compliance with property taxation, which remains misunderstand.

Therefore, the first important question the paper investigates is whether increasing the role of municipalities in property tax collection would boost property tax compliance[97]. Second, as Timmons and Garfias (2015) argue, the simplification of tax system determines the relationship between citizens' compliance with tax and governments. Thus, the paper examines whether the effect of government's responsiveness on property tax compliance attitudes differs according to the level of government considered and estimates the impact of citizens understanding of tax system on property tax compliance attitude.

The study uses attitude and perception data from the fifth round of Afrobarometer surveys for Côte d'Ivoire to provide answers to these questions. A multilevel mixed-effects logit model for

[97] This remains important is most SSA countries since municipalities are involved in property tax collection.

binary responses is used to account for clustering issues of individuals that are nested within *departements*, which are, in turn, nested within regions.

First, the paper concludes that increased public service provision (fiscal contract) is positively associated with property tax compliance for public services provided both by central government and municipalities. Second, citizens' trust in municipalities and central tax administration is positively correlated with the likelihood of citizens having compliant attitude with property taxation. However, individual's satisfaction with service provision by municipalities is found to have a greater correlation with property tax compliance than those of services provided by central governments.

Third, the study suggests that citizen understanding of tax system is positively correlated with the likelihood of their compliance with property tax. This highlights the need for strengthening awareness of property tax and simplifying property tax system. Fourth, the effect of corruption is found to be more important for municipalities than central government consistently with the literature of fiscal federalism to which, local authorities are likely to be under pressure from elites and prone to corruption. Ultimately, although decentralizing property tax responsibilities to municipalities might increase citizens compliance, it, therefore, remains crucial to address the issue of corruption that might occur from property-owned local elites.

The remainder of the paper is organized as follow. Section 2 briefly reviews the literature on tax compliance. Section 3 describes property tax base and legislation in Côte d'Ivoire, while the fourth section focuses on some stylized facts. Section 5 presents the data and statistical analysis. The econometric analysis including the specification of the model and empirical results are presented in section 6. Section 7 concludes and provides some policy implications.

2. Literature Review

The literature argues that the accountability and responsiveness of governments are crucial for increasing citizen's tax compliance. So far, there is however still little empirical evidence on a causal link between government responsiveness and such outcomes. This is not surprising for two reasons: first, lack of reliable data due to individual's reluctance to reveal their evasion behavior (Speer, 2012). Second, it is challenging to conduct field research in such a politically sensitive subject, especially in developing countries.

Research trying to examine the link between tax compliance and government responsiveness, such as service quality and well-being despite these difficulties put forward some tentative evidence for a positive effect of government responsiveness on tax compliance (Prichard, 2015). Speer, (2012), by using randomly generated municipal audit reports with objective measures of corruption from Brazil, argues that property tax revenue rises with clean audit reports and falls as revealed corruption increases. Consistent with fiscal contract theory, they explain that people accept taxes partly because they expect an adequate and fair share of public benefits relative to their contribution. The provision of public services led to an increase in tax-compliance attitude in Kenya, Tanzania, Uganda, and South Africa (Andersson & van Laerhoven, 2007). Authors conclude that the effect differs from specific public services and countries. Participatory budgeting is also found to boost government responsiveness regarding the theory of fiscal contrast and has been recognized as a determinant of increasing tax compliance as citizens have opportunity to gain firsthand information of government operations (Alm et al., 1992). Participatory budgeting is a process in which citizens directly negotiate spending priorities with each other and with government officials in organized meetings (Allingham & Sandmo, 1972; Sandmo, 2005). Although Alm et al., (1992) suggests that more research based on medium and large samples are necessary for judging whether participatory governance reforms increase government responsiveness, he concludes that involving citizens

in decision-making as well as in monitoring was sufficient for improving the quality of service delivery. Mixed findings emerged however from some analysis on the effect of participatory budgeting. Alm et al., (1992) did not find a significant positive effect of such policy on Brasilia when using a sample of 220 municipalities. In addition, for participatory governance to be successful, it is crucial to maintain an interaction between political will and a prominent level of civil society capacity (Timmons & Garfias, 2015). In a developing country where, participatory budgeting is not yet implemented and where both central and local government deliver service to citizens, the role of fiscal contract in determining tax compliance may be controversial.

However, there are other factors likely to affect the compliance decision. A well-known is citizens 'trust in their governments. Property tax revenue may increase based on the information citizens have about the integrity of their government. Known as the theory of political legitimacy, this argument posits that citizens' trust in their governments guides their compliance with tax (Banful, 2011). However, previous studies do not distinguish whether the municipal government or central government affects differently the compliance with property taxation.

The theory of economic deterrence also plays a key role in determining the non-compliance tax attitude. It proposes that taxpayers decide whether to comply with tax in the light of rational cost–benefit calculations of gain from compliance and non-compliance (Brun & Sanogo, 2017; Sanogo, 2017)[98]. Some studies have also explored the relationship between compliance behavior and measures of enforcement, such as audit rates and penalties (Moore, 2008). They conclude that an increase in the probability of detection reduce the attitude toward non-compliance while the while changes in fine rates appear to have an insignificant effect on tax compliance. Consistent with this result, Moore, (2008) suggest that changes in enforcement variables do deter evasion, although the magnitude of the effect is uncertain.

[98] Individuals who perceive tax evasion as difficult are more likely to have tax compliant attitude (Ali et al., 2014).

High-quality information determines also the relationship between citizens' compliance with tax and government and posits that a clear information strategy between government and their constituencies play a key role in country tax performance (Citrin, 1979).

In developing countries where enforcement institutions are weak, and where property tax rates are generally low like in Côte d'Ivoire, the relationship between this traditional determinant of property tax compliance and government responsiveness may be mitigated. In these countries, local elections are often based on tribal and/or on political affiliation (Timmons & Garfias, 2015). Another particularity of developing countries especially West African countries in that they are characterized by an incomplete nature of decentralization reforms. Where central governments often remain heavily involved in the provision of the local public services transferred to local governments. It is common to see the central government and municipalities be together involved in the provision of public education, keeping road clean or security while staff management powers are retained by central governments. Making difficult for taxpayers to identify if services or good delivered can straightforwardly be assigned to municipalities or to central government officials. Such informational issues are especially problematic in Côte d'Ivoire, where taxpayers tend to be less educated (Timmons & Garfias, 2015).

Aside from these determinants of tax compliance, the literature has emphasized the role of individual-level factors for explaining the variance in citizen willingness to pay tax such as the ethnic group, the low level of education, as well as a lack of economic resources or cultural beliefs about the property. Accordingly, these studies reveal the need for considering such variables when implementing policies for increased tax compliance.

3. Property tax base and assessing property in Côte d'Ivoire

In Côte d'Ivoire, the property tax is a national tax earmarked for local governments where 40% of revenues is allocated to municipalities where the tax is raised. As in many countries, three

key steps are involved in the process of taxing real property in this country: (1) identifying the properties being taxed; (2) preparing a tax roll containing a description of the property and the amount of assessment and responding to assessment appeals; and (3) issuing tax bills, collecting taxes, and dealing with arrears. During the first step, the general tax directorate identifies the property and determines the owner. In many jurisdictions, this information is not updated and consistent which represents a challenge in reforming property taxation. The property is assessed by using the rental value approach for which property is annually assessed according to estimated rental value or using rental value on the basis of current use. However, in practice, the country uses a mixture of systems. In fact, self-assessment is combined with the approach of rental value assessment i.e. the owner or the tenant declares himself the rental value of their properties. This assessment system can be a source of corruption since property owners can under-evaluate the rental value. In addition, in this system, the assessed values bear little relationship to annual rental value because there is no periodic re-evaluation to reflect changes in value. The resulting difference might affect horizontal equity which requires that taxes be similar for those with similar ability to pay. Single-family residences are assessed by estimating through what is called comparable sales method while the farm property is assessed per square meter, with the unit value varying with the location (region, accessibility to markets) and the type of farm (cocoa, bananas).

Regarding property tax rates, the central government set the rates according to the Ivorian legislation resulting in a uniform tax rate applied across the jurisdiction for each type of property. This system has the advantage of avoiding distorting tax competition between local governments where richer local governments may choose to lower tax rates to attract business, increasing subsequently regional inequality. However, setting property tax rates by local governments places accountability for tax decisions at the local level and reinforces the connection between expenditures and revenues (Ali et al., 2014). This might positively affect

the efficiency of services delivery since the choice of services will be based on an accurate perception of their cost. The property tax rate is also levied at a flat rate. This represents an appealing way to poor countries with low administrative capacity since graduated rate requests the administration to maintain and update a cadaster. Furthermore, one of the more striking features of property taxation is how low the tax rates are. As Ali et al., (2014) suggested in many countries, the factors resulting in such low effective tax rates are lags in reassessment and the inadequacy of adjustment for value changes. These arguments particularly hold in Côte d'Ivoire as the country seldom updates the value of the property to account for changes and use a flat rate. Particularly in urban areas, such as Abidjan, where the value of property is growing rapidly, the tax rates appear to be extremely low compared to market values.

Regarding the exemptions, there are many properties exempted from property tax base in Côte d'Ivoire. In fact, based on some factors such as ownership, the use of the property and the characteristics of the occupier or owner, many properties are excluded from tax base. They include both (a) central of local government properties, (b) religious, social, and educational properties such as schools, universities, churches, charitable institutions, parks, public hospitals, cemeteries, libraries and (c) property owned by international organizations and foreign embassies[99]. By law, agricultural farms owned by single-family are also exempted from taxation. However, the farms owned or operated by agro-industrial companies and other private institutions are included in the property tax base with a special tax rate as presented in table 1. Although, these exemptions narrow the tax base and thereby increase pressure and taxes on the remaining taxpayers, they do not create disproportionate tax burdens across municipalities since the central government determines the exemptions and the proportion of tax-exempt properties

[99] See more « Articles 149 à 179 bis et 305 à 309 du Code général des Impôts ».

doesn't vary by municipality[100]. In 2015, the central government induces a reduction of 25% on property tax of firms over two years after their date of starting activities.

Table 1 : Property tax, rate and base in Côte d'Ivoire

Tax		Tax base	Rate
Real property tax	Real property and income producing non- built property	Rental value	11%
	Single-family owner occupied, unoccupied property	Rental value of comparable property***	4%
	Real property occupied by industrial companies or private institution (or for business use)	Rental value	15 %
Land tax (non-built or vacant lands)		Market value determined according to the provisions of « article 161 du CGI »	1,5 %**
Agricultural property	Hevea	Surface area of farms owned or operated by agro-industrial companies	7500 / hectare
	Cocoa, Coffee, Banana, Pineapple, Palm tree		5000/ hectare
	Sugar cane, Mango, Cashew, Lemon, Papaya		2500/ hectare

*These taxes are levied from end of second year following the year of acquisition of land (article 161 du CGI)
**Those owned by the Harbour of San-Pedro » are taxed by 0.75% based on their market value determined according to the provisions of « article 161 du CGI »
***Price that would be struck between a willing buyer and seller in an arm's-length transaction
Source : Author from "Code Générale des Impôts", Ministry of Economics and Finances

4. Stylized facts

Figure 1 shows the mean evolution of property revenue as a percentage of total municipal tax revenue from 1993 to 2014[101]. In average, property tax revenues relative to total local tax revenues have increased significantly over the past decades. While the share of property tax revenue amounted to about 8% of local tax revenues in 1993, it reached over 25% of municipal tax revenue by 2002. This has dropped over the two years post-coup d'Etat and over the period following the 2010 presidential election crisis (2010-2012) [102]. As the country experienced a higher incidence of violence due to the conflict in those periods, it is reasonable to think that

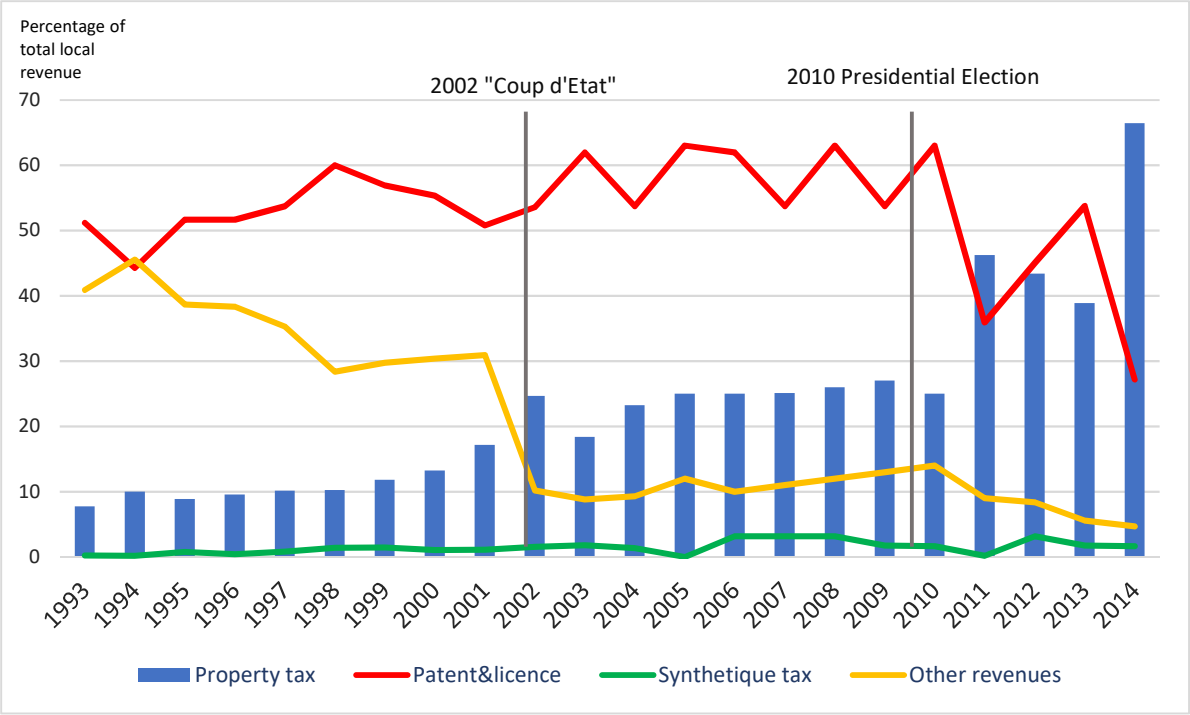
[100] In addition, exemptions have been criticized in the literature on many ground. For example, some suggest that the differential treatment between taxed and exempt properties has implications for economic competition among businesses and between businesses and government (Kitchen, 2002).
[101] In absence of data, the data from 2006 to 2010 are estimated through average growth rate.
[102] In 2002 the country experienced an attempted coup d'Etat followed by a prolonged period of political instability. After the 2010 presidential election, this instability turned to armed conflict ended in 2011.

this context may have negatively affected the capacity of government to raise property taxes (Sanogo, 2017). However, the decline in property tax revenues can be explained by policy measures such as exemptions. For example, in 2011, the government withdrew the tax for taxpayers whose buildings were damaged or destroyed by the 2010 post-election crisis[103].

Though significant, the decline in the share of property tax is less important than those of other local revenues such as synthetic tax and, patent and license (figure 1). Property tax base is generally regarded as more stable and immobile than other revenue sources.

Since 2013, property tax revenue has grown rapidly to over 66% of total local tax revenue. But it would be misleading to suggest that rapid growth rates were universal across the country. They varied widely, with about half the municipalities in the country moving forward and others changing little. In the urban "rich" municipalities, the share of property tax revenue growth averaged a robust 5% over last three years, while property tax growth was much slower in small rural municipalities, and even stagnated or fell. Over 80% of total property tax revenue is collected either in the south (mainly in the province of Abidjan) or in just 30 of Côte d'Ivoire's 196 municipalities. The tax base is also significantly eroded by a combination of other legal exemptions, undervaluation, and a failure to include all properties in the tax base. Land tax is largely unexploited as shown in figure 2 since real property represents more than 80% of total property tax on the period 2011-2014 (Figure 2). The aggregate patterns hide marked differences between regions and municipalities. In some municipalities of Abidjan such as Abobo, Songon and Plateau, tax from non-built or vacant lands are absent while its represents 15 to 35% in Attecoubé, Yopougon, and Adjamé (Figure 3).

[103] See «Annexe fiscale 2012» for more details on property tax exemptions in 2011.



Source: Author

Figure 1: Property tax revenue in Côte d'Ivoire from 1993 to 2014

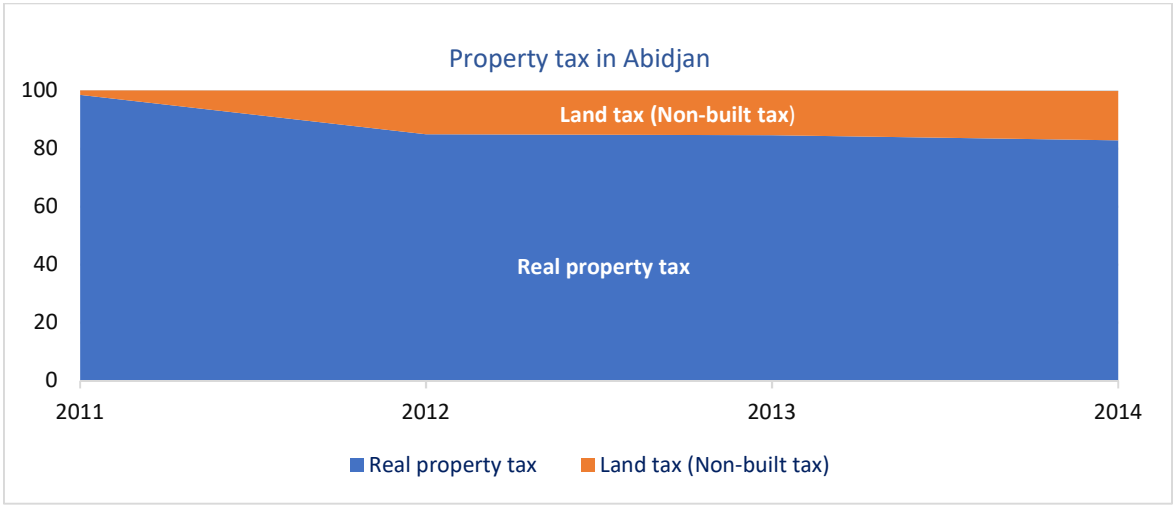


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Figure 2: Property tax components in the 13 municipalities of the capital city Abidjan

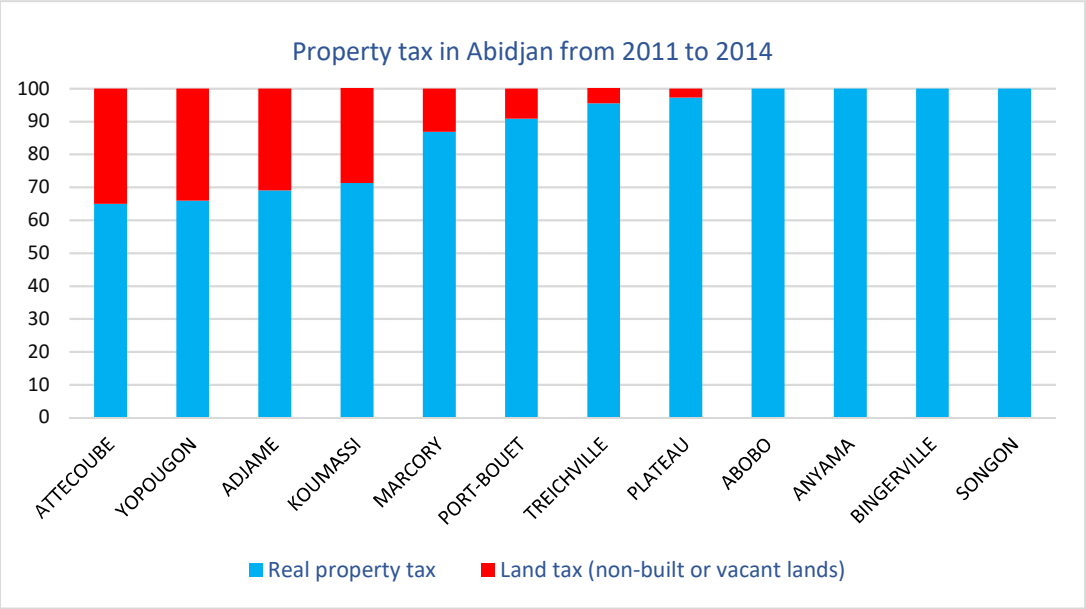

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Figure 3: Property tax revenue structure in 13 municipalities of the capital city Abidjan

5. Data and Statistical Analysis

5.1 The Data

The property tax revenue data is a municipality-level panel data spanning the period 1993 to 2014. This dataset was constructed from the municipal administrative accounts from the Department of Decentralization and Local Development of the Ministry of Interior. The disaggregated data into real property tax and land tax by municipality is available only for the District of Abidjan comprising 13 municipalities.

The analysis used also survey data from the 5th round of Afrobarometer survey. The Afrobarometer Surveys is a series of national surveys on attitude to democracy, taxation, markets and civil society conducted in 34 African[104]. The 5th round of Afrobarometer survey includes a series of questions about property tax, citizens' compliance with property tax, and the characteristics of the different properties. The individuals surveyed are randomly selected

[104] The survey is conducted by the Centre for Democratic Development, Ghana, the Institute for Democracy, South Africa and the Institute for Empirical Research in Political Economy, Benin.

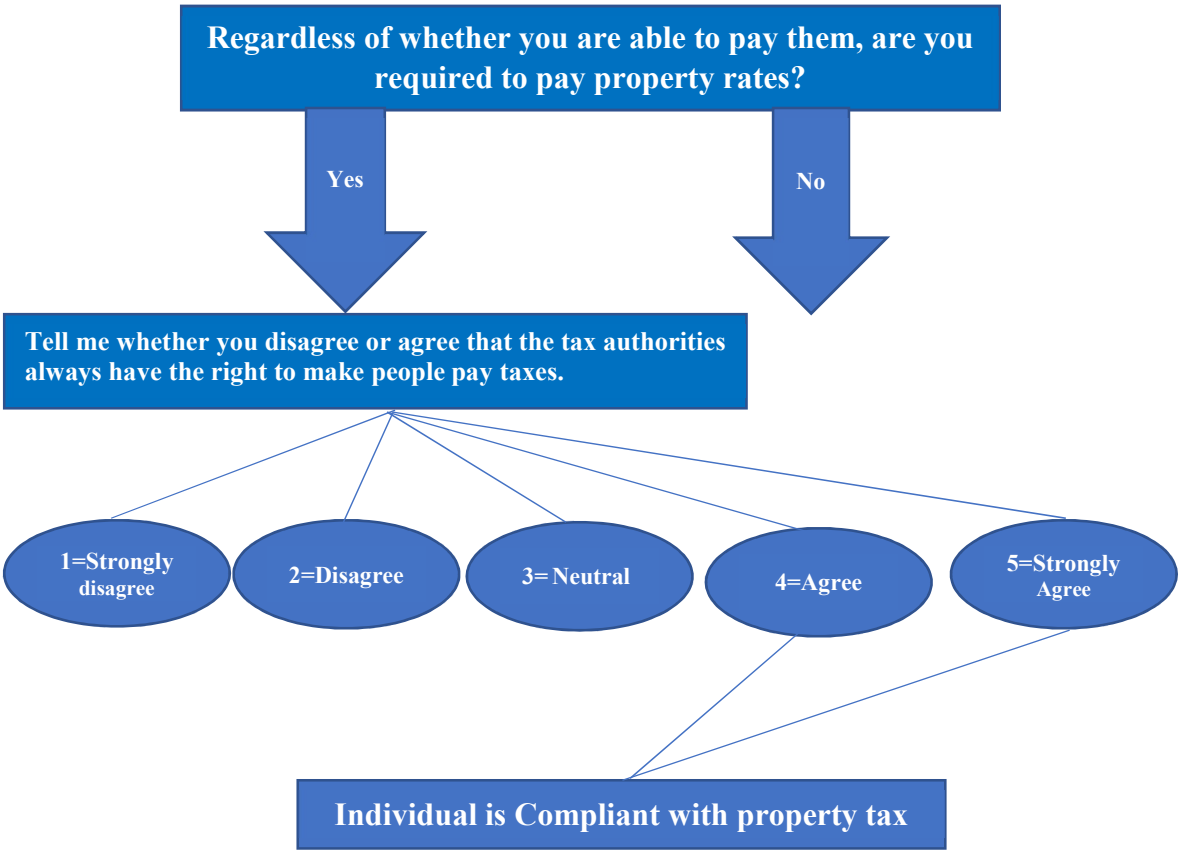
both in rural and urban areas of different countries with some sample of 1200 respondents in Côte d'Ivoire. The survey subdivides Côte d'Ivoire into 20 regions containing individuals of more than 18 years old.

This section first provides a descriptive analysis of factors determining property tax compliance in Côte d'Ivoire.

5.2 Statistical Analysis

The tax compliance (compliant) is measured through a binary variable that takes the value of one if the respondent is compliant with property tax and zero, otherwise. First, we consider the sample of respondents that are required to pay property tax. Based on their responses to the question that asks: "Regardless of whether you are able to pay them, are you required to pay property rates?" Answers are classified on a binary ordinal scale of "No, I am not required to pay," "Yes, I am required to pay,"[105]. Thus, by restricting our sample to respondents who are required to pay property tax, we consider 77.15% of the study sample. Second, from this restricted sample, we measure property tax compliance through the question that asks whether individual disagree or agree that the tax authorities always have the right to make people pay taxes. The dependent variable (compliant) is then defined one if the individual' response is "agree" or "strongly agree" and zero, otherwise (Figure 4).

[105] Citizens that respond (7.09%), "Don't know / Haven't had a chance to find out" or "Refused to answer" are not considered.



Source: Author

Figure 4: Mode of construction of the dependent variable, compliant, based on the Afrobarometer questions.

Two variables are considered to measure citizens' satisfaction with the delivery of service by governments. First, respondents were asked to use a four-point, self-anchoring item ranging "very badly" to "very well", to describe their level of satisfaction on how governments (municipalities or central government) is handling and maintaining roads and bridges. Second, the same structure is used to describe the respondent satisfaction with how central government is providing reliable electric supply. These variables allow testing the fiscal contract theory to which tax compliance increases with the level of satisfaction of public services delivered by governments. To measure respondents trust in tax administration "Direction Générale des Impôts", respondents were asked to use a four-point, self-anchoring item ranging "Not at all" to "A lot" to describe their trust in the General Tax Directorate. This variable approximates the

political legitimacy. The trust in municipalities is also measured. Citizens understanding of property tax system is assessed through the question of how difficult respondents find out what taxes or fees to pay. They were provided with a four-point, self-anchoring item ranging “very easy” to “very difficult”.

Figures 5; 6, and 7 display cross relation between citizens’ satisfaction with governments’ service delivery (fiscal contract), trust in government officials (political legitimacy), and the understanding of tax system (quality of information) in combination with their compliance attitude toward property taxes.

The figure shows that property tax compliance is positively correlated with public service delivery, which implies that citizens become progressively more compliant with property tax when their satisfaction with public service delivery by both central government and municipalities increases. Citizens who not satisfied with how government is handling and maintaining roads are less likely to having compliant attitude. For instance, among citizens that attest that central government is maintaining and handing road and bridges “very badly”, only 19% has compliant attitude, against 27% not having compliant attitude with property tax. While their counterparts attesting that central government is handing “fairly well” road and bridges services provision, about 37.74% has compliant attitude, against 28.84% not complying. This trend is confirmed for citizens satisfaction with how municipalities are providing the same type of service, though the variance between citizens having a compliant attitude and those not complying is less salient.

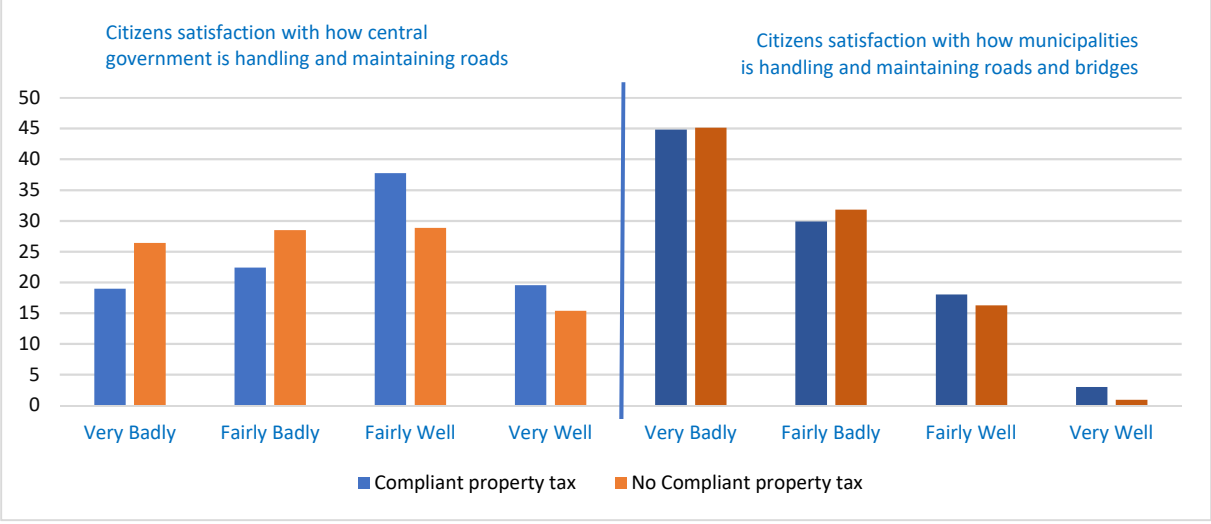
Respondents ‘compliance with property tax also increases with their trust in the General Tax Directorate. For whose respondents trusting “a lot” in tax officials, 19.10% has a compliant attitude with property tax, while more that only 11. 42% of them does not comply.

For municipalities, citizens trusting «just a little» in municipal councilors are less likely to comply with property tax (37.45%) against 34.44 % that have compliant attitude.

Similarly, the perception of government officials and municipal councilors involving in corruption shapes the respondent compliance with property taxation. Figure 7 displays the proportion of respondents' compliance across their perception of "How many of tax officials do they think are involved in corruption?". Respondents who think that all of tax officials are involved in corruption are less compliant with property tax than respondent attesting that none of tax officials are involved in corruption attitude, though no clear pattern emerges in terms of the difference between citizens that comply and those not complying.

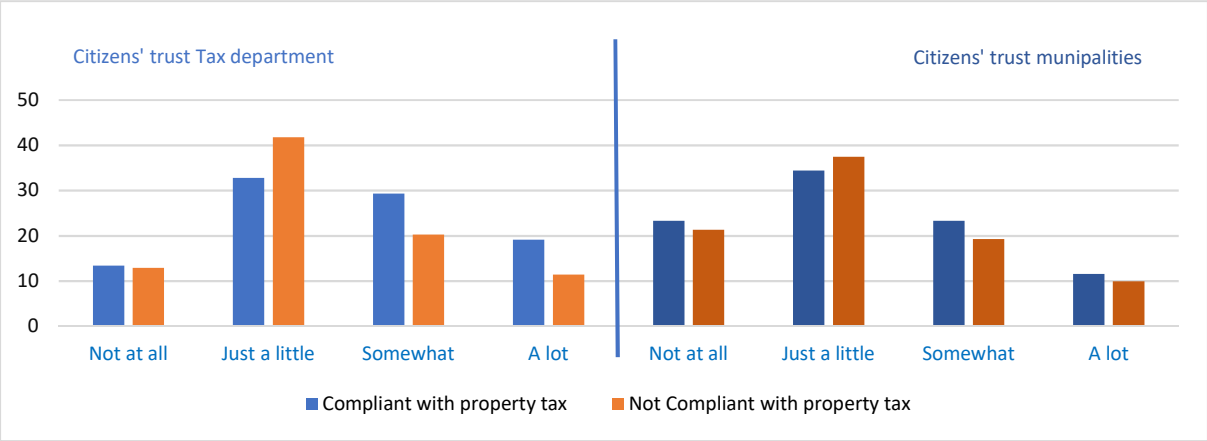
Interestingly, the figures are consistent with those of public service provision and political legitimacy and, differ with the specific level of government considered.

Moreover, making available reliable information about property tax and their operations seems to describe governments 'efforts to publicize their activities, and thus play a significant role in shaping the compliance with property taxation. For example, difficulty to find out what taxes or fees to pay is found to be correlated with respondents' compliance with property tax.



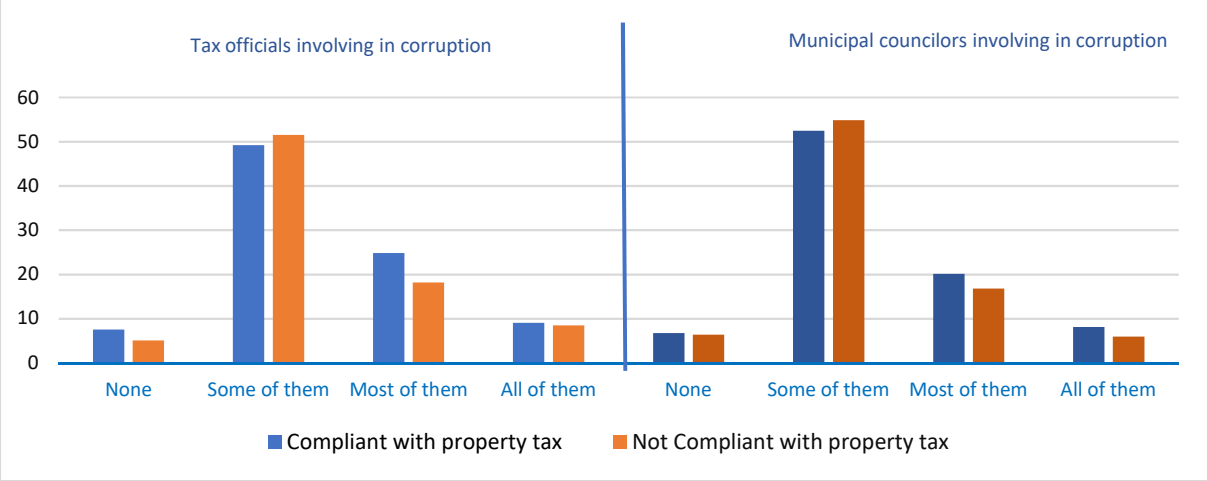
Source: Author

Figure 5: How well or badly would you say the central government or municipality is handling maintaining roads?



Source: Author

Figure 6: How much do citizens trust tax department or municipalities?



Source: Author

Figure 7: How many of tax officials or municipal councilors do respondent think are involved in corruption?

6. Econometric Analysis

6.1 Econometric Model

The analysis uses survey data of 1200 individuals to investigate the correlation of central government and municipalities responsiveness with property tax compliance attitude. Individuals are nested within 62 *departements* that are, in turn, nested within 20 regions. It is

crucial to explicitly model the relevant dimensions and to generalize classical regression models by allowing intercepts (and possibly coefficients) to vary for different levels (Hox, Moerbeek, & van de Schoot, 2018). Individuals who live in the same *departement* are very likely to face similar constraints and attitudes, while *departements* from the same region are very likely to have similar constraints.

We use a multilevel mixed-effects logit model for binary responses to account for such clustering and avoid bias that might affect estimates if ignored, as suggested by Hox, (2010) and Hox et al., (2018)[106]. The model examines whether the effect of government's responsiveness on property tax compliance attitudes differs according to the level of government considered and estimates the impact of the quality of tax system information on property tax compliance attitude.

A three-level random-intercept model with *departements* nested within regions is presented as follow:

$$Compliant_{idr} = \varphi + \beta\, Publicservice_{idrg_k} + \lambda\, Trust_{idrg_k} + \mu\, Taxinfo_{idr} + \phi W_{idr} + \varepsilon_{idr} \qquad (1)$$

Where $Compliant_{idr}$ is a dummy variable indicating whether individual i living in *departement* d of region r has a compliant attitude with property tax or not; $Publicservice_{idrg}$ is a binary variable corresponding to individual satisfaction, or not with different types of public services provided by government level g with k representing either municipality/local councilors or central government/officials. $Trust_{idrg_k}$ is also a dummy variable indicating individual trust in central tax administration or municipal administration. $Taxinfo_{idr}$ is a

[106] Multilevel models provide the opportunity to precisely estimate the relative contribution of each dimension in explaining variance in the dependent variable.

categorial variables reporting the individual difficulty to find out tax to pay. The vector W_{idr} contains the individual socio-economic characteristics with ε_{idr} as the error term.

We are interested in the probability that a given individual i living in *departement* d of region r has compliant attitude with property tax by looking at the sign of $\beta,\ \lambda, and\ \mu$ and comparing the magnitude and sign of the marginal impact of the different explanatory variables between municipality level and central government.

Factors such as measurement errors in our measure of property tax compliance and the possibility of simultaneity between public service provision and citizens compliance with property taxation might raise issue of endogeneity. For example, citizens that are subject to taxation may be more demanding and interested in how that revenue is spent, and thus force governments to improve public service provision. In absence of reliable instrument, the analysis relies on the multilevel mixed-effects logit model to control characteristics at regional and department level that may affect the outcome. However, instead of considering causal effect, the analysis focuses on correlation between property tax compliance and the other covariates, which correlations remains crucial in understanding the determinants of compliance, as suggested by Ali et al., (2014). Robustness checks in the following section will help to provide more credence to our specification.

Table (Append I) provides the summary statistics of the variables used in the econometric analysis along with the decomposition between urban and rural areas for each of the variables.

6.2 Empirical Results

Governments responsiveness and property tax compliance

Table 2 presents the results of the estimations as to whether municipal service provision and trust are more or less likely to have higher effects on property tax compliance attitude than

central government responsiveness[107]. The results using the simple logit regression is presented in column 1, the standard errors are shown in brackets and are clustered at the regional level and *departement* level as well. The probability for the likelihood-ratio test comparing multilevel mixed-effects logistic regression with logistic regression is reported for all specifications and concludes that the former is appropriate.

Results suggest that public road service provision and trust in policymakers have the expected positive coefficient but that the effect differs whether municipality level or central government level is considered. The public service provision by municipalities is found to have higher and statistically significant effect at a 5% level than those provided by central government (columns 2 and 3). In terms of economic significance, this suggests that individual's satisfaction with municipal government's service provision is found to be 5% more likely to increase the likelihood of having a compliant attitude with property tax than those satisfied with services provided by central government. A possible explanation is that the actions by municipalities are more salient than those by central government. This result is consistent with the fiscal contract theory and fiscal federalism theory, which suggests that individuals satisfied with government provision of infrastructure, such as roads and electricity, are more likely to comply with government actions such as property tax collection.

The results show also robust evidence that political legitimacy measured by trust in both municipality and central government tax administration has a significant positive correlation with respondents' attitude toward paying property taxes. The coefficients are positive and significant at 5% for municipality and significant at 10% for central government (columns 4 and 5), showing also further variations across the two level of governments. These results

[107] We refer to local government as municipal level and the term "government responsiveness" represents public service provision and trust which measures political legitimacy.

suggest that further fiscal decentralization, the devolution of expenditures and revenues responsibilities to municipalities, might increase property tax mobilization through increased compliance. A reason is that municipalities have better informational advantage than central governments on local residents' assets and better placed to oversight their compliance, as argued by Ali et al.,(2017).

Furthermore, effective tax information is found also to play a significant role in determining the attitude to property tax compliance. Individuals responding, "Very easy" and "Easy" to the question of how easier and difficult they find out taxes and fees to pay on their property are likely to have tax compliance attitude than their counterparts who find out "difficult" and "Very difficult" (column 6). This suggests that ignorance of tax legislation due to high illiteracy and the complexity often characterizing property tax system, play a stronger role in determining property tax compliance attitude.

Regarding socio-economic variables, results are found to be consistent with the literature. Higher education is positively associated with the likelihood of responding to have a compliant attitude. This might pass through awareness of citizens of the need for paying tax for economic development. The perception of tax avoidance by other citizens referred here as social influence is positively correlated with the probability of individual compliance with property taxation.

To capture the level of poverty of the respondents, we refer to the questions that ask whether respondents have been in a situation without water in the last twelve months. The question of whether the respondent is unemployed or not and, whether the roof of respondent's home is of metal, tin, zinc or tiles. All these variables allow to capture the income level of respondent. The gender, the age and the geographical location (rural versus urban) of the respondents are also considered. The marginal effects for all specification are reported in Appendix C and confirm

the results. The specifications are also replicated without control variables (Appendix F), the results confirm the findings.

The average marginal effects of perceived responsiveness of governments on property tax compliance are displayed in figure 8. The graph shows the expected trend [108].

[108] Figure 8 is obtained from the marginal effects using logistic regression with all modalities for each explanatory variable.

Table 2: Government' responsiveness and property tax compliance

	Dependent variable: = 1 if individual comply with property taxes, = 0 otherwise					
	Logistic regression	Multilevel mixed-effects logistic regression				
	ALL	Central Government	Municipality level	Central Government	Municipality level	Difficulty to find tax
	(1)	(2)	(3)	(4)	(5)	(6)
			Fiscal contract			
Public Road Service		0.216	1.035*			
		(0.149)	(0.538)			
			Political legitimacy			
Trust				0.651**	0.309***	
				(0.142)	(0.147)	
			Tax information system			
Information quality						-0.158***
						(0.0308)
Age	0.212	0.181	0.264	0.306	0.240	0.244
	(0.403)	(0.405)	(0.406)	(0.412)	(0.404)	(0.407)
Gender	-0.0997	-0.0931	-0.103	-0.0274	-0.0741	-0.0375
	(0.136)	(0.136)	(0.136)	(0.138)	(0.136)	(0.138)
Education	0.428***	0.422***	0.446***	0.414***	0.438***	0.358**
	(0.144)	(0.144)	(0.145)	(0.146)	(0.145)	(0.146)
Social influence	-0.102***	-0.0985***	-0.0996***	-0.0949***	-0.0991***	-0.0680**
	(0.0288)	(0.0290)	(0.0289)	(0.0290)	(0.0289)	(0.0301)
Urban population	0.527***	0.486***	0.515***	0.507***	0.518***	0.504***
	(0.172)	(0.174)	(0.171)	(0.175)	(0.172)	(0.173)
Unemployment	-0.190	-0.208	-0.183	-0.154	-0.192	-0.145
	(0.174)	(0.175)	(0.175)	(0.177)	(0.175)	(0.177)
House quality	-0.153	-0.157	-0.151	-0.144	-0.147	-0.139
	(0.216)	(0.216)	(0.216)	(0.218)	(0.216)	(0.218)
Water access	-0.340**	-0.329**	-0.336**	-0.316**	-0.336**	-0.356**
	(0.146)	(0.146)	(0.146)	(0.147)	(0.146)	(0.147)
Constant	0.308	0.281	0.183	-0.294	0.0993	0.641
Observations	1,199	1,199	1,199	1,199	1,199	1,199
Regions	20	20	20	20	20	20
Departements	63	63	63	63	63	63
Likelihood-ratio test Prob	0.00	0.00	0.00	0.00	0.00	0.00

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

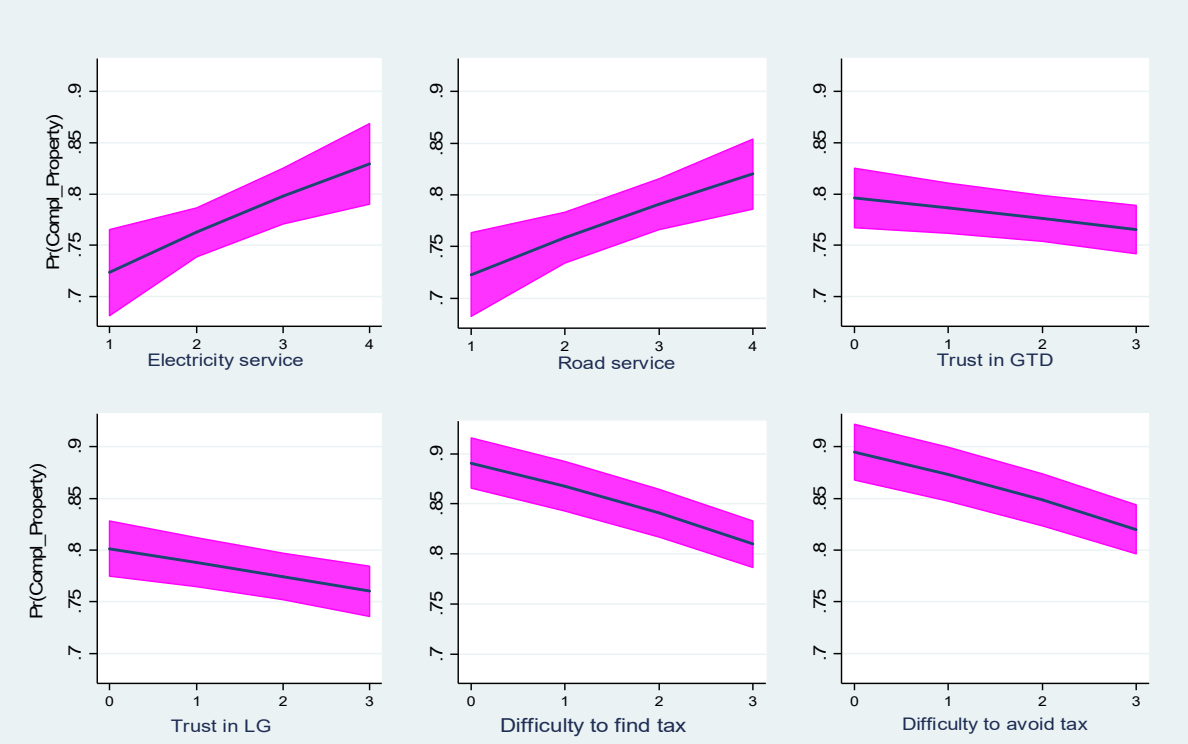


Figure 8: Average marginal effects, government 'responsiveness and property tax compliance (Pr (Compliant = 1))

The estimations in table 2 show that both municipal and central government responsibility are positively correlated with property tax compliance. However, this result may hide considerable difference between rural and urban areas. To identify the area on which policymakers must focus on, the sample is divided into two subgroups: urban population and rural population. Table 3 shows that results for the urban populations are consistent with previous findings. The public service provision by municipalities is found to have higher and statistically significant correlation than those provided by central government (columns 1 and 2). The coefficients for trust in both municipality and central government tax administration are positive and significant at 5% level. However, there is no statistical significance for rural population both for public service provision by municipalities and by central government (columns 6 and 7). Only trust in central government has a significant correlation on property tax compliance for the rural population. This suggests that regardless of their satisfaction with public service provision or the legitimacy of local authorities, the rural population does not comply with property taxation.

This seems to be consistent with African context where rural population seldom understand the need for paying tax on their own properties. Interestingly, the correlation for the degree of citizen understanding of tax system is significant for both rural and urban population, highlighting the need for strengthening awareness of the property tax and simplifying property tax system.

The results for other variables are consistent with the literature. Education has a positive and significant correlation on the likelihood of responding having a compliant attitude for rural population compared to urban one. Being unemployed has a negative and significant correlation on property tax compliance for urban populations while this variable has no statistical significance for rural population.

In terms of robustness, the sample is split into two categories of whether individuals are self-employees or not. The results (appendix D) are consistent with previous findings and provide more credence to our findings.

Table (appendix G) displays results obtained with alternative measures of government responsiveness. The questions of how citizens find that the current government is handling the provision of a reliable supply of electricity and how their find the rate local government handling cleaning markets, are used as alternative measures for fiscal contract. The questions of whether citizens approve or disapprove of the way local government councilors and President/Prime Minister have performed their jobs over the past twelve months are used to measures governments performance. Yet, the results confirm that improving public service provision is positively associated with property tax compliance and government performance is a good determinant of higher compliance.

Table 3: Government' responsiveness and property tax compliance by location (urban vs rural)

	Urban Population					Rural population				
	Dependent variable: = 1 if individual comply with property taxes, = 0 otherwise									
	Multilevel mixed-effects logistic regression									
	CG (1)	LG(2)	CG(3)	LG(4)	DFT(5)	CG(6)	LG(7)	CG(8)	LG(9)	DFT(10)
				Fiscal contract						
Public Service	0.567***	1.039*				-0.181	0.234			
	(0.215)	(0.583)				(0.221)				
				Political legitimacy						
Trust			0.739***	0.483**				0.557***	0.132	
			(0.197)	(0.204)				(0.212)	(0.224)	
				Tax information system						
Information quality					-0.198***					-0.124***
					(0.0442)					(0.0452)
Age	-0.678	-0.496	-0.501	-0.617	-0.481	0.459	0.433	0.486	0.437	0.472
	(0.853)	(0.854)	(0.863)	(0.850)	(0.846)	(0.508)	(0.507)	(0.516)	(0.507)	(0.506)
Gender	-0.0680	-0.0901	-0.000217	-0.0254	0.0688	-0.121	-0.119	-0.0494	-0.108	-0.121
	(0.192)	(0.191)	(0.195)	(0.194)	(0.197)	(0.198)	(0.198)	(0.200)	(0.198)	(0.199)
Education	0.341*	0.365*	0.332	0.332	0.224	0.567***	0.555**	0.523**	0.560***	0.514**
	(0.206)	(0.205)	(0.207)	(0.205)	(0.209)	(0.217)	(0.216)	(0.218)	(0.217)	(0.217)
Social influence	-0.155***	-0.153***	-0.144***	-0.154***	-0.136***	-0.0760**	-0.0729**	-0.0707*	-0.0715*	-0.0396
	(0.0493)	(0.0490)	(0.0492)	(0.0491)	(0.0505)	(0.0368)	(0.0365)	(0.0369)	(0.0366)	(0.0387)
Unemployment	-0.474**	-0.400*	-0.374*	-0.427*	-0.428*	0.240	0.240	0.276	0.239	0.333
	(0.226)	(0.222)	(0.225)	(0.223)	(0.227)	(0.311)	(0.312)	(0.315)	(0.312)	(0.314)
House quality	0.177	0.176	0.131	0.192	0.202	-0.377	-0.376	-0.358	-0.388	-0.385
	(0.401)	(0.403)	(0.409)	(0.402)	(0.410)	(0.260)	(0.260)	(0.262)	(0.260)	(0.261)
Water access	-0.335*	-0.382*	-0.358*	-0.373*	-0.409**	-0.301	-0.307	-0.299	-0.312	-0.340
	(0.203)	(0.201)	(0.204)	(0.202)	(0.204)	(0.222)	(0.221)	(0.223)	(0.222)	(0.223)
Constant	2.371	2.297	1.903	2.325	2.758	-0.397	-0.415	-0.877	-0.474	-0.145
Observations	624	624	624	624	624	575	574	575	575	575
Regions	20	20	20	20	20	19	19	19	19	19
Departements	37	37	37	37	37	54	54	54	54	54
Likelihood-ratio test Prob	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

What role does the quality of institutional environment play?

The literature of fiscal federalism suggests that local authorities are likely to be under pressure from elites (R. Bird & Rodriguez, 1999) and prone to corruption (Prud'homme 1995). Thus, one important question is whether institutional environment also play a key role in determining property tax compliance. Corruption also appears as one of the most important obstacles to local revenue mobilization.

To answer this question, which has important policy implications, the results (Table 4) investigate the role played by the quality of institutional environment in exacerbating or in alleviating the correlation of government responsiveness with property tax compliance. The results are presented for two subcategories of corruption perception defined with the median. The first one considered "low corruption" represents the 50% lower half of citizens perception of how many tax officials or municipal councilors they think are involved in corruption.

The corruption of local councilors is found to exacerbate the correlation of public service provision on the likelihood of tax compliant attitude while this role seems to be mitigated for central tax officials' corruption. Citizens that perceived local councilors highly involved in corruption do not comply whatever their satisfaction with public service provision. The coefficient is positive and significant for "low corruption" category and not significant for "high corruption" category (columns 7 and 8). The results show that the public service provision by central government increases citizens compliance with property tax regardless the level of corruption (columns 1 and 2).

Similarly, for individual who think that local councilors are highly involved in corruption, the legitimacy of their local government has no effect on their compliance with property tax. While the citizens that trust in central tax officials are more likely to comply with property tax regardless of their perception with corruption (columns 3 to 6).

In terms of robustness, the individual's perception of impunity is used as institutional variable. This variable is proxied by individuals' response of how often ordinary people who break the

law go unpunished. Individuals who think that ordinary people who break the law go unpunished are less likely to comply with property tax. The results (appendix D) are consistent with those obtained when using perception of corruption.

The two measures of institutional quality are found to play a key role in shaping citizens compliance with property taxation, especially for municipalities. This highlights the need for considering corruption issue when decentralizing the property tax mobilization as shown by Ali, Fjeldstad and Sjursen, (2014).

Figure 9 presents the computed marginal effects in graphic form. Overall, the graphs show a negative effect between institutional variable and the average marginal effect of property tax compliance[109]. This suggests that on average individuals who find that the quality of institutions is worse, are less likely to comply with property tax. The results are consistent for all specifications.

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[109] Economic deterrence (figure 9) is captured by the question of how difficult individual find tax avoidance.

Table 4: Corruption, governments' responsiveness, and property tax compliance

	Central government				Local government			
	Low corruption	High corruption	Low corruption	High corruption	Low corruption	High corruption	Low corruption	High corruption
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Public Service by CG	-0.0148	0.612**						
	(0.199)	(0.243)						
Trust in CG			0.736***	0.516**				
			(0.185)	(0.230)				
Trust in LG					0.567***	-0.0915		
					(0.188)	(0.261)		
Public Service by LG							2.398**	0.253
							(1.122)	(0.674)
Age	0.154	-0.0537	0.280	0.0707	0.657	-0.313	0.562	-0.262
	(0.572)	(0.583)	(0.585)	(0.584)	(0.538)	(0.659)	(0.530)	(0.665)
Gender	-0.0445	-0.161	0.0458	-0.130	0.0285	-0.180	-0.0126	-0.179
	(0.180)	(0.215)	(0.184)	(0.216)	(0.179)	(0.224)	(0.177)	(0.224)
Education	0.405**	0.596***	0.389*	0.537**	0.463**	0.389*	0.478**	0.397*
	(0.198)	(0.224)	(0.200)	(0.223)	(0.192)	(0.230)	(0.192)	(0.231)
Social influence	-0.0640	-0.139***	-0.0679	-0.135***	-0.0828**	-0.128***	-0.0812*	-0.126***
	(0.0455)	(0.0392)	(0.0461)	(0.0392)	(0.0419)	(0.0415)	(0.0419)	(0.0415)
Urban population	0.532**	0.441*	0.528**	0.497*	0.632***	0.451	0.613***	0.437
	(0.224)	(0.263)	(0.225)	(0.263)	(0.218)	(0.287)	(0.215)	(0.286)
Unemployment	-0.160	-0.282	-0.0922	-0.234	-0.165	-0.0758	-0.211	-0.0769
	(0.222)	(0.297)	(0.225)	(0.297)	(0.220)	(0.299)	(0.219)	(0.299)
House	-0.114	-0.261	-0.0824	-0.230	-0.00286	-0.413	-0.00832	-0.419
	(0.286)	(0.342)	(0.290)	(0.344)	(0.274)	(0.366)	(0.276)	(0.366)
Water Access	-0.391**	-0.257	-0.374*	-0.230	-0.398**	-0.226	-0.406**	-0.218
	(0.192)	(0.231)	(0.194)	(0.231)	(0.192)	(0.233)	(0.191)	(0.233)
Constant	0.174	0.919	-0.620	0.616	-1.245	1.767	-0.748	1.644
Observations	679	520	679	520	721	478	721	478
Regions	20	20	20	20	20	20	20	20
Departements	63	63	63	63	63	61	63	61
LR test Prob.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

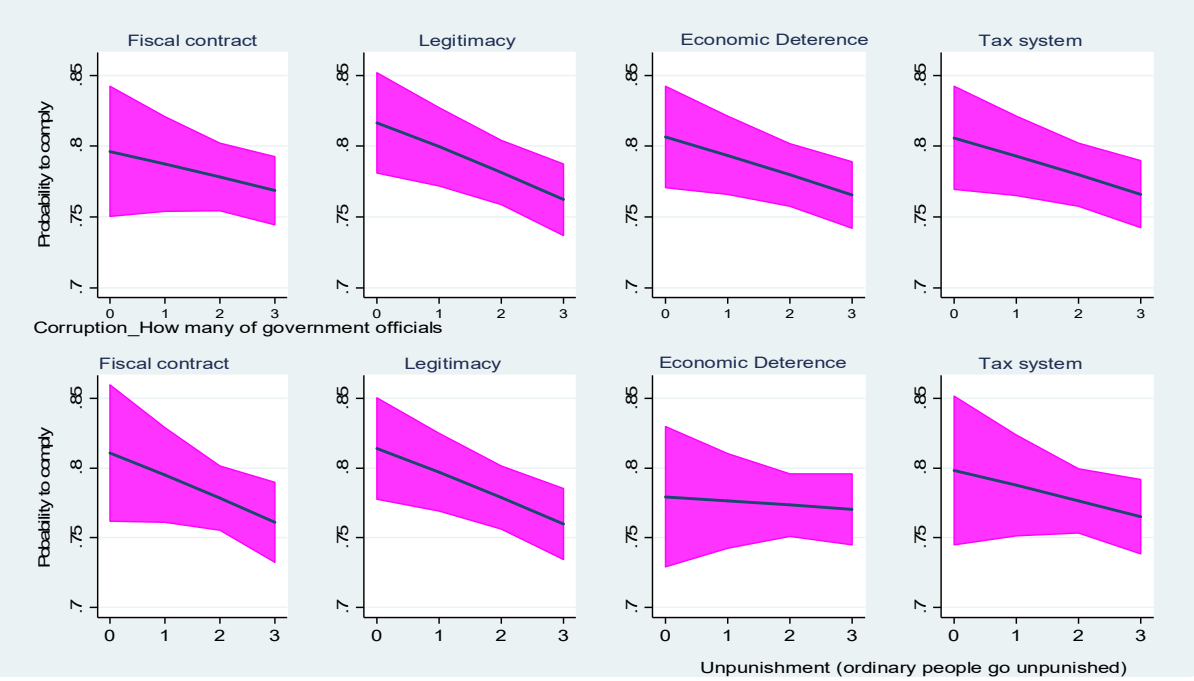


Figure 9: Average marginal effects of corruption and unpunishment on property tax compliance (Pr. (Compliant = 1))

7. Conclusion

Governments responsiveness and accountability are found to shape citizens compliance with taxation and states actions. Using a multilevel mixed-effects logistic model, this paper, first, analyses whether the correlation of government responsiveness with property tax compliance differs between central government and municipalities. The second hypothesis focuses on whether the understanding of property tax system impacts citizens compliance with property tax.

The paper concludes that increased public service provision (fiscal contract) boosts property tax compliance for public services provided both by central government and municipalities. Furthermore, citizens' trust in municipalities and central tax administration increases the likelihood of citizens having a compliant attitude with property taxation. However, there is a significant difference between the responsiveness of central government and those of municipalities. Individual's satisfaction with service provision by municipalities is found to

have a greater effect on property tax compliance than those of services provided by central governments. There are also further variations across the two level of governments in terms of the effect of trust, and the results are consistent with those of public service delivery.

Furthermore, the study suggests that citizen understanding of tax system increases the likelihood of their compliance with property tax. This suggests that ignorance of tax legislation that may come from the high illiteracy and the complexity often characterizing property tax system, play a stronger role in determining property tax compliance attitude. This highlights the need for strengthening awareness of property tax and simplifying property tax system.

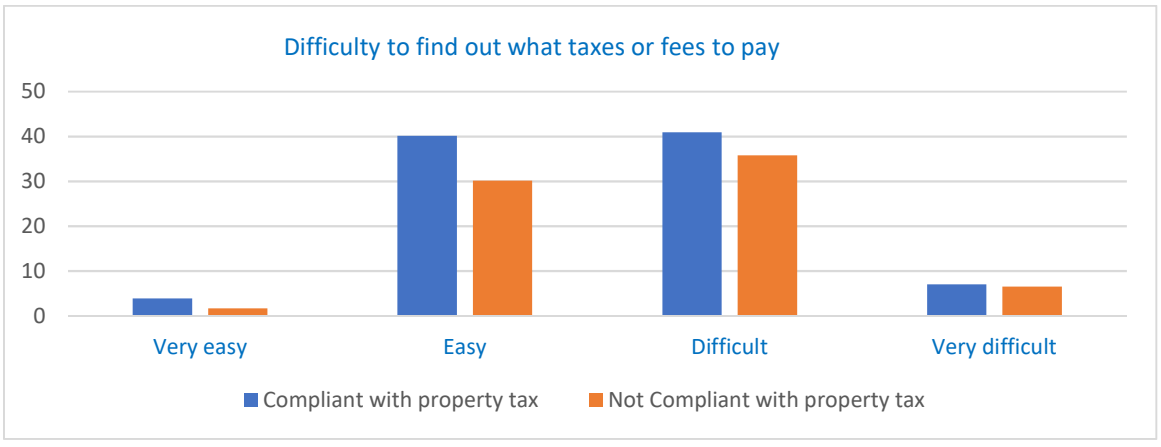
Interestingly, the results for public service provision, citizens 'trust in governments is more consistent with urban populations, suggesting that policy measures should focus on urban cities when designing property tax mobilization policies. This would likely put the burden of the tax on middle and high-income earners and increase equity.

The paper also tests the role of the institutional environment defined as the perception of corruption and impunity in the relationship between government responsiveness and property tax compliance. An increasing perception of tax officials' engagement in corruption and the perception of how often ordinary people who break the law go unpunished worsen the likelihood of tax compliant attitude. The effect of corruption is more important for municipalities than central government consistently with the literature of fiscal federalism to which local authorities are likely to be under pressure from elites and prone to corruption. In decentralizing property tax responsibilities to municipalities, it remains crucial to address the issue of corruption that might occur from property-owned local elites.

Appendix A. Descriptive Statistics

Variable	All					Urban			Rural		
	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Dependent Variable											
Respondent comply with property tax (Compliant)	1200	0.55	0.49	0	1	625	0.63	0.48	575	0.46	0.49
Agree People must pay taxes	1200	0.66	0.47	0	1	625	0.72	0.44	575	0.60	0.48
Required to pay property tax	1200	0.77	0.42	0	1	625	0.83	0.37	575	0.70	0.45
Variable of interest											
Public Road Service by Central Government	1200	0.07	0.25	0	1	625	0.08	0.28	575	0.05	0.22
Public Electricity Service by Central Government	1200	0.02	0.13	0	1	625	0.02	0.14	575	0.01	0.12
Public Water Service by Central Government	1200	0.51	0.50	0	1	625	0.66	0.47	575	0.35	0.47
Public Road Service by Municipalities	1200	0.02	0.14	0	1	625	0.03	0.19	575	0.00	0.04
Public Water Service by Municipalities	1200	0.34	0.47	0	1	625	0.43	0.49	575	0.24	0.43
Public Market Cleaning Service by Municipalities	1200	0.22	0.41	0	1	625	0.28	0.45	575	0.14	0.35
Trust tax officials/administration	1200	0.40	0.49	0	1	625	0.45	0.49	575	0.36	0.48
Trust local government council	1200	0.32	0.46	0	1	625	0.34	0.47	575	0.29	0.45
Difficulty to find tax to pay	1199	3.60	2.43	1	9	624	3.32	2.25	575	3.91	2.57
Difficulty to avoid tax to pay	1199	3.99	2.38	-1	9	624	3.70	2.17	575	4.31	2.55
Institutional variables											
Central government officials' involvement in corruption	1199	2.35	2.64	0	9	624	2.21	2.48	575	2.49	2.79
Municipal councilors involvement in corruption	1199	2.38	2.75	0	9	624	2.25	2.59	575	2.52	2.91
How often ordinary people go unpunished	1199	1.44	1.64	0	9	624	1.41	1.56	575	1.49	1.73
How often officials go unpunished	1199	2.15	1.98	0	9	624	2.06	1.84	575	2.25	2.11
Socioeconomic variables											
Respondent's Age Group	1200	1.96	0.17	1	2	625	1.98	0.13	575	1.95	0.20
Respondent's Gender	1199	1.50	0.50	1	2	624	1.49	0.50	575	1.50	0.50
Respondent's Education Level	1200	0.58	0.49	0	1	625	0.68	0.46	575	0.48	0.50
People avoid paying taxes (Tax avoidence)	1199	2.46	2.53	0	9	624	2.13	1.98	575	2.82	2.97
Employment Status (Unemployment)	1200	0.79	0.40	0	1	625	0.73	0.44	575	0.85	0.35
House Roof quality	1200	0.86	0.33	0	1	625	0.94	0.23	575	0.78	0.40
Respondent's self-employment (Self-employee)	1200	0.29	0.45	0	1	625	0.31	0.46	575	0.27	0.44
Have ever gone without water (Water)	1200	0.66	0.47	0	1	625	0.64	0.47	575	0.67	0.47

Source: Author



Source: Author

Appendix B: Difficulty to find out what taxes or fees to pay

Appendix C. Marginal Effects, government' responsiveness and property tax compliance

Marginal Effects (Regression Table 2)					
Dependent variable: = 1 if individual comply with property taxes, = 0 otherwise					
	(1)	(2)	(3)	(4)	(5)
Public Road Service by CG	0.0419				
	(0.0290)				
Public Road Service by LG		0.200*			
		(0.104)			
Trust DGI			0.124***		
			(0.0267)		
Trust LG				0.0598**	
				(0.0282)	
Information quality					-0.0305***
					(0.00588)
Observations	1,199	1,199	1,199	1,199	1,199

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

Appendix D. Robustness: Government' responsiveness and property tax compliance by subgroup

	Self employees					None Self employees				
	(Dependent variable: = 1 if individual comply with property taxes, = 0 otherwise)									
	Multilevel mixed-effects logistic regression									
	CG	LG	CG	LG	DFT	CG	LG	CG	LG	DFT
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Fiscal constract									
Public Service	0.47*	2.21*				0.26	0.67			
	(0.28)	(1.16)				(0.17)	(0.63)			
	Political legitimacy									
Trust			0.582**	0.449				0.706***	0.294*	
			(0.27)	(0.29)				(0.16)	(0.17)	
	Tax information system									
Information quality					-0.19***					-0.17***
					(0.07)					(0.03)
Constant	-2.308	-3.007	-2.786	-2.674	-1.478	0.679	0.627	0.0849	0.513	0.977
Observations	352	352	352	352	352	847	847	847	847	847
Regions	20	20	20	20	20	20	20	20	20	20
Departements	58	58	58	58	58	63	63	63	63	63
LR test Prob	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Standard errors in parentheses*** p<0.01, ** p<0.05, * p<0.1; control variables are included

Appendix E. Robustness: Unpunishment, governments responsiveness, and property tax compliance.

	Central government				Local government (municipalities)			
	How often do officials who commit crimes go unpunished?							
	Low	High	Low	High	Low	High	Low	High
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Public Service by CG	0.220	0.100						
	(0.214)	(0.240)						
Trust in CG			0.757***	0.507**				
			(0.200)	(0.225)				
Trust in LG					0.271	0.388*		
					(0.202)	(0.231)		
Public Service by LG							1.415*	0.821
							(0.814)	(0.758)
Constant	0.250	0.00218	-0.463	-0.434	0.130	-0.278	0.0563	-0.0103
Observations	665	534	665	534	665	534	665	534
Regions	20	20	20	20	20	20	20	20
Departements	63	63	63	63	63	63	63	63
LR test Prob	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Standard errors in parentheses*** p<0.01, ** p<0.05, * p<0.1; control variables are included

Appendix F. Robustness: Replicating specifications (table 2) without control variables

	(1)	(2)	(3)	(4)	(5)
	Central Government	Local Government	Central Government	Local Government	Tax system
Public service provision	0.393***	1.055**			
	(0.143)	(0.534)			
Trust			0.740***	0.356**	
			(0.138)	(0.143)	
Tax information					-0.193***
					(0.0294)
Constant	0.0927	0.262	-0.0219	0.155	0.956***
Observations	1,199	1,199	1,199	1,199	1,199
Regions	20	20	20	20	20
Departements	63	63	63	63	63
Likelihood-ratio test Prob	0.00	0.00	0.00	0.00	0.00

Appendix G. Robustness: Using alternative measure of government responsiveness

	Alternative measures of government responsiveness			
	(1)	(2)	(3)	(4)
Electricity service by CG	-0.62* (0.472)			
Market cleaning by LG		-0.12* (0.150)		
Performance_LG			0.0624** (0.143)	
Performance_DGI				0.154* (0.143)
Constant	0.353	0.325	0.280	0.401
Observations	1,199	1,199	1,199	1,199
Regions	20	20	20	1,199
Departements	63	63	63	20
Likelihood-ratio test Prob	0.00	0.00	0.00	0.00

Appendix H: Property tax compliance variables

Variable	**Category**	**Obs**	**Percentage**
Respondent comply with property tax (Compliant)	No	535	44.58
	Yes*	665	55.42
	Total	1200	100
Agree People must pay taxes	No	399	33.25
	Yes*	801	66.75
	Total	1200	100
Required to pay property tax	No	275	22.92
	Yes*	925	77.08
	Total	1200	100

Distribution of the individuals across the different categories associated with the variables used for dependent variable. * indicates the reference group in the estimations.

Source: Author

Appendix I: Statistics

			Citizens satisfaction with how government is handling and maintaining roads and bridges				Citizens satisfaction with how government is providing reliable electric supply			
Property tax Compliant attitude (Respondent who are required to pay property tax and agree that people must pay taxes)	Category	Obs.	Very Badly	Fairly Badly	Fairly Well	Very Well	Very Badly	Fairly Badly	Fairly Well	Very Well
	Yes	665	18.95	22.41	37.74	19.55	44.81	29.92	18.05	3.01
	No	534	26.40	28.46	28.84	15.36	45.13	31.84	16.29	0.94
			Citizens' trust in Tax department				Citizens' trust in local government			
			Not at all	Just a little	Somewhat	A lot	Not at all	Just a little	Somewhat	A lot
	Yes	665	13.38	32.78	29.32	19.10	23.31	34.44	23.31	11.58
	No	534	12.92	41.76	20.22	11.42	21.35	37.45	19.29	9.93
			How many of tax officials do you think are involved in corruption?				How many of Local government councilors do you think are involved in corruption?			
			None	Some of them	Most of them	All of them	None	Some of them	Most of them	All of them
	Yes	665	7.52	49.17	24.81	9.02	6.77	52.48	20.15	8.12
	No	534	5.06	51.50	18.16	8.43	6.37	54.87	16.85	5.99

Source: Author

GENERAL CONCLUSION

Improving the performance of public sector through fiscal decentralization remains a major concern for inclusive growth, especially for developing countries. Many countries have implemented fiscal decentralization reforms, the devolution of taxing and spending powers to lower level of governments, with an explicit objective of boosting domestic revenue mobilization and increasing access to public services while containing income inequalities.

In the implementation of fiscal decentralization reforms, countries face three key challenges. The first consists of improving the access to public services without deteriorating income inequalities both between and within subnational governments.

The second challenge facing countries is to design a solid system of intergovernmental transfers that consistently bridge the gap between tax and spending responsibilities without discouraging tax effort by subnational governments. The third important challenge is to define an appropriate local tax base for subnational governments ensuring a considerable revenue autonomy to local authorities, which prevents at the same time, a distortive tax competition and account for macro fiscal imbalances.

This thesis discusses under what conditions, accounting for the specificities of developing countries, improved public-sector performance through fiscal decentralization can help deal with these three challenges. The most important pillars of fiscal decentralization which are revenue and expenditure devolution to subnational governments are considered. The thesis explores factors affecting the reform of fiscal decentralization process, focusing on Côte d'Ivoire, which could inform future policymaking in developing countries.

The thesis is divided into two parts and each part consists of two chapters. The first part of this thesis comprises two chapters focusing on the distributional effect of fiscal decentralization. The first chapter analyses whether and how municipal revenue mobilization could enhance

citizens' access to public services and reduce poverty. While the chapter 2 deals with the internal income inequalities of fiscal decentralization.

In the second part, we first explore how fiscal decentralization in developing countries can promote additional own-revenue generation by subnational governments. The Chapter 3 deals with the intergovernmental relationship, the effects of central grants on municipal own revenue mobilization. The main determinants of property tax compliance, which appears as the main source of local own revenue is investigated in chapter 4.

Main Results

On the distributional effects of fiscal decentralization and access to public services:

The first chapter analyses whether, and how, the devolution of revenue raising responsibilities to Côte d'Ivoire' municipalities enhances access to public services and contributes to reducing poverty. The chapter finds that increased local revenue positively affects access to public services and reduces poverty. However, there is evidence that revenue decentralization has a more robust effect on access to public service, than on poverty. This effect seems to work mainly through enhancing access to education more than access to health, water, and sanitation services. Interestingly, our results indicate that municipalities are more likely to improve access to public services in less ethnically diverse localities and in urban zones. The study shows that the conflict has compounded the existing problems of access to public services with no statistically significant effect on poverty.

The second chapter compares the tax raising responsibilities allocated by legislation of fiscal decentralization in Côte d'Ivoire with the real practice. An analysis of the impact of local revenue autonomy on income inequalities is undertaken. The chapter concludes that taxing powers are restricted and the scope for local governments is highly constrained contrary to the

predispositions of the legislation, so that there is a large vertical fiscal imbalance. The results show also that higher local revenue autonomy reduces income inequalities within localities. The impact differs between the type of revenue and the region considered. Higher local tax revenue seems to reduce inequalities while the effect of non-tax revenue remains mitigated. The conflict is found to have worsened the inequalities in the northern conflict area compared to the southern regions.

On the additional own-revenue generation by subnational governments:

The results (chapter 3) show that central transfers contribute at boosting revenue mobilization by municipalities for both tax revenue and non-tax revenue. However, the effect of transfers is found to be higher for tax revenue than for non-tax revenue. The conflict that the country experienced eroded the capacity of municipalities to raise revenue.

The chapter 4, first concludes that increased public service provision (fiscal contract) is positively correlated with property tax compliance for public services provided both by central government and municipalities. Second, citizens' trust in municipalities and central tax administration is positively associated with the likelihood of citizens having compliant attitude with property taxation. However, individual's satisfaction with service provision by municipalities is found to have a greater correlation with property tax compliance than those of services provided by central governments. There are also further variations across the two level of governments in terms of the effect of trust, and the results are consistent with those of public service delivery.

Furthermore, the study suggests that citizen understanding of tax system increases the likelihood of their compliance with property tax. Interestingly, the results for public service provision, citizens 'trust in governments is more consistent with urban populations. The effect of corruption is found to be more important for municipalities than central government

consistently with the literature of fiscal federalism to which, local authorities are likely to be under pressure from elites and prone to corruption.

Policy Implications

Several policy implications emerge from the results.

From the policy perspective of expenditure devolution, the definition of the dimensions of access to public services in which municipalities may be more effective would remain a key policy decision. Countries would need to identify the sector (education, heath, sanitation…), the context (rural or urban) and the local heterogeneity (ethnic and linguistic) in implementing fiscal decentralization measures, all these remain country specific.

To ensure a consistent revenue autonomy for subnational governments, there is a critical need of clarification functions and responsibilities between the local and the central governments. This would also help design progressive local revenue tax base.

Countries should design intergovernmental transfers that avoid endangering overall domestic revenue mobilization through a reduction of local governments incentive to raise their own revenue, given the political cost of own taxes and the resources required to administer them. The distributional formula for central transfers should include local tax effort as a determinant of the amount of transfers. An adequate intergovernmental system would require that subnational governments be committed to fiscal discipline and that fiscal decentralization package includes incentives for prudence in spending. The effectiveness of transfers to subnational governments would also benefit from distinguishing tax and non-tax revenue, as by definition the tax base for subnational revenue is more resilient to shock such as conflict.

To improve the mobilization of property tax through higher compliance, countries need to strengthen governments responsiveness, both at central and local levels, which in turn would

foster citizens compliance. Countries need to take measures that strengthen awareness of property tax and simplify property tax system by facilitating access to tax information.

In decentralizing property tax responsibilities to municipalities, it, therefore, remains crucial to address the issue of corruption that might occur from property-owned local elites.

However, there is a need for many countries to construct more accurate decentralization indicators which reflects the real decision-making power devolved to local authorities. These indicators might include the power to set tax rates, and the political and institutional processes that assign the responsibility to raise taxes and undertake public spending.

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