

TAX EVASION AND CAPITAL FLIGHT IN AFRICA*

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Abstract

Expanding the tax base raises government revenue and is essential for sustainable poverty reduction in African countries. With volatile ODA, FDI, loans, and remittances, domestic resource mobilization via taxes remains a vital source of revenue for African governments. Fighting tax evasion is a significant part of this drive to increase government revenue and reduce vulnerability to shocks, including the sudden depletion of official development aid. Capital flight, tax evasion, and tax avoidance are significant developmental problems that require urgent attention. This paper highlights key issues in relation to tax evasion and capital flight via tax havens. It provides an econometric analysis of factors associated with tax evasion using data from three rounds of Afrobarometer Surveys. Policy implications are discussed.

Key Words: Capital flight; illicit financial flows; tax evasion; tax avoidance; Africa; sub-Saharan Africa

JEL Classifications: G11; O16; O55; H26

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1. Introduction

Issues of taxation and development (e.g., tax reform, tax base, tax administration, tax evasion, informality, and taxation) are gaining renewed and increasing interest both from academic and policy circles (Keen, 2012). In the current climate of economic crisis, austerity measures, and declining foreign aid, governments are trying to raise revenue by fighting tax evasion and expanding the tax base (AfDB et al., 2010). Tax evasion is damaging to any economy; thus it deserves serious consideration both in academic and policy circles. It weakens the cardinal virtues of social justice and efficiency (Cowell, 1990). It distorts prices and incomes, and renders macroeconomic policies ineffective (Adam and Ginsburgh, 1985). Tax evasion has diverse detrimental consequences on different economies depending on the tax structure. For countries that rely on natural resources (mineral ores and fuel), there is limited diversification and the tax base is dependent on taxing a few companies who often engage in financial engineering to avoid paying taxes. Thus in a resource-rich, less diversified economy, tax evasion is highly damaging.

Raising revenue through taxes is especially important given the short-term nature of donor assistance, which does not guarantee sustainable development for Africa (AfDB, 2010). In the continent, there have been lukewarm attempts to make credible tax reforms, collect data to measure the extent of tax evasion, and study its determinants. Many governments rely heavily on donor assistance and taxing international trade, which are not long-lasting solutions in the current aid architecture. In addition, increasing membership of nations to the WTO has detrimental implications on the revenue of African governments that rely excessively on trade taxes. With widespread smuggling and large informal sectors, developing capacity for combating tax evasion and enhancing tax compliance is not a simple undertaking (Bajada and Schneider, 2005). The issue is not restricted to economics; it also involves law, politics, culture, and trust between the government and its citizens. The key challenge to understanding the extent of tax evasion in Africa is lack of data and relevant evidence due to the sensitive and complex nature of micro surveys on the issue. There are a few studies on tax evasion based on some country case studies but this needs to be scaled up (Levine and Widell, 2007; Fjeldstad, 2006). In this paper, we provide a framework and identify research issues for further investigation on tax evasion in Africa, and we link the problem of tax evasion to capital flight. In addition, we provide econometric evidence on attitudes vis-à-vis tax evasion in Africa based on data from Afrobarometer Survey to gain insight on the factors driving compliance. The paper draws on a large literature for a critical and comprehensive understanding of the extent of tax evasion. It explores the capacity of Africa to fight tax evasion and expand its tax base.¹

For a conceptual framework on compliance, we draw on the seminal tax evasion theory advanced by Allingham and Sandmo (1972), which is an adaptation of Becker's (1968) model of the economics of crime. Economic theory often presents the tax evasion decision as a choice under uncertainty (Hindriks and Myles, 2006). In the literature, a game theoretic characterization of the strategic interaction between tax payers and governments is also common. The determinants of tax evasion are reviewed based on econometric and experimental evidence (Slemrod, 2007). Beyond economic considerations, we will also focus on underlying fundamental issues that potentially reinforce or hinder tax compliance in

¹ A section on tax-paying attitudes in this paper will build on our existing work on tax evasion in another context (Kedir, 2012; Williams et al. (forthcoming); Kedir et al., 2012a, 2012b; Williams et al., 2013). Tax evasion is the illegal non-payment of taxes by individuals, firms, trusts, or other organisations within a given jurisdiction.

the continent, such as the political and institutional environment, culture, and trust (Torgler, 2004a, 2004b; Blackburn et al., 2006; Hindriks et al., 1999; Andreoni et al., 1998). We also attempt to make a link between tax evasion and capital flight by exploring whether particular features of the tax structures (including tax exoneration) facilitate capital flight. We draw implications for policy and research and identify issues that need to be explored in country case studies.

The paper is organized as follows. Section 2 discusses the linkages between taxation and development with a focus on the tax base, tax design, tax reforms, informal sector, smuggling, institutions, state building, and natural resource taxation. Section 3 links tax evasion with capital flight. Section 4 discusses tax compliance based on econometric and experimental evidence along with the theory of tax evasion. Section 5 describes the data and method of analysis. Section 6 presents the econometric results on tax compliance using data from the Afrobarometer Survey conducted in 2004 (round 2), 2005 (round 3), and 2008 (round 4). The Afrobarometer survey provides the opinions of individuals in selected countries on issues of social and economic importance. Opinion about the tax compliance of individuals was collected in the dataset and forms our outcome variable. Section 7 concludes.

2. Taxation and Development

Tax revenue to GDP ratios in least developed countries (LDCs) are generally less than 15 percent except in resource-rich economies (Gemmell and Morrissey, 2002). The prevalence of the shadow economy, inefficiency in tax collection, logistical problems, and evasion are some of the key reasons behind the low tax-GDP ratio. Some countries have low potential to raise tax revenue from external trade. This can be exacerbated by accession to the WTO, with the implied losses in government revenue following sweeping reductions in tariffs on imports and exports.

Developing countries, including those in Africa, need to increase tax revenue to finance major development initiatives such as the Millennium Development Goals (MDGs) targets, infrastructure, and climate change adaptation programs. In the era of declining ODA, governments are intensifying their domestic resource mobilization (DRM) activities via tax collection. Thus, the issue of taxation and development is taking center stage. The main issues surrounding taxation and development are the design of the tax system and tax reforms; the informality of economic activity; institutions and state building; and the taxation of natural resources (Keen, 2012). We provide a brief review of each of these in this section.

2.1. Tax base, design, and reform

Countries have heterogeneous sources of tax revenue, including personal income tax, consumption tax, property taxes, corporate taxation, customs duties, and VAT. In recent years, some African countries expanded their tax base and increased revenue collection (Auriol and Warlters, 2005). For instance, in Ethiopia tax collection improved significantly after the 2010 tax reform.

One of the weaknesses of the tax systems in developing countries is the high burden of taxation on the poorest section of the population (Chu et al., 2000). While most of the poor work in the informal sector and thereby escape direct taxation, most taxes in developing countries are indirect and affect goods that are consumed by the poor. Hence, the poor incur a

relatively heavier tax burden than the wealthier segments of the population.

International trade taxes are considered distortionary. Empirical studies show that export taxes are regressive, and there is also strong political, social, and economic opposition to eliminate import duties (Chen et al., 2001). Trade taxes are important sources of revenue and often may be a major reason to oppose trade liberalization. However, countries may offset these revenue losses by raising more domestic tax (Emran and Stiglitz, 2005). For example, recently Ethiopia introduced a value-added tax (VAT) and broadened the tax base after the 2010 tax reform. At the same time, the country is in the final stages of negotiations to join the WTO. Such a reform is often criticized for its detrimental impact on welfare in an environment where the informal sector is important. Emran and Stiglitz (2000) also argue that the entire informal sector escapes the VAT net and its introduction leads to distortions between the formal and informal sectors as well as between tradable and non-tradable sectors. The need to tax some items traded in the informal sector in Cameroon is forcefully argued by Benjamin and Claude (2006).

2.2. Informality and smuggling

A substantial share of economic activity in African countries is due to informal activities and this provides a fertile ground for cross-border smuggling. Smuggling is exacerbated by the complexity of tax systems in African countries. It is distortionary and leads to welfare loss (Stopler and Deardorff, 1990).

Formalizing the shadow economy can boost resource mobilization through taxation. The potential tax revenue loss due to informality stands at 62.6 billion USD for the region, where the informal economy accounts for 41% of official GDP. The estimated benefit from taxing informal activities is at 28.7% of official GDP for sub-Saharan Africa (Cobham, 2005). Table 1 gives estimates of potential tax revenue loss and the size of the shadow economy in selected African countries. The revenue losses are especially high in countries such as Angola, Botswana, Cameroon, Côte d'Ivoire, Ghana, Kenya, Sénégal, and Zambia.

[Table 1 here]

2.3. Institutions and state building

History and institutions arguably play a role in the type of taxes designed by countries (Acemoglu et al., 2001). For instance, countries' tax systems may differ depending on whether they have a Francophone or Anglophone colonial heritage. Francophone countries tend to make use of VAT withholding and advanced collection schemes and typically follow a territorial approach to the taxation of foreign income. These features are borrowed from tax practices in France (Keen, 2012).

Two strands of recent literature highlight the historical role of revenue mobilization in state development. One segment of the literature focuses on the capacity of the state to collect tax revenue, which is shaped by factors such as political stability, the extent of common interests, and the degree of political consensus (Acemoglu, 2005; Besley and Persson, 2010). The second strand of literature is emphasized in policy circles and can be referred to as the "new fiscal sociology." This literature argues that taxation is critical to

building state institutions that are responsive, accountable, and competent. The key message is that taxation encourages state building by providing a focal point for bargaining between the state and citizenry and by fostering the development of high quality institutions for tax collection (Bräutigam, et al. 2008). From an empirical point of view, there is support for devising some sort of contractual agreement between governments and citizens due to its subsequent impact on tax compliance (see the empirical results section below). Others have argued in favor of ‘implicit’ contractual agreements, also based on experimental evidence (Feld and Tyran, 2002).

2.4. Natural resources and taxation

A number of African countries are resource-rich and more countries are discovering natural wealth (e.g., gas and oil in Ghana, Tanzania, and Uganda). These countries will be heavily reliant on resource revenues, and this will require appropriate reforms in tax design and revenue management (see ACBF 2013). Tax revenue mobilization can be enhanced under effective institutional arrangements, which are lacking in much of resource-rich African countries (Daniel et al., 2010). Resource exploration corporations evade taxation and resource-rich governments are prone to rent seeking and capital flight. Nevertheless, with accountable and transparent institutions, the potential for raising revenue is enormous. According to the 2010 *African Economic Outlook*, there is a positive trend in tax revenue in the continent, as illustrated by an increase in the tax-GDP ratio since the 1990s; most of the increase is driven by resource-related tax revenues. Between the early 1980s and 2005, resource-rich countries in sub-Saharan Africa increased their tax-GDP ratios by about 7 percentage points (Keen and Mansour, 2010b).

An extensive treatment of resource taxation is given by Daniel et al. (2010) and Collier (2010). The challenge in relation to risk-sharing by low income, resource-rich nations and private producers in the resource sector is discussed by Stroebel and van Benthem (2013). These studies find that most resource-rich economies of Africa have missed the opportunities of producing lasting value for their societies due to corruption and the squandering of wealth. Hence, they argue for prioritizing the allocation of resources to investment and growth within the continent.

The loss of revenue from natural resources and other activities in Africa is facilitated by tax avoidance and tax evasion practices of multinational companies. There is increasing pressure on large corporations to eliminate their tax avoidance activities across the globe. Some non-governmental organizations such as Action Aid revealed how the multinational corporation SAB Miller paid less tax than the owner of a small kiosk selling SAB Miller beer in Accra, Ghana (Action Aid, 2010). Many other MNCs operating in Africa also engage in tax avoidance and tax evasion schemes, including Associated British Foods (ABF), Vodafone, Starbucks, Barclays, Primark, Boots, and Silver Spoon & Ryvita. It is estimated that Zambia lost up to \$27 million in revenue due to tax evasion by ABF alone.²

3. Tax evasion and capital flight

Capital flight and tax evasion pose significant problems to many African countries due to their detrimental effect on welfare. Thus tax avoidance and evasion serve as important motives for

² *The Guardian* (February 11, 2013).

capital flight. There are equity as well as efficiency concerns. Since it is easier to move capital than labor, capital is subjected to lower effective tax rates than labor. Consequently, the higher tax burden on labor, the immobile factor of production, is a source of inefficiency and inequality (Schjelderup, 1993).

Tax avoidance and evasion serve as important motives for capital flight. Moving capital to tax havens is a perfect tool to conceal ill-gotten financial resources and serves well individuals who have access to national resources. Banks located in rich countries routinely facilitate this activity to the detriment of the poor. Action Aid (2013) reported that global banks such as Barclays facilitate tax dodging by moving funds of multinationals across countries. Barclays used Mauritius, a country famous for its double taxation treaties, as a tax haven for offshore companies that channel funds to Africa. For instance, the profits gained in a given country might be channeled via a tax haven such as Mauritius and then re-invested in the original country as if it is 'new' foreign investment, thus benefitting from potential tax relief on the new investments. A recent report on capital that is hidden from tax authorities via tax havens puts the figure between 21 trillion USD and 32 trillion USD (Henry, 2012). Oxfam International estimates that potential tax revenue of 156 billion USD is lost annually from developing nations. This is corroborated by previous estimates that put the level of tax revenue lost by African countries at 255 billion USD annually, which is more than the funding required to meet the Millennium Development Goals (Spencer, 2008).

Commercial banks play a major role in facilitating capital flight and tax evasion by helping their clients identify locations with low tax or favorable tax regimes and facilitating fund transfers. In Africa, Mauritius is the only established tax haven that has double taxation treaties with 14 African countries, and 11 more are expected to be added soon. These agreements enable companies to reduce their tax liabilities and even avoid taxation altogether in either country. The extent of the problem is highlighted by the recent Action Aid study that estimated more than USD 12.1 trillion is being collectively managed by the top 50 international private banks in cross-border assets from private clients. The report cites Barclays Bank as a major player (Action Aid, 2013).

Broadly conceived, capital flight is the unrecorded transfer of assets from one country into another. This may take place legally by exploiting the weak institutional arrangements that exist within and outside Africa. Tax havens are attractive because within the legal framework they provide zero or near zero tax rates and facilitate the maintenance of the veil of secrecy around the potentially illicit nature of the transactions undertaken within them. For instance, nearly all of the UK's biggest companies use tax havens and most are involved in economic activities in the developing world, including Africa. According to Action Aid, the most common users of tax havens are banks such as Barclays and HSBC, followed by mining and oil companies. Out of the biggest 100 business groups listed on the London Stock Exchange, 98 of them use tax havens. Even if Luxembourg is not famous for its minerals, it has 30 companies registered under the mining company Anglo American. One of these companies is Kumba West Africa Sarl, suggesting the link between tax havens and mineral-rich African countries. Tax dodging by multinational corporations implies large revenue losses by African governments. For instance, SABMiller, the second largest brewery operating in Ghana, often declares no profits and thus does not pay income tax. Action Aid estimates that SABMiller has been able to reduce its African tax bill by one fifth by using tax havens (Action Aid, 2011, 2010). Such legal practices are common covert actions by MNCs and are used to exploit the protections provided by secrecy jurisdictions to transfer large sums of money out of host countries such as Ghana. In countries such as Zambia tax arrears both from mining and non-mining sectors cost the government heavily. Due to a combination of tax breaks and tax evasion by one company alone,

the Zambian sugar subsidiary of UK-based Associated British Foods, Zambia has lost USD 27 million since 2007. This is equivalent to the funds that would be needed to put an additional 48,000 Zambian children in school (Action Aid, 2013).

4. Tax compliance

Existing studies focus on tax evasion mainly from the perspective of individual income tax returns (Slemrod, 2007; Slemrod and Yitzhaki, 2002; Feld and Frey, 2006; Feld and Frey, 2002) and few provide results based on experimental evidence (Feld and Tyran, 2002). The seminal work on tax evasion is that of Allingham and Sandmo (1972), which is often referred to as the A-S model. The model identifies tax rate, probability of detection, fine and wage rate as key determinants of compliance. However, other factors include individual characteristics and citizens' degree of satisfaction about the provision of public services. The individual characteristics include gender, age, and education. Moreover, there are other important factors that are often ignored in the literature on tax evasion, notably social networks and subjective perceptions of tax evasion. These factors are not predicted by theory and are not captured in survey-based data, but we believe that one's subjective perception of the prevalence of tax evasion in a given society and whether one knows someone who evades taxes are important factors that can significantly affect attitudes towards tax compliance (see Williams et al., 2013).

There is growing scrutiny by researchers and policy makers on the effectiveness of the traditional deterrence instruments to reduce tax evasion. In the A-S model, the share of income declared or tax paid on earned income increases with higher expected fines. For instance, both developed and developing countries are trying to enhance tax morale through a variety of deterrence measures such as fines and regular audits. Feld and Larsen (2005) argue that tax evasion is significantly influenced by tax morale, which, in turn, is shaped by an implicit psychological contract between the government and its citizens. When citizens receive a fair share of public services they are more likely to pay their taxes. Other deterrence measures can involve harsher measures such as prison terms.

Behavioral studies suggest that excessive and draconian measures by authorities might fail to raise tax compliance and result in perverse behavior. In contrast, respectable treatment by tax authorities (e.g., not naming and shaming offenders; rescheduling tax liabilities payments for evaders that are caught) is found to induce more compliance (Feld and Frey, 2006; Frey and Feld, 2002). According to this line of research, tax compliance is a complex interplay of reciprocal exchange between taxes paid by individuals and public services provided by the government. Sandmo (2006) points out how punishment might lead to reduced declared income: "..., the stronger extrinsic incentive to truthful reporting reduces the intrinsic incentive to behave honestly" (p. 650). Other important factors of tax compliance that are emphasized in this literature are trust in government, fiscal federalism, and a more equal society. Fundamental social norms, religion, and personal attitudes are important considerations which cannot easily be captured by the traditional deterrence model of punishment and fines. Feld and Frey (2006) highlight that Swiss citizens have reported tax cheaters to tax authorities historically. This is a situation where social control is instrumental in fighting tax evasion. The motivation of social control or reporting is believed to be a mixture of moral obligation and envy. Table A1 in the appendix summarizes some of the key findings of studies on tax evasion for a selected number of countries.

Economic theory often represents the tax evasion decision as a choice under uncertainty (Hindriks and Myles, 2006). In the literature, a game theoretic characterization of the strategic

interaction of taxpayers and governments is also common. Here, a simple theoretical model of the individual decision to evade is presented. An empirical model is specified drawing on theory and incorporating key variables available from the Afrobarometer survey. Our theoretical exposition draws heavily on the Expected Utility Theory (EUT) of Allingham and Sandmo (1972) or the A-S model, which is an adaptation of Becker's (1968) model of the economics of crime.

The EUT has been criticized for being at odds with observed behavior. Eide (2002) developed a rank-dependent expected utility (RDEU) framework, but without changes in the comparative static results for the tax evader. Other variations on the EUT introduced social stigma and other changes in assumptions about the taxpayer's objective function to which the original A-S model is found to be insensitive. The EUT analyzed the individual's decision on whether, and to what extent, to avoid taxes by deliberate under-reporting. This tax declaration decision model is relevant in our analysis because the tendency not to pay taxes is a failure to declare actual income and a tax evasion tool.

The analysis in this paper is restricted to the income of the individual that is not declared to the tax authorities. It is assumed that the individual or the business concerned has an indirect utility function, which has income (W) as the only argument [i.e., $U(W)$]. Income is exogenous and is known only to the individual, not to the tax authorities. We assume that the utility function is increasing and concave so that the taxpayer is risk averse (Lefebvre et al., 2011). A constant tax rate, θ , is imposed on declared income, X .

Hence, the under-declared income is given by $y_s = (W - X)$. If caught with probability of p , the individual pays a penalty on y_s at the rate of π . The inequality $\pi < \theta$ summarizes the reason behind the action of the individual evader, which is based on comparing the cost of being caught with the benefit of evading. But the interesting case is to examine the inequality $\pi > \theta$.

The individual evader chooses X to maximize the following expected utility (Allingham and Sandmo, 1972).

$$E(U) = (1 - p)U(W - \theta X) + pU(W - \theta X - \pi(W - X)) \quad (1)$$

The first-order condition is:

$$\partial E(U) / \partial X = -\theta(1 - p)U'(W - \theta X) - (\theta - \pi)pU'(W - \theta X - \pi(W - X)) = 0 \quad (2)$$

After evaluating equation (2), the expected utility at $X=0$ and $X=W$ (i.e., no evasion), the two conditions for an interior solution are: $p\pi < \theta$ and $p\pi > \theta \left[p + (1 - p) \frac{U'(W)}{U'(W(1 - \theta))} \right]$. The former implies that the taxpayer declares less than his actual earning if the expected tax payment on evaded income is less than the regular rate. The implicit condition for the interior solution is that risk aversion should be sufficiently increasing with income (see details of derivations in the A-S model of 1972).

The concavity of the utility function guarantees the satisfaction of the second order condition for a maximum. Corner solutions may still exist, depending on the relative magnitude of the tax rate and the fine, as well as the shape of the utility function. If agents have sufficiently low risk aversion, they may still declare nothing, as long as the probability

of detection is not too high. In the extreme case of no risk aversion, not paying taxes dominates as long as the expected net wage remains greater than the certain net wage when income is truthfully reported.

To realize that, it suffices to differentiate equation (1) with respect to X and set $X=W$ while assuming that $\pi > \theta$. The sign of the resulting expression is ambiguous. The assumption that $\pi > \theta$ is realistic because it means that someone who evades taxes and gets caught pays more than someone who is honest. Regardless of one's tax bracket, this inequality is implied by the fact that when someone gets caught, he/she must pay the taxes due on the amount that was undeclared plus a fine. Moreover, it is no surprise that everyone evades when $\pi < \theta$, because evading is then a dominant strategy: you pay no taxes when you are not caught, and you pay a smaller amount of taxes when you are caught than when you have been honest. The government has no incentive to put the penalty rate below the tax rate. However, in the subjective evaluation of the taxpayer, the penalty rate might be uncertain and the inequality $\pi > \theta$ will be the basis of the evasion decision of the taxpayer. The interesting trade-off appears when there is no dominant strategy and one has to balance the risk of being caught with the benefit of evading taxes, which is when $\pi > \theta$. Of particular interest in our empirical application is to derive testable theoretical propositions that are associated with tax evasion. In other words, we need to find parameter values (i.e., W , p , θ , and π) which hold for $0 < X < W$.

Income and tax evasion

Higher gross income from employment is expected to increase evasion because the marginal gain of evading is higher. Given the conventional assumption of declining absolute risk aversion (DARA) with income and differentiating (2) with respect to W and solving for $\partial X / \partial W$, we obtain the following:

$$\partial X / \partial W = -\frac{1}{D} \theta(1-p)U'(Y)[R_A(Y) - (1-\pi)R_A(Z)] \quad (3)$$

where D is the 2nd order condition given by $D = \theta^2(1-p)U''(Y) + (\theta - \pi)^2 pU''(Z)$ and $R_A(Y) = -U''(Y)/U'(Y)$ and $R_A(Z) = -U''(Z)/U'(Z)$ are the absolute risk aversion functions. In the case of $\pi \geq 1$, the right hand side of equation (3) is unambiguously positive. Since the sign of the bracketed terms in equation (3) depends on the value of π , it is not possible to generalize the relationship between W and X .

The tax rate and tax evasion

Differentiating equation (2) with respect to the tax rate θ and rewriting using substitution from equation (2), we get:

$$\partial X / \partial \theta = 1/DX\theta(1-p)U'(Y)[R_A(Y) - R_A(Z)] + 1/D[(1-p)U'(Y) + pU'(Z)] \quad (4)$$

While the second term on the right hand side is unambiguously negative, the first term is positive, zero, or negative depending on whether ARA is decreasing, constant, or increasing. Assuming decreasing absolute risk aversion, it is not clear whether there is a negative or positive association between the tax rate, θ and declared income, X . The situation whereby there will be less evasion as the tax rate increases leads to the Yitzhaki puzzle (Yitzhaki,

1974). Based on insights from prospect theory³, Dhimi and al-Nowaihi (2007) provide the solution to this puzzle and show a positive relationship between the tax rate and tax evasion. We are not making a theoretical contribution here but we emphasize that the existing theoretical work and debate highlight the complexity of the relationship between these two variables. The relative trade-off between income and substitution effects is useful to indicate the most likely direction of the relationship. The income effect will be negative given higher taxes, which make the individual poorer and less willing to take risks. But the substitution effect might induce increased evasion.

Penalty rate, probability of detection and tax evasion

It is expected that the penalty rate and probability of detection unambiguously reduce evasion propensity and increase declared income (Lefebvre et al., 2011). This is shown by differentiating equation (2) with respect to π and p , which gives us;

$$\frac{\partial X}{\partial \pi} = -\frac{1}{D}(W - X)(\theta - \pi)pU''(Z) - \frac{1}{D}pU'(Z) \quad (5)$$

$$\frac{\partial X}{\partial p} = \frac{1}{D}[-\theta U'(Y) + (\theta - \pi)U'(Z)] \quad (6)$$

To empirically test the above propositions, one ideally needs to directly observe W , θ , p , and π in the data.

Other variables not captured by tax evasion theory

Perception variables are not usually controlled for in many studies because of the lack of data and a theoretical framework linking tax evasion with perception. Individuals' likelihood to evade taxes depends on their perception of the level of evasion or compliance in an economy and among their close associates (e.g., co-workers, friends) as well as family members. The expectation is that declared income (X) will fall as the proportion of people presumed evading increases and also if an individual knows that somebody else is evading. Because we do not observe the perception variables in the data, we cannot directly test these theoretical conjectures. Therefore, we cannot see to what extent social interaction and the perception of the prevalence of evasion behavior affect individuals' decision to evade. Perception variables are linked to the subjective probability of detection because this probability is formed by the individual's observation of what others do in society. The valuation of a subjective probability of detection of a person who sees friends, neighbors and colleagues evade without punishment and detection is lower than from the valuation of another person who sees other evaders easily detected and punished. Experimental evidence by Feld and Tyran (2002) suggests this is the case.

The Afrobarometer data used in this study includes a range of indicators of public service provision, trust, and government-citizens interactions that we believe are important for compliance decisions. For instance, a government that provides basic services and

³ The prospect theory provides insights on how individuals (e.g., taxpayers) make choices between probabilistic alternatives (e.g., being caught or not being caught while making tax evasion decisions) based on potential losses or gains instead of actual or final outcome.

infrastructure is likely to attract higher compliance than other governments that fail to do so (Cowell and Gordon, 1988). Further, we argue that governments' interaction with citizens as measured by the frequency of contact between government officials and citizens as well as the treatment of citizens matter for compliance. Governments that attract higher compliance are those that respect individual property rights, listen and respond to the demands of their people, and treat their citizens fairly and equally. Redistributive politics is increasingly being recognized as an important element of the complex taxpayer's decision making process (Esteller-Moré, 2011). In contrast, governments that do not respect property rights, lack any meaningful contact with the electorate at all levels (i.e., local, regional, or national levels), and are corrupt create a fertile ground for rule breaking and a disincentive to pay taxes (Besley and Person, 2011). Another important consideration is the level of trust citizens put in their governments. For instance, in the context of South Africa, Fjeldstad (2003) argues that non-payment of service charges is not only related to ability to pay and "a culture of entitlement", but also to whether citizens perceive the local government as acting in their interest.

5. Data and estimation methodology

The analytical work on the inclination to pay taxes in Africa is based on a large Afrobarometer Survey data set collected in 2004, 2005, and 2008 in 16, 18, and 20 African countries, respectively. The data are collected in rounds 2, 3, and 4. The first round was conducted in 1999 and is not used here because there were no questions related to tax compliance in the survey. The interviews are based on more than 22,000 face-to-face interviews in 2004 and 2005 and 25,000 in 2008. The survey uses a clustered, stratified, multi-stage probability sampling design. The purpose is to make the sample representative of all citizens of voting age in a given country. This data has crucial information on tax paying attitudes reported by interviewed individuals, which serve as a basis for our econometric analysis. The key variable of interest is the one which asks whether an individual believes that 'tax should be paid or not'. The responses with the associated index provided by respondents are 'strongly disagree' (1), 'disagree' (2), 'indifferent' (3), 'agree' (4) and 'strongly agree' (5).

Given the discrete nature of the responses, the appropriate estimation framework in such a setting is an ordered probit/logit model. The major advantage of the ordered discrete model is that it is relatively easy to estimate. The disadvantage is that the behavioral model underlying the econometric relationship may be too restrictive. Suppose we have ranked responses y_i and a vector of explanatory variables x_i of size n drawn independently from some population, where now the dependent variable y_i has M possible outcomes $y_i=1,2, \dots,M$ with a natural ordering (that is, $m+1$ is in some sense better than m). We have 5 outcomes in our application that are collapsed into three meaningful rankings in generating the final results (see results in section 6). The observed values are assumed to derive from some unobservable latent variable y_i^* (say the expected net benefit or utility of paying taxes, which is not observable to the researcher). The standard model is represented as follows:

$$y_i^* = x_i \beta + \varepsilon_i, \forall, i = 1, 2, \dots, n \quad (7)$$

Where β is a $k \times 1$ parameter vector and ε_i is a stochastic disturbance term. The M outcomes for the observed variable y_i are assumed to be related to the latent variable (y_i^*) through the following observability criterion:

$$y_i = m, \text{ if } \alpha_{m-1} \leq y_i^* \leq \alpha_m, \text{ for } m = 1, \dots, M, \quad (8)$$

for a set of parameters α_0 to α_m , $\alpha_0 < \alpha_1 < \alpha_2 < \dots < \alpha_M$, $\alpha_0 = -\infty$ and $\alpha_M = \infty$. Then, the conditional probability of observing the m^{th} category (i.e., $y_i = m$) can be written as:

$$\Pr(y_i = m | x_i) = \Pr(\alpha_{m-1} \leq y_i^* \leq \alpha_m) = \Pr(\alpha_{m-1} \leq x_i' \beta + u_i \leq \alpha_m) \quad (9)$$

Assuming a normal distribution for the error term, we estimate an ordered probit model for the outcomes outlined above.

6. Discussion of the results

First, we provide the summary statistics of the key variables used in the regression analysis. Table 2 presents the mean and standard deviation for the three rounds of the Afrobarometer survey. Most respondents are generally inclined to support the idea of paying taxes and there seems to be little change in their views over time. However, this interpretation has a caveat because our data is not a panel and this average view is a view of different individuals at different points in time. It does not mean that the responses given by specific individuals have not changed. Hence, our interpretation here should be taken as a broad/average indication of the propensity of paying taxes by the interviewed individuals at the three data points we observed. Tax rates have declined in 2008 relative to 2005. There is a gender balance in the sample with 50 percent of respondents being male. The average age of individuals is 36 years with modest variation. In 2005, there is a significant drop in the proportion of individuals who believe that their government listens to them (36%) when compared to 2004 (66%) and 2008 (69%). On the other hand, the proportion of individuals who trust their government increased in 2005 (91.6%) and 2008 (87%) from its low level in 2004 (37%). A similar trend is observed with regard to being looked after by governments while the proportion of individuals who believe that their government is corrupt declined over time.

[Table 2 here]

Table 3 provides the ordered probit estimates for 3 categories of the ordered responses: 1 & 2 indicate broad disagreement and 4 & 5 indicate agreement; indifference is captured by category 3. The estimation controls for individual characteristics, occupation, variables capturing whether governments are providing a variety of public services at the required level, and also their interaction with their citizens. The data does not have information on the quality of service provision; it only captures whether or not certain basic services are provided regularly. Another set of variables that is of particular importance in tax evasion studies includes trust (e.g., respondents answer whether or not they trust their government), public perception about the way citizens are treated, and whether the public thinks that the government is corrupt. For data on taxes paid on goods and services as a percentage of government revenue, we use the World Development Indicators of the World Bank.

[Table 3 here]

The results suggest that older individuals are more likely to comply with tax authorities. Males are also more likely to support the principle of paying taxes, but this is true only for 2004. However, evidence from Europe found males more likely to evade taxes than females (Williams et al., 2013). Relative to a university education, individuals attaining all other levels of schooling (i.e., no schooling, primary, and secondary) are less inclined to pay taxes. However, finishing secondary schooling is negatively associated with tax evasion in the 2004 sub-sample. Among occupational variables, it is found that professionals are more compliant compared to the reference group (i.e., unemployed), but this is true only for the 2005 sample.

6.1 Public service provision

The coefficients on all variables indicating the provision of public services (i.e., uninterrupted supply of water, electricity, and health services) are statistically significant and positive, suggesting that the electorate is more likely to pay taxes in the presence of adequate services. This includes not only basic services such as water and electricity but also other services such as police, post office, railways, clinics, and recreational and sewage services.

6.2 Property rights, trust and corruption

As expected, there is a statistically significant and positive association between tax compliance and the respect for property rights as suggested by Besley and Persson (2011), equal treatment of citizens and trust as suggested by Torgler (2004a, 2007). In addition, individuals who think that they are looked after and are listened to by their respective governments are more likely to pay taxes. So participatory, egalitarian, and fair societies produce compliant citizens and have scope for aggressive fiscal space. This is evident from the high level of compliance rates in Scandinavian and Nordic nations according to data on tax compliance from the OECD. On the contrary, our findings show a statistically significant lower propensity of tax compliance by individuals who believe that their government is corrupt and that they are treated unequally by their government. It is clear that people have low compliance tendencies when they believe that their taxes will not go towards the provision of public goods or other good causes but to the pockets of corrupt public officials (Uslaner, 2008).

6.3 Propensity to pay income and property taxes

We predict the propensity of paying income and property taxes using the 2008 survey data by estimating two probit models. Information on these two taxes is not available for rounds 2(2004) and 3(2005). Individuals who are more likely to pay these taxes are older, male, and more educated. They are also likely to pay if they perceive that the government provides regular services to citizens, listens to them, and looks after the interests of society. However, they are less likely to pay if there is no contact between individuals and different levels of governments. If citizens have regular contacts with elected officials at different levels of government, they may feel that they have a say in what is going on in government and might be more disposed to be compliant with government demands including paying taxes. The surprising result is that corruption leads to increases in the propensity to paying both income and property taxes. Corruption might have redeeming features but the overwhelming and recent evidence points towards its damaging consequences, especially in the context of public finance. In high-corruption countries, government tax revenues available for public finance is low but actual 'taxes' paid by tax payers tend to be high. Corruption denies tax revenue to the government, while revenue that does reach the government is spent in unproductive, damaging ways (Hillman, 2004). So having tax-paying citizens in a corrupt environment might not necessarily translate into having public finance that can be invested for purposes of economic development. Corruption is growth-enhancing when economic freedom is most limited, while the opposite is true in an environment of enhanced economic freedom (Heckelman and Powell, 2008). But this is argued in the context of a growth-corruption relationship framework that is not our emphasis here. However, this perspective

highlights the importance of institutional settings in understanding either the positive or negative consequences of corruption.

7. Conclusions

This paper provided empirical evidence on the factors associated with tax evasion based on data from Afrobarometer surveys. In addition, the paper has highlighted key issues with regard to the link between tax evasion and capital flight based on existing evidence on tax havens and lax banking practices within and outside Africa.

Two key messages emerge from the analysis. First, the econometric results suggest that when governments invest in the education of their citizens, provide basic services, respect property rights, treat their citizens equally, and fight corruption, this increases individuals' propensity to pay taxes. This continental evidence can be verified with specific countries or regional studies based on micro evidence from Africa. Second, when tax rates differ across countries and corporate income is taxed in the location where it is earned, there is an incentive for multinational companies to shift their profits to low-tax jurisdictions (Giovannini and Hines, 1990). Transfer pricing and trade misinvoicing are vital instruments to facilitate capital flight that is motivated by tax evasion (Hollingshead, 2010; Fontana, 2010). Tax evasion and tax avoidance by large MNCs account for a substantial share of illicit financial flows (Froberg and Waris, 2011). The role of tax havens in facilitating tax evasion has been an important agenda item of the recent G-20 summit, which have called for the regulation of tax havens to stem illicit outflows from developing regions and to stabilize the global financial system (Palan et al., 2013; Murphy, 2008; Kapoor, 2007). Complex accounting practices by African and non-African banks might also facilitate capital flight and the concealment of stolen money in tax havens (Heggstad and Fjeldstad, 2010). Both the global and domestic financial architecture need to be reformed to combat capital flight facilitated by tax havens.

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Table 1: The size of the shadow economy and foregone tax revenue due to informality in selected Sub-Saharan African countries, 2011

Country	Size of shadow economy (%)	Tax Revenue lost (in millions of USD)
Angola	46.6	2,399
Benin	49.8	568
Botswana	33	1,481
Burkina Faso	40.5	432
Burundi	39.5	115
Cameroon	32	1,326
Chad	43.7	176
Cote d'Ivoire	45.2	1,565
DRC	47.3	815
Ethiopia	38.7	1,139
Ghana	40.6	2,618
Guinea	39	259
Kenya	33.2	2,179
Lesotho	30.5	410
Liberia	44.2	117
Malawi	41.8	352
Mali	40.7	565
Namibia	30.3	915
Senegal	43.8	1,038
Sierra Leone	45.6	94
Uganda	42.3	856
Zambia	47.1	1,335

Source: Adapted from Tax Justice Network study on “The cost of tax abuse; a briefing paper on the cost of tax evasion worldwide.” November 2011.

Table 2: Summary statistics

Variable	Mean			Standard Deviation		
	2004	2005	2008	2004	2005	2008
One must pay taxes	2.51	2.51	2.49	0.81	0.79	0.81
Age	36.3	36.6	36.3	14.8	14.8	14.5
Male	0.51	0.50	0.50	0.49	0.50	0.50
Tax rate	31.8	31.1	26.7	10.3	8.7	13.1
Services	0.68	0.73	0.72	0.47	0.44	0.45
Property rights	0.82	NA	NA	0.38	NA	NA
Listen	0.66	0.36	0.69	0.48	0.48	0.46
No contact	0.95	0.94	0.96	0.21	0.24	0.19
Unequal	0.44	0.46	0.36	0.50	0.50	0.48
Trust	0.37	0.92	0.87	0.48	0.28	0.34
Looked After	0.61	0.87	0.87	0.49	0.33	0.34
Corrupt	0.78	0.65	0.61	0.41	0.48	0.49
Illiterate	0.19	0.19	0.20	0.39	0.39	0.49
Primary	0.35	0.35	0.33	0.48	0.47	0.46
Secondary	0.42	0.41	0.43	0.19	0.49	0.50
Tertiary	0.04	0.04	0.05	0.19	0.20	0.21
Farmer	0.32	0.30	NA	0.47	0.46	NA
Business	0.13	0.14	NA	0.34	0.35	NA
Professional	0.10	0.02	NA	0.30	0.15	NA
Skilled	0.06	0.08	NA	0.23	0.27	NA
Unskilled	0.19	0.06	NA	0.39	0.24	NA
Unemployed	0.001	0.002	NA	0.03	0.04	NA
Other	0.01	0.06	NA	0.12	0.23	NA

N.B. NA=not available.

Table 3: Propensity to pay taxes: Ordered probit estimates

Variable	2004	2005	2008
Age	0.002*** (0.000)	0.002 (0.000)***	0.003*** (0.000)
Male	0.033* (0.018)	0.001 (0.017)	0.010 (0.016)
No schooling	-0.162*** (0.054)	-0.189*** (0.048)	-0.204*** (0.043)
Primary	-0.205*** (0.050)	-0.125*** (0.045)	-0.122*** (0.040)
Secondary	-0.094** (0.047)	-0.042 (0.042)	-0.013 (0.039)
Farmer	-0.042 (0.028)	0.001 (0.024)	
Business person	-0.032 (0.032)	-0.024 (0.026)	
Professional	-0.039 (0.036)	0.105* (0.060)	
Skilled worker	-0.061 (0.042)	-0.022 (0.033)	
Unskilled worker	-0.031 (0.029)	-0.032 (0.037)	
<i>Public services provision by government</i>			
Regular services (water, health & electricity)	0.041** (0.019)	0.042** (0.019)	0.074*** (0.018)
Other services (police, post office...etc)	0.054* (0.030)	0.081* (0.047)	0.253*** (0.051)
<i>Interaction with government</i>			
Respect for property rights	0.095*** (0.024)	-	-
Government listens	0.077*** (0.020)	0.056*** (0.018)	0.054*** (0.018)
No contact at different levels of government	-0.054 (0.042)	-0.017 (0.064)	0.072* (0.042)
Unequal treatment of Citizens	-0.104*** (0.018)	-0.116*** (0.018)	-0.086*** (0.017)
Trust the government	0.083*** (0.019)	0.209*** (0.032)	0.179*** (0.025)
Citizens are looked after	0.136*** (0.019)	0.173*** (0.027)	0.155*** (0.24)
Corrupt Government	-0.039* (0.024)	-0.101*** (0.020)	-0.161*** (0.018)
/cut 1	-0.692 (0.086)	-0.566 (0.11)	-0.084 (0.089)

/cut 2	-0.361 (0.086)	-0.15 (0.11)	0.232 (0.089)
LR chi-squared (p-value)	1710.7 (0.00)	1166.9 (0.00)	1081.65 (0.00)
Pseudo R-squared	0.05	0.03	0.03
No of observations	22165	22835	25568
Number of countries	16	18	20

Note:***, **, *=significant at 0.01,0.05, 0.10 levels. Control for tax rate led to a significant decline in the number of observations because it is missing for some countries in the sample. The estimates including tax rate are negative and positive, thus ambiguous despite a negative prediction of theory. The results accounting for tax rate are positive and significant for 2004 and 2005 but negative and significant for 2008.

Appendix

Table A1: Summary of findings in selected theoretical and empirical studies

Author(s)	Outcome variable and country	Result(s)
Schneider & Enste(2000)	Shadow economy and undeclared/illegal work (global sample)	Shadow economy facilitates evasion
D'Arcy(2011)	Taxcompliance tendency (Africa)	Support for the fiscal exchange hypothesis and no backing for national community approaches
Benjamin and Claude(2006)	InformalsectorandVAT (Cameroon)	VAT misses the informal sector and suggests taxing the sector.
Slemrod (2007)	Review of tax evasion studies (focus on US income tax returns)	Men, the self-employed, the young, medium sized firms are more likely to evade. Enforcement mechanisms and audit threats enhance compliance.
Feld and Frey (2002)	Tax evasion (Switzerland)	Experimental evidence suggests that good treatment of tax payers, not expected punishment affects
Feinstein (1991)	Econometric study of tax evasion (US)	The young, those with high income and who are married evade but

Dhami and al- Nowaihi (2007)	Behavioral theory on why people pay taxes	The level of observed evasion, and the fact that tax rates negatively affect evasion can satisfactorily be explained by prospect theory