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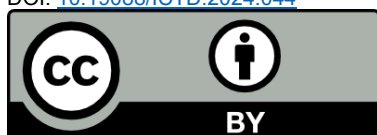
Summary

International and domestic policymakers have long assumed that informal economies represent an 'untapped goldmine' for government coffers. While recent research has highlighted that many informal businesses do pay a range of formal and informal taxes, there has, to date, been little systematic account of their tax burdens. Using a novel dataset of 2,700 informal enterprises in the Accra metropolitan area, we explore the nature and impact of taxation in the informal sector. We find that the majority of informal sector operators pay a range of taxes and fees, which together amount to a significant burden, especially for low earners. These payments are skewed and regressive. Two additional findings emerge in relation to the structure of these taxes. First, the incidence and burden of tax payments is strongly correlated with visibility to the state. Second, taxes and fees are highly regressive, with lower-earning operators paying significantly more in relation to their earnings. These findings have important implications for efforts to tax informal businesses in low- and middle-income countries. The regressivity of efforts to tax the informal sector is often framed as a price worth paying for simplicity. Our study provides both an estimation of this 'price', and an underlying argument for collecting this kind of data on taxation of informal enterprises in order to assess real policy impacts.

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Contents

Figures

Tables

Acknowledgements

Acronyms

AMA	Accra Metropolitan Assembly
EA	Enumeration area
GRA	Ghana Revenue Authority

1. Introduction

In the wake of the pandemic, governments around the world are looking to the informal sector as a source of revenue in the face of increasing fiscal pressures. For example, in July 2023, the African Caucus of the IMF and World Bank called on the Bretton Woods institutions to 'assist African countries to enhance domestic resource mobilization capacity by… formalizing the informal economy and reaping related benefits' (African Caucus 2023). While there has been policy enthusiasm around capturing tax revenues in the informal sector, a growing body of evidence suggests that these claims are severely overstated in many contexts as they ignore the payments that informal sector operators already make (often at the local level), overestimate their ability to contribute more, and fail to account for the often high costs of collection (Gallien, Moore, and van den Boogaard 2021; Gallien *et al*. 2023; Rogan 2019; Gallien and van den Boogaard 2023). Thus, even as international and domestic policymakers undertake new attempts to tax the informal sector, affecting hundreds of millions of informal operators across lower income countries, there is insufficient understanding of current patterns of taxation and their implications for both revenue and equity.

Using new and representative data from 2,700 informal sector operators in Accra, Ghana, this paper examines the patterns of taxation in the informal sector.[1] To the best of our knowledge, this is the first such statistically representative survey of taxation in the informal sector, allowing us to analyse tax incidence and its distributional and equity impacts. While much of the work in this area has been more focused on sub-sectors or on growth-oriented informal firms, a representative coverage of the informal sector allows us to verify common assumptions about the distributive impacts of taxation and the effects on lower income operators.

Accra is a useful case to explore the taxation of urban informality for at least three reasons. First, Ghana's informal sector is large even by regional standards, with roughly 85 per cent of its workforce in informal employment (ILO 2018). The Greater Accra Region accounts for over a third of total urban employment in Ghana and of all urban informal employment (Baah-Boateng and Vanek 2020) and, therefore, has a high concentration of informal sector activity, in addition to being the country's economic hub. Second, in recent years, Ghana has faced a national debt crisis, energising policy discussions about taxing the informal sector

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[1] In defining the informal sector, we follow the operational definition popularised by the ILO and the standards adopted by the 15th International Conference of Labour Statisticians (ICLS), referring to non-household private economic units producing goods or services for sale or barter and not registered with the relevant national institutions (ILO 2018). In the case of Ghana, the relevant national institution, as used by its statistical services, is the Registrar General.

to finance recovery and avoid further public debt. In 2022, a new electronic transfer levy was introduced with the explicit goal of extracting revenue from the informal sector (Anyidoho *et al*. 2022). Third, the way that the informal sector is taxed at the national and local level reflects similar patterns in other lower income contexts (Joshi, Prichard, and Heady 2014; see e.g., Bird and Wallace 2005), and thus represents an indicative case study of broader attempts to tax informality.

In this context, our data make clear that common methods of taxing the informal sector are particularly costly to the poor. Three key findings emerge. First, despite popular assumptions that informal sector operators are tax evaders, they do, in fact, pay a range of taxes and fees, which together represent a significant burden for many operators. Second, our data indicate that the taxation within the informal sector is not evenly distributed, with the likelihood of payment being substantially higher for activities that are more visible and thus easier for tax administrators to capture. While this is not in itself surprising, it highlights the ways in which the distribution of tax burdens in the informal economy may be driven by the practical challenges of tax administration and an inclination towards expediency or simplicity. This factor is often overlooked in accounts of informality which tend to focus on informal operators' cost-benefit analyses to assess compliance. Third, we find that the distribution of payment in relation to earnings is highly regressive for those that make payments. While this is in line with existing knowledge about simplified tax regimes and other payments affecting informal sector operators, we find that this dynamic applies even where policies are explicitly designed to be progressive.

The paper contributes to policy discussions which have consequences for business and workers in the informal sector, but which are based on limited empirical data. The regressivity of informal sector taxation is at times framed as an inevitable side effect or the price for the simplicity of tax systems aimed at small and informal enterprises without formal accounting records (see Mas-Montserrat *et al*. 2023). Our study provides an estimate of this 'price' and an illustration of its existence across different payments affecting informal sector operators.

The remainder of the paper proceeds as follows. Section 2 provides an overview of the literature on taxation and the informal sector, highlighting the need for more robust data on this topic. Section 3 outlines the sampling methods used to capture a representative sample of the informal sector in Accra and describes the survey and qualitative methods upon which we rely. Section 4 shows that informal sector operators pay a range of taxes and fees, which represent a significant proportion of earnings in the informal sector. Section 5 analyses the patterns of taxation in the informal sector, demonstrating that taxation targets enterprises that are more visible to tax collectors, while being regressive, placing

a greater burden on the lowest earners. Section 6 concludes by considering the implications of these findings for theory and policy.

2. Tax and the informal sector

Typically, three arguments are advanced for taxing the informal sector. The first is that, in contexts where most firms are informal, the potential tax revenue that could be extracted from the informal sector is appealing (e.g., Schneider and Klinglmair 2004; Schneider, Buehn, and Montenegro 2010). Second, arguments for taxing the informal sector are often rooted in fairness considerations, as it is commonly assumed that informal sector operators are tax evaders not paying their 'fair share' (Emran and Stiglitz 2005; Torgler and Schneider 2007) and, therefore, receive an unfair advantage over formal firms. Third, it is argued that tax registration and payment is part of a broader formalisation process that is expected to have growth benefits for informal firms, as well as a multiplier effect on the growth of larger formal firms (Perry *et al*. 2007; Fajnzylber, Maloney, and Montes-Rojas 2009a, 2009b; Loeprick 2009).[2]

The assumptions underpinning these rationales are increasingly called into question (Gallien and van den Boogaard 2023; Moore 2023). First, revenue gains from taxing the informal sector are often limited – or non-existent – when factoring in the costs of administration (Gallien, Occhiali, and van den Boogaard 2023; Keen 2012). While there may be revenue potential in taxing large firms and high-income individuals within the informal economy (Kangave *et al*. 2016; Keen 2012; Tripp 1989), tax strategies have often instead focused on registering smaller firms.[3] This is despite the reality that many smaller informal operators, and in particular own-account workers, operate below tax thresholds (Dube and Casale 2019).

Second, there is increasing evidence that taxing the informal sector can lead to inequities because of unrecognised payments at the local level. In general, there is little information on how much informal sector operators contribute to *local* authorities, with these taxes and fees often going unrecognised within national level tax assessments (Pimhidzai and Fox 2012; De Mel, McKenzie, and Woodruff 2013). For example, one of the most comprehensive analyses of informal sector taxation in the literature found that there was a 75 per cent tax gap in Ghana among informal non-farm enterprises (Danquah and Osei-Assibey 2016). This analysis compared the amount received by the national revenue

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[2] Loeprick (2009: 1) suggests, for example, that 'small business taxation should be seen as an entry point to formality. A good tax regime for small firms is a key policy tool to pave their way out of the "informality trap" of low growth, limited access to markets, and exclusion from formal financial services… Compliance should be linked to the benefits of being formal.'

[3] As acknowledged by the IMF (2011: 39), 'It is not uncommon for developing country tax administrations to devote large resources to [small businesses] in the hope of flushing out medium or large taxpayers by blanket enforcement operations; but results have been poor and costs of implementation high.'

authority from the country's informal sector tax (the tax stamp) with the number of firms that should have been paying this tax in one of the national household surveys. The analysis, while robust, illustrates the way that local taxes and other fees are invisible to revenue authorities.

Third, common methods for taxing informal firms, including presumptive tax regimes (such as Ghana's tax stamp) at the national level and flat rate fees and licences at the local level, are often regressive within the informal sector, while also reinforcing inequities between informal and formal firms because there is no minimum income threshold.[4] As a result, those in the formal sector who earn similar amounts could pay less in taxes than their counterparts in the informal sector (Dube and Casale 2017; Pimhidzai and Fox 2012). Over and above the potentially regressive nature of presumptive and local tax regimes, there is an additional question of why the poorest businesses (typically earning well below any conceivable tax threshold) should pay tax at all.[5] Public officials often assume that taxes or fees levied on the poorest are so low as to have a limited negative impact. However, while taxes paid by informal operators may be modest in absolute terms, they often represent a significant and steady burden on highly variable, seasonal, and insecure incomes. As Bahiigwa *et al*. (2004: 9) note, 'To say that the amounts involved are too small to really matter is to distort the very meaning of poverty, which is that people's consumption is already below the minimum acceptable level.'

Fourth, paying taxes is often conflated with being formal, which is in turn assumed to come with certain benefits for firms. The purported benefits of formalising and paying taxes are based on the unfounded assumption that growth and expansion are the primary goals of informal operators, most of whom are own-account operators who do not hire employees. This strand of the tax literature, apart from tending to use tax registration and formalisation interchangeably, also 'views formalisation as a rational choice [where] firms will formalise if the benefits of formalisation outweigh the costs' (Joshi *et al*. 2014: 1334). Much of this literature appears to be more concerned with contexts (such as the transition economies of Eastern Europe) where there is expected to be a large number of smaller firms that evade regulations or are large enough to register for tax but have not done so. It is not clear how such an approach might differ in developing country contexts in Asia and sub-Saharan Africa where the majority of the workforce is informal, and a large proportion are engaged in survivalist activities. Thus, the growth argument seems to rely quite heavily on the

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[4] Further, evidence suggests that low-income firms are more likely to be targeted by tax registration drives (Gallien, Occhiali and van den Boogaard 2023).

[5] Micro-informal firms are 'likely to have income and sales well below any reasonable tax threshold; and much of the most egregious evasion is by qualified professionals' (IMF 2011: 8).

assumptions that a) informal firms actively evade regulations (including tax); b) that these firms desire growth; and c) that there is an appropriate set of policies and support packages that will reward firms appropriately for registering for tax.

Despite a growing body of evidence which questions the rationale for increasing taxes in the informal sector, LMICs continue to try to tax the informal sector, often shifting limited administrative capacity from other areas with higher revenue potential (Moore 2023). The most common method of taxing informal firms is through specialised presumptive tax regimes. These include a few key variations in policy design, including allowing for a simplification of the generally applicable tax base; using an alternative tax base, such as turnover, rather than net profit or net value-added; or using non-financial indicators of tax liability, such as floor area or number of employees (Joshi *et al*. 2014; Bird and Wallace 2005). Any strategy that relies on the discretion of tax collectors to make assessments about earnings and to make decisions about who should be targeted presents risks for equity. There is some evidence to suggest that more visible and easily accessible firms are more likely to be targeted by tax collectors, regardless of profitability (Resnick 2020; van den Boogaard and Beach 2023; Morange 2015; Ogembo 2020; Prichard and van den Boogaard 2017; Gallien, Occhiali and van den Boogaard 2023) – a more general problem where tax administrators have discretion in enforcement.

To date, however, robust data has been lacking on the impact of these types of policies and their distributional impacts. Previous research on taxation in the informal sector has largely relied either on small non-representative samples (e.g., Carroll 2011), focused only on certain sub-sectors – especially markets (e.g., Resnick 2020; Akpan and Cascant-Sempere 2022; Siebert and Mbise 2018; Ligomeka 2019) and cross-border trade (e.g., van den Boogaard, Prichard and Jibao 2021) – or on large surveys with only limited questions on the different types of tax payments made by informal sector operators (see Danquah and Osei-Assibey 2016; Dube and Casale 2017).[6]

At the same time, the difficulty in getting representative data on the informal sector and a tendency to overlook the considerable diversity of firms and activities within it have limited the robustness of analyses of informal sector taxation. Paying greater attention to this diversity is critical to understanding tax outcomes, as the experiences of taxation differ both by context and by the type of employment. Joshi *et al*. (2014), for example, suggest that it is mostly mid-size firms (i.e., not the smallest) which seem to gain the most benefits from the formalisation process (including paying taxes). At the same time, case study

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[6] A possible exception is Paler *et al*. (2017), who surveyed 800 small and medium sized businesses in Kinshasa, Goma, and North Kivu provinces, though this sample includes both formal and informal businesses.

evidence suggests that the most vulnerable within the informal sector are often more affected by multiple taxation and harassment by tax collectors, while the regressive nature of informal sector taxation adds to the burden of the lowest earners (e.g., Baah-Boateng and Vanek 2020; Prichard and van den Boogaard 2017; Carroll 2011; Siebert and Mbise 2018; Akpan and Sempere 2022). The rest of this paper addresses these data gaps and presents the most robust picture to date of the nature and outcomes of informal sector taxation in an indicative urban context.

3. Data and methods

The primary contribution of this paper is a representative analysis of tax burdens within the informal sector in Accra. We employed a two-stage cluster sampling approach to collect data from 2,700 self-employed informal sector operators, representative of small, informal economic units, in the Accra Metropolitan Assembly area in April and May 2022.[7] This sub-group of the informal sector ('operators') is also the target of the Ghana Revenue Authority's simplified tax code for informal sector businesses.[8]

We first stratified enumeration areas (EAs) by household income using data from the Ghana Statistical Service (GSS), then randomly selected 135 EAs out of a total of 536, and undertook a listing exercise to generate a master list of all households in each EA. This master list formed the main sampling frame from which households were selected for inclusion in the survey. In each selected EA, we systematically selected 20 households to be surveyed. In each listed dwelling unit, respondents were asked whether a household member a) operated any kind of small income generating business activity by themselves or with one or more partners,[9] b) which household members were involved in any self-employment activity/business, and c) whether the household member was the main owner (or main worker if the business was shared with another person).[10] Following the listing exercise, which captured 3,169 individuals, enumerators interviewed the owners or operators of the business activities identified during the household listing exercise. The first question in the survey asked the respondent whether the business activity was registered with the Registrar General's Department – a requirement to be considered a formal enterprise in Ghana – to enable us to restrict our survey sample to owners or operators of small, unregistered business

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[7] This builds on the 1-2-3 survey design (Gennari *et al*. 2009). Notably, this covers both employers and own-account workers as the groups best able to describe the tax burdens of informal economic activities, while this survey does not cover informal employees.

[8] In line with the enterprise approach to defining the informal sector adopted by the International Conference of Labour Statisticians, self-employment in small unregistered or unincorporated businesses enterprises is one component of informal sector employment, along with wage employment and contributing family work. In Ghana, as in other contexts, informal sector self-employment is measured in the labour force surveys by identifying own-account workers and employers who operate small (fewer than ten employees) business activities that are not registered as formal enterprises. We do not cover employees in the informal sector.

[9] A small income-generating activity is one that employs ten people or fewer. The criteria for inclusion based on the size of the business activity was informed by the Ghana Statistical Service's operationalisation of the ILO's framework for defining the informal sector (see Baah-Boateng and Vanek 2020).

[10] Employees of these small businesses were not included in the sample, as the survey questionnaire required detailed information on the finances and operations of each business activity. For simplicity we use 'informal operators' interchangeably with 'informal employers and own-account workers' in the remainder of this paper.

activities. Notably, this is the same proxy measure for informal sector self-employment which is used by the Ghana Statistical Service in its operationalisation of the International Conference of Labour Statisticians guidelines for the measurement of informal employment.

The survey instrument was designed to capture information on the business operators, characteristics of informal business activities, experience of taxation, access to social protection and public goods, and perceptions of the government and the tax system.[11] To help design our survey questionnaire and create a list of payment types that was comprehensive and framed in a nomenclature that was intelligible to respondents, we undertook focus group discussions with individuals working in the informal sector in March 2022. With respect to the incidence of payment, the relatively low average number of payments that each respondent makes and the fact that we ask about each payment directly should minimise recall bias. With respect to payment amounts, these same factors, as well as the fact that most payments have fixed amounts that do not change regularly and are made at least quarterly, should further limit recall bias.[12]

To validate our survey findings and further probe on questions of interest, in March 2023 we undertook two further rounds of focus group discussions with market vendors, two with street vendors, two with home-based workers, one with market association leaders, and one with leaders of street vendors' associations. Drawing on the strong local network built by the organisation Women in Informal Employment: Globalizing and Organizing (WIEGO), we engaged with leaders of these associations in Accra to identify market traders, street vendors and home-based workers who were available and willing to participate for two hours. We worked with WIEGO to ensure that we captured diversity in locations of business and the nature of traded goods. The fact that the majority of focus group participants were members of associations may leave gaps in understanding the experiences of informal sector operators not in associations; however, this data nevertheless gives us confidence about the validity of the types of payments and amounts paid captured in our survey.[13] We also conducted key informant interviews with relevant government institutions and labour unions.

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[11] The questionnaire was piloted in March 2022 and revised during a one-week workshop with the survey enumerators and the field team. Ethical clearance was obtained through the University of Ghana's Institute of Statistical, Social and Economic Research (ISSER).

[12] Like all surveys on tax payment, our results are vulnerable to social desirability bias, with respondents potentially over-reporting tax payments. As is common for tax surveys, our dependent variable is reported payment. The magnitude of total tax payments should consequently be interpreted as an upper bound estimate. However, we have no reason to believe that misreporting would be heterogeneously distributed by earnings quintile or location, meaning it should be less likely to affect our distributional analysis.

[13] Our survey is unlikely to have picked up on hidden or illegal economic activities such as gambling or selling of drugs. This is both in line with common conceptions of informality that exclude the trade in illegal

While our sample is representative, earnings across quintiles are relatively low (see Figure 3.1). The lowest earning fifth of the sample earns only about 200 Cedis per month (in real April 2022 prices).[14] For reference, the national poverty line in Ghana was about 219 Cedis per month (in constant 2019 prices).[15] The highest-earning quintile has monthly earnings of 4,000 Cedis a month – roughly 20 times higher than the average monthly earnings among the lowest earning quintile in Accra's informal sector. While these data on earnings suggest large variations across the sample and much higher earnings amongst the top fifth of the sample, the average for the highest earners, for reference, is equivalent to the wage of an entry level teacher in the formal sector.

Figure 3.1 Average gross monthly earnings, by earnings quintile (in April 2022 prices)
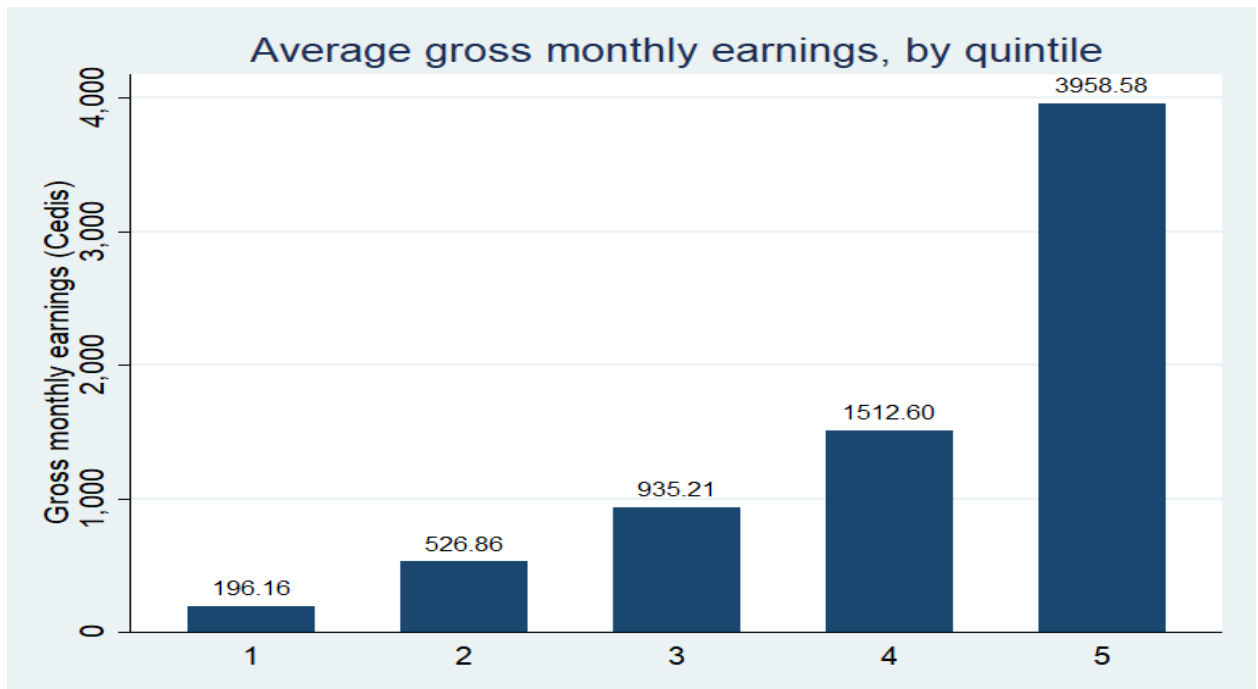
Notes: The data are weighted by population benchmarks.
Source: Authors' data.

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goods or services and with the conception of informality in survey data from Ghana Statistical Service and other official sources that we use as reference points.

[14] The exchange rate for the Cedi has fluctuated substantially over the last few years. In January 2019, 1 US$ equalled 4.90 Cedi. In April 2022, at the time of data collection, 1 US$ equalled 7.50 Cedi. At the time of publication 1 US$ equalled 13.61 Cedi.

[15] World Bank databank

In line with recent estimates of the composition of the informal sector in Ghana's Labour Force Survey and as shown in Table 3.1, the vast majority (about 84 per cent) of informal income generating activities in our sample are operated by own-account workers – that is, self-employed informal sector operators without any paid employees. As illustrated, there are several gendered differences in informal economic activity, which is significant as Accra's informal sector is highly gendered, with almost three-quarters of our sample being women. Women in our sample are less likely to have had any education and men are almost twice as likely to have attained some level of post-secondary education. In terms of their employment characteristics, women in our sample are significantly more likely to be home-based workers or street and market vendors, while men are more likely to be classified in the 'other' category which consists largely of small, unregistered businesses in store-front type structures.[16] Accordingly, women are over-represented in the trade sector (63 per cent of women in the sample) and men are more likely to be in both the manufacturing (42 per cent) and services sectors (31 per cent) compared with women. As in many other contexts (see ILO 2018) one of the key differences between women and men in the informal sector is status in employment. In Accra, women are significantly less likely than men (13.7 per cent vs. 22.7 per cent) to employ others. When women are employers, their businesses are on average smaller than male employers (2.3 vs. 3.5 employees). We take into consideration these gendered differences in our analysis.

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[16] This likely reflects the reality of there being gendered barriers to starting businesses and entering certain sectors, as is common more broadly around the world.

Table 3.1 Descriptive statistics (percentage of sample)

	Women	Men	Total
Age (mean)	42.5	39.8	41.8
Education			
None	10.9	3.4	9.0
Kindergarten	1.6	0.4	1.3
Primary	14.4	6.4	12.4
Junior Secondary	28.7	26.7	28.2
Middle	12.3	8.9	11.4
Senior Secondary	16.9	28.9	19.9
Secondary	4.3	4.4	4.4
Tertiary	10.9	20.9	13.4
Occupation group			
Home-based	45.8	34.7	43.0
Market trader	7.3	2.1	5.9
Street vendor	24.3	17.6	22.6
Other	22.5	45.7	28.4
Sector			
Manufacturing	22.3	42.0	27.4
Trade	62.8	26.5	53.6
Services	14.8	31.4	19.1
Status in employment			
Employer	13.7	22.7	16.0
Own-account	62.6	60.8	62.2
Own-account (w/ contributing family workers)	23.7	16.5	21.8
Firm size (employers)			
Total employees	2.2	3.51	2.71

Notes: The data are weighted by population benchmarks.
Source: Authors' data.

4. Tax payment within the informal sector in Accra

The Ghanaian government has made major efforts to tax the informal sector in response to a growing fiscal and debt crisis.[17] Notably, the introduction in 2021 of a tax on mobile money transactions, known as the 'E-levy', was intended to capture 'the hidden, submerged or informal economy' (All Africa 2022; Anyidoho *et al*. 2023). Despite these policy narratives that suggest that informal firms do not pay taxes, the E-levy builds on existing tax policies at the national level and longstanding strategies by both the GRA and local assemblies to extract revenue from the informal sector.

Small informal businesses are captured at the national level by a simplified (or presumptive) tax regime through the 'tax stamp'. While formal enterprises pay taxes based on turnover, the self-employed in the informal sector – the focus of this study – pay a fixed quarterly contribution to the GRA based on their type of business activity and its size. Simplicity is one of the key objectives of this tax, since it does not require small informal (unregistered) self-employment activities to report turnover or keep business accounts.[18] This is designed with a progressive rate schedule that differentiates by category and size of business.

Local or city governments, known in Ghana as assemblies, collect a range of payments from informal businesses. These fall largely into two types. The first set of payments varies the rate of payment by category and size of the enterprise; this includes, most notably, business operating licences, which in Accra are collected by the Accra Metropolitan Assembly (AMA). The second type are fixed fees payments that are levied regardless of income or type of economic activity. This includes, for example, the 'daily toll', which is paid predominately by market traders or traders operating in the immediate vicinity of urban markets. As in other LMICs, market revenues in Ghana represent a significant source of income for local governments. Despite low collection potential and high collection costs, they are part of an often limited toolkit for local revenue generation (Prichard and van den Boogaard 2017). While payments at the local level are not commonly recorded within tax incidence assessments, we argue that they are important to

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[17] In 2019, Ghana's gross public debt-to-GDP ratio was 61.2 per cent, having climbed up steadily from 50.1 per cent in 2014. By the end of 2020, it was at 76.1 per cent (Ghana MoFEP). The increasing debt stock and other macroeconomic indicators compelled the government to seek avenues to increase domestic revenue mobilisation to avoid external intervention, in particular another IMF bailout (Adae 2022).

[18] More detail on the range of other taxes and fees, which are largely administered locally, is provided in section 4.

capture to present a full picture of the fiscal relationships that informal enterprises have with the different levels of the Ghanaian state and to more accurately capture the real 'cost of doing business' in Accra.

In this context, our data make clear that common assumptions that informal sector operators are *not* paying tax are empirically false. Overall, two-thirds of our sample report paying at least one type of tax or fee related to their income generating activity in the last 12 months, with payment types described below. This implies that, contrary to popular belief and common policy narratives, most informal operators in Accra already have a fiscal relationship with either the central government via the Ghana Revenue Authority or with the local government. Figure 4.1 also suggests that the incidence of payments is not particularly progressive. Significantly fewer operators in the lowest earnings quintile pay some type of tax or fee, but there are no differences in payment between the other four quintiles. In other words, the second lowest earning quintile is not significantly less likely to pay taxes and fees than the highest earnings quintile.

Figure 4.1 Incidence of payment of any tax or fee
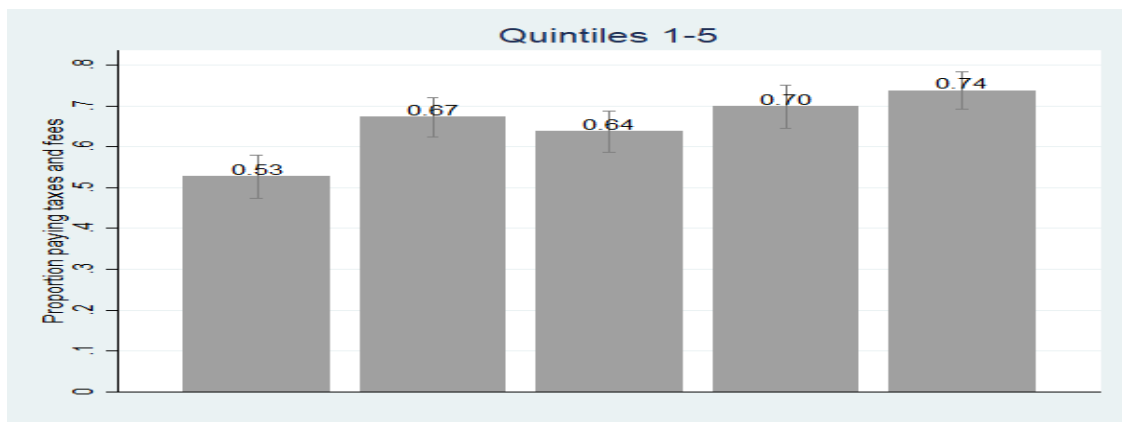
Notes: The data are weighted by population benchmarks. Error bars denote 95% confidence intervals.
Source: Authors' data.

We disaggregate payments into three categories,[19] with the breakdown of payments in each category summarised in Table 4.1 and the incidence of payment for each of these categories summarised by earnings quintile in Figure 4.2.[20] The first type of payments is taxes, which are defined as non-requited, compulsory, and statutorily defined payments to state revenue. The most common of such payments is the tax stamp, a presumptive tax paid by nearly a fifth of the sample to the GRA, followed by the daily toll, which was paid at the local government level by about 8 per cent of respondents. The second type of payments – and the most prevalent, paid by nearly 40 per cent of respondents – is business licences and operating permits. These are statutorily defined payments required to operate a business, commonly paid at the local level. The third category of payments is user fees, which are payments for a specific service or benefit. While these are differentiated from licences or operating fees by the fact that they are not by definition necessary to operate the business, they are tied to regularly accessing infrastructure that is required for the operation of certain businesses. Stall rental fees are a common example, which though paid by only 13 per cent of respondents (typically those operating in markets) represent a large amount relative to other payments. Fees for lorry parks and taxi stations are other examples in this category, almost all of which are paid at the local government level.

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[19] We recognise that there are different ways to categorise these payments. For most of the subsequent analysis, we present aggregate figures across payment types. We find similar patterns across different ways of categorising payments, and thus are confident that our analysis is not the result of our specific categorisation. This additional analysis is available upon request.

[20] In our survey we also captured fees for basic services as well as informal payments, which are non-market payments that are not defined or required by law and are enforced outside of the state legal system. We exclude these from our analysis of overall payments as they are less relevant to thinking about the design of policy to tax the informal sector, but have included more information about them in Appendix A.

Table 4.1 Payment types and incidence of payment

Category	Payment type	Paid to	Incidence of payment (proportion)	Average annual payment (Cedis)	Average annual payment (Cedis) (among those that make a payment)[21]
Taxes	Tax stamp/presumptive turnover tax[22]	GRA	18.9	36	194
	Daily toll	AMA	8.1	21	282
	Import and export taxes	GRA	0.1	---	---
	Property tax	AMA	5.1	8	160
	Vehicle income tax	Other	0.5	2	329
	Goods fee	GRA	0.2	6	3,057
	Domestic conveyance of goods tax	GRA	1.9	36	1,900
Business licences and operating fees	Market fees	AMA/other	2.1	10	482
	Driver's licence fee	Other	0.4	---	314
	Operating permits	AMA	39.9	78	196
	Embossment fees	Other	0.2	---	60
User fees	Station toll	AMA	0.5	10	1,865
	Lorry park fee	AMA	0.3	3	1,146
	Station entry fee	AMA	0.4	3	788
	Street parking fee	AMA	0.1	---	---
	Road toll	AMA	0.4	2	699
	Stall rental fee	AMA/other	13.4	185	1,379
	Storage charge	AMA/other	0.5	4	766

Notes: The data are weighted by population benchmarks.
Source: Authors' data.

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[21] Where possible, we have added two further checks regarding the amounts paid, comparing them with expectations established through tax schedules and key informant interviews and confirming payment levels that seemed particularly high to us in focus group discussions after the survey. While not employing a 'rule of thumb' approach based on, for example, standard deviations from the mean, we removed outliers that differed significantly from scheduled amounts or were implausibly high relative to reported earnings. We observe that the only payments for which means and medians are higher than the ranges given in key informant interviews and the tax schedules are the fee for drivers licences, the roadworthy fee and vehicle insurance fees, all of which are only paid by a small minority of our sample.

[22] This number likely represents an under-estimation, as a part of the 'tax stamp' was, at least de jure, suspended in the context of the Covid-19 pandemic. It has long been a primary method of taxing informal enterprises and has been scheduled to be re-introduced.

While each type of payment is only made by a minority of Accra's informal operators, their totality covers the vast majority of informal sector operators – reinforcing the need for a broad view of what counts as 'taxation' of the informal sector. As indicated in Figure 4.2, the incidence of payment tends to increase for each earnings quintile although the differences are often relatively small. First, 37 per cent of the sample report paying at least one *tax*, ranging from 31 per cent in the lowest earnings quintile to 45 per cent in the highest earnings quintile. This figure is underestimated as it does not include indirect taxes (VAT) or the E-levy which is, as outlined earlier, a tax on mobile money transfers introduced in 2022.[23] Nevertheless, even when the narrowest definition of tax is applied – and even with an underestimated figure – our data indicate that a significant percentage of informal sector operators are already within the tax net. Second, 41 per cent of our sample report paying at least one *licence or operating fee*. Finally, 16 per cent of our sample report paying at least one *user fee*. What we have excluded from these estimates are fees paid for basic services (e.g., electricity, water, security, and cleaning) while at work. If we were to include the fees for these services, the proportion of informal sector operators making any payment discussed in this section would rise to over 90 per cent (see Appendix A).

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[23] In Anyidoho *et al*. (2023) we estimate that, at the point of its introduction, 31 per cent of informal workers in Accra were liable to pay the E-levy. Given that the exemption threshold of 100 Cedi per day has not been adjusted for Ghana's high levels of inflation, that number has likely increased substantially since.

Figure 4.2 Incidence of payment (proportions), by payment category
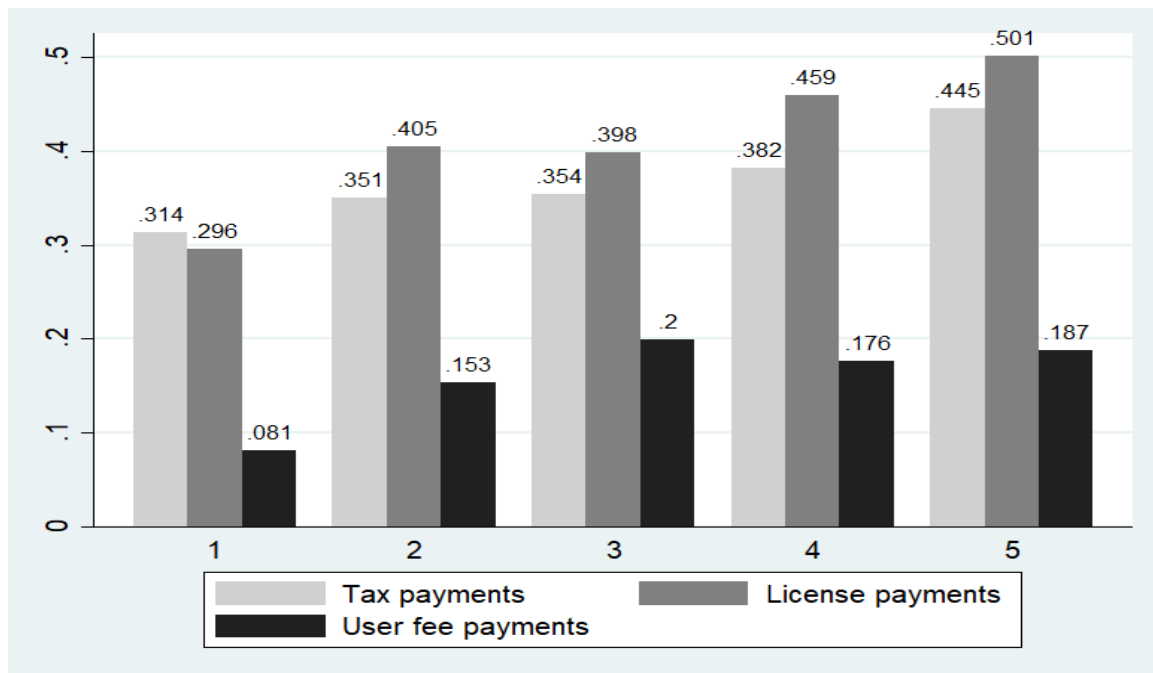
Notes: The data are weighted by population benchmarks.
Source: Authors' data.

5. The distributional patterns of informal sector taxation

Taxation in the informal sector is thus widespread, in contrast to common ideas of the informal sector evading taxes. Incidence and average payment data, however, mask considerable variation in the distribution of informal sector tax burdens and the realities of how informal sector tax policies are administered in practice. To better understand this variation, we ask two questions: first, which informal sector operators are more likely to make payments? Second, which operators are more likely to pay more, both in absolute terms and in relation to their earnings?

In answering these questions, our data indicate that the distribution of taxation is uneven and unfair within the informal sector, despite tax policies that are largely designed to affect informal operators evenly across locations and to progressively tax based on income. First, we find that the likelihood of tax payment is unevenly distributed across types of businesses, implying an uneven administration of taxes based on the ease of collection, determined in particular by the visibility of business operations. Second, we find that tax burdens are highly regressive at the intensive margin, with existing presumptive tax rates insufficiently progressive when taking into consideration the low earnings of most informal operators. We consider each point in turn.

5.1 Who pays? Visibility and the uneven administration of informal sector taxation

As described in the previous section, while most informal operators in Accra pay some form of taxes and formal fees, approximately one-third of informal sector operators do not. What, then, determines the likelihood of payment? Are certain groups more likely to experience taxation? To answer these questions, we estimate a set of stepped regressions on the determinants of making any payment, with a binary dependent variable taking the value 1 if a respondent reports having paid any 'tax', 'licence or operating fee', or 'user fee', in line with the classifications defined above. Table 5.1 presents the estimates from a series of linear probability models (ordinary least squares) to illustrate the determinants of paying tax. Since the dependent variable in columns 1–3 is binary (whether the respondent pays any tax or fee), the reported coefficients can be interpreted as the marginal increase in the probability of paying any tax or fee (or the marginal difference relative to the base group).

We consider several possible explanations for variation in the likelihood of making any tax payment. Primarily, we hypothesise that the type of business operations – whether home-based, street-based, market-based, store-based, or other – may impact the likelihood of taxation on account of differences in their visibility to the state and the related ease of administering taxes, licences, and fees in these spaces. Market-based work and store-based work is conducted in a space that is fixed, highly visible to state actors, and specifically designated and identifiable as a commercial space. In addition, markets are highly concentrated commercial spaces, further simplifying tax administration. Street-based work is typically similarly visible but can be less fixed and often occurs in spaces that are not specifically designated or known as commercial areas. Home-based work can occur in a fixed but private location.

In addition to the type of business, we expect that five other variables may influence outcomes.[24] First, it may be reasonable to assume that some sectors may be more likely to face taxation. This may be because of the types of goods they are selling, because they are relatively easy for tax collectors to identify and approach, or because collectors make assumptions about the profitability of businesses in that sector. Second, earnings and the size of business, using the proxy of whether the business employs others or acts as an own-account operation, may impact whether tax collectors are likely to target the business at all. Third, ownership over land or business structures may influence the extent to which informal operators are liable for tax (as for e.g., property taxation) as well as the degree to which tax collectors, if they are aware of ownership, perceive businesses as successful and thus worthwhile to target. Fourth, in Accra the ethnic group and migrant status of the business owner may impact the likelihood of payment as non-migrants and indigenes of Accra (e.g., the Ga) may have greater negotiating power with tax collectors given that they have greater 'claim' to the land as indigenes.[25] Conversely, non-indigenes or domestic migrants might have less bargaining power and be more likely to be targeted by collectors. Finally, whether an informal business is in an association may plausibly affect the likelihood of payment if associational membership makes the business more visible to the state.

The results are summarised in Table 5.1, with the type of businesses offering a strong and consistent explanation for variation in outcomes. The differences between street-based, store-based, and market-based businesses strongly correlate with the likelihood of facing any taxation, robust to a range of different

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[24] Descriptive statistics of these independent variables are included in Appendix B.

[25] Alternatively, we have also used membership of the Ga ethnic group as an alternative measurement of claim to local heritage and land (given that they are indigenes of Accra). This did not substantially affect our findings, as illustrated in Appendix F Tables A.4 and A.5.

specifications.[26] Traders operating in markets and stores have a substantially higher likelihood of paying taxes and fees, as compared to home-based workers (the reference category in this model). As described in column 1, store-based operators are more than 23.7 percentage points more likely to pay taxes than home-based workers; for market-based operators this number rises to more than 30 percentage points. While street-based operators do not have a significant difference in their likelihood of being captured in the tax net compared to home-based workers, they too remain statistically and substantially less likely to pay than market-based workers and store-based workers (not shown in the table). While this is in line with expectations, what is notable, as described in columns 2 and 3, is that this difference remains robust, and in fact only decreases slightly in size, when we include the other potential explanatory variables described above, and in particular when we control for earnings. The size of the coefficient also remains larger than the coefficient on any of the other variables. We conclude that type of business, most likely operating through visibility to state agents, is the single most significant driver of the capture of informal operators in Accra in the tax and fee net. Market spaces in particular stand out as a space of tight taxation and regulation.

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[26] Tables available upon request.

Table 5.1 Determinants of making any payment

	(1)	(2)	(3)
Location			
Street-based	0.004	-0.007	-0.005
	(0.03)	(0.03)	(0.03)
Store-based	0.237***	0.195***	0.198***
	(0.03)	(0.03)	(0.03)
Market-based	0.330***	0.297***	0.286***
	(0.03)	(0.04)	(0.04)
Other	-0.084*	-0.114**	-0.115**
	(0.05)	(0.05)	(0.05)
Sector			
Trade		-0.053*	-0.044
		(0.03)	(0.03)
Services		-0.033	-0.013
		(0.03)	(0.03)
Other		-0.159***	-0.156***
		(0.06)	(0.05)
Earnings quintile 2		0.101***	0.101***
		(0.04)	(0.04)
Earnings quintile 3		0.067*	0.061*
		(0.04)	(0.04)
Earnings quintile 4		0.119***	0.116***
		(0.04)	(0.04)
Earnings quintile 5		0.129***	0.123***
		(0.04)	(0.04)
Employer		0.124***	0.110***
		(0.03)	(0.03)
Owns the land		-0.018	-0.015
		(0.03)	(0.03)
Owns the structure		0.060**	0.050**
		(0.02)	(0.02)
Born in Accra		-0.056**	-0.059***
		(0.02)	(0.02)
Association member		0.102***	0.078**
		(0.04)	(0.03)
Age of business			0.002*
			(0.00)
Female			-0.016
			(0.03)
Age of respondent			0.026***
			(0.01)
Age squared (respondent)			-0.000***
			(0.00)
Constant	0.553***	0.503***	-0.068
	(0.02)	(0.04)	(0.12)
Observations	2,700	2,654	2,654
R-squared	0.075	0.113	0.129

Notes: Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$; Column 1 reports the results of a linear regression focusing only on the location of a business, while column 2 includes a wider set of characteristics of these businesses and column 3 includes further data about the respondent and their business as controls, including their gender, age, and the age of the business. Sample weights have been applied across all models.
Source: Authors' data.

Several other insights emerge about factors associated with incidence of payment. First, sector plays some role in the likelihood of payment, with a 5-percentage point lower likelihood of payment for retail and wholesale operators (relative to manufacturing). Second, and reflecting the patterns described in section 4, higher earning quintiles are more likely to report taxation than the lowest quintile (the reference category), but the likelihood of payment does not vary significantly between the upper quintiles. For instance, while operators in the upper quintile are about 12 percentage points more likely to be captured in the tax net than those in the lowest quintile, they are not significantly more likely to pay taxes than the second lowest quintile. Moreover, the differences between the top four quintiles are lower than might have been expected.

The opposite effect is striking when considering the lowest quintile. The average earnings in this quintile are 200 Cedis a month. In relation to this, the minimum income tax threshold in Ghana was 4,380 Cedis per annum in 2022 (or 365 Cedis per month). Activities in the lowest quintile are thus reasonably characterised as survivalist activities. If we were to identify a group that, from an equity perspective, could be excluded from all tax payments, it would be this group. And yet, most of this group (53 per cent) still report that they make at least one payment – and, as we note above, this is an underestimation as it does not include the E-levy or VAT. Whether an informal operator is an employer, meanwhile, does impact the likelihood of payment, suggesting that this indicator of the size of the business, possibly impacting the visibility of the business, does have an impact on the likelihood of being included in the tax net, even after controlling for earnings and location.

Third, while ownership of land does not have a significant effect, structure ownership is associated with a higher likelihood of tax payment. Fourth, in line with our expectations, operators born in Accra are less likely to make tax payments, suggesting that there may be additional difficulties for migrants to avoid taxation. Finally, being part of an association has a significant positive effect on the probability (by about 7.8 percentage points) of tax payment. Women are not statistically more or less likely to pay taxes and fees, though both being older and having an older business are associated with a very slightly higher likelihood of tax payment. It is worth noting that some of these significant predictors of tax payment are themselves likely proxies for visibility: higher earnings, the presence of employees, the age of the business, and structure ownership are likely further correlated with the visibility of a business to tax collectors and other state agents.

What emerges from this analysis of the structural determinants of tax payment among informal sector operators in Accra is an uneven pattern of payment that is not primarily based on the ability to pay or a distinction between survivalist and growth-oriented activities, but on the visibility of businesses. We speculate that

the relative visibility of businesses impacts the ability of state agents to identify activities and enforce taxation. This perhaps should not come as a surprise; it is and always has been an inherent feature of taxation, everywhere. As described by Scott (2017: 130), ancient tax collectors were 'interested, above all, in the ease and efficiency of appropriation', while contemporary attempts to tax corporate income are limited above all by attempts to conceal or shift this income from the reach of tax authorities. Taxing informal operators presents a substantial challenge for resource-constrained municipal and tax administrations and is naturally guided by simplified strategies. However, as we highlight here, being driven by location and visibility to state actors, the current system in Accra does a poor job of screening out the lowest earning operators. The skewed taxation of the informal sector appears, consequently, to be primarily a function of the features, structures, and capacity of Ghanaian tax administration. While not necessarily intentional, the effects of this are substantial. This was highlighted repeatedly in focus groups and key informant interviews, especially with informal sector operators working in markets. While much of the legalistic analysis of informal economies has viewed inclusion in the tax net as a decision taken at the level of the informal firm, our analysis highlights the importance of understanding the impacts of tax administration on outcomes and of seeing informality like a state, in Scott's (1988) phrasing.

This was also mirrored in our conversations with tax collectors and administrators. They highlighted various challenges in collecting taxes from informal enterprises, including limited bookkeeping and the difficulties in identifying the owners of establishments, as well as the difficulties in locating and identifying businesses. In particular, businesses that do not have a shopfront visible from the street were highlighted as substantially more difficult to identify, alongside businesses that were mobile. In order to identify businesses and collect taxes in a context of limited enforcement resources, efforts to target particular parts of the city in order to register local businesses were noted as a common strategy.

5.2 Who pays more? Regressivity of informal sector taxation

Our data suggest that the probability of being included within the tax net is likely to vary based on the visibility of the enterprise or activity and, in turn, the ease of tax administration. This leads us to explore the distribution of payments among those who pay, asking what drives the magnitude of tax burdens in both absolute and relative terms. Overall, we find that taxes and fees represent a non-negligible burden for informal sector operators in Accra, who pay on average 500 Cedis (USD 44.06) in taxes and fees annually (or 760 Cedis per annum among those that make at least one payment), representing roughly 5 per cent of earnings (or

7.5 per cent among those that make at least one payment). While this may not be considered a heavy proportion overall, it is significant given low average annual earnings and the high rates of poverty within the informal sector. Understanding the impacts of these burdens requires us to further explore the distribution of payment across income quintiles and other sub-populations. To do so, we estimate regressions on the determinants of the absolute amount of payment, in Cedis standardised by month, and the amount of payment relative to monthly earnings among those that have made any payment.

We consider several possible explanations for variation in the absolute and relative amount of taxes paid. Primarily, we anticipate that earnings and the size of a business may impact the amount that they would be likely to pay. On the one hand, payment may be higher for larger businesses, given that the presumptive tax regime (i.e., the 'tax stamp') in Ghana is designed to be progressive, as described above. On the other hand, many of the other payments made by informal operators are levied at a flat rate, implying a greater relative burden on those with lower incomes. Second, businesses in some sectors may face higher rates of taxation, given that rates and fees vary according to the type of business, as described above. Third, the type of business operations – whether home-based, street-based, market-based, store-based, or other – may impact rates of taxation if the visibility of the business means that evasion at various times is more possible. Fourth, and as above, ownership of land or business structures may influence the extent to which informal operators are liable for some forms of tax, and may thus increase their overall rate of payment, while collectors (to the extent that they have information about ownership of land and business structures) may perceive owners of buildings and land as making a larger profit and thus liable for a higher rate of taxation. Further, the ethnicity and migrant status of the business owner may impact the amount of payment for the same reasons as it may affect the likelihood of payment: discrimination and ability to negotiate for non-payment or a lower rate of payment. Finally, whether an informal business operator is a member of an association may affect the amount of payment, as associational representation may play a role in negotiating down tax rates on behalf of informal businesses (see e.g., Joshi and Ayee 2008). Results are reported in Table 5.2 and are robust to a range of model specifications, varying the sample to include non-payers, adding registration with the AMA or GRA as a further control or removing specific controls such as land ownership and structure ownership.[27]

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[27] See Appendix C. Additional tables available upon request.

Table 5.2 Determinants of rate of payment (in absolute and relative terms)

	(1) Absolute payment	(2) Relative payment
Earnings quintile 2	11.889**	-0.113***
	(5.35)	(0.02)
Earnings quintile 3	18.291**	-0.140***
	(7.85)	(0.02)
Earnings quintile 4	24.544***	-0.163***
	(9.32)	(0.02)
Earnings quintile 5	75.009**	-0.183***
	(30.02)	(0.02)
Employer	36.614*	0.032***
	(19.49)	(0.01)
Sector		
Trade	16.325	-0.014
	(17.47)	(0.01)
Services	-5.467	-0.020*
	(9.83)	(0.01)
Other	-33.479***	-0.032**
	(12.16)	(0.02)
Location		
Street-based	-7.092	-0.025*
	(30.01)	(0.01)
Store-based	1.396	-0.010
	(16.55)	(0.01)
Market-based	-22.523	-0.031***
	(19.25)	(0.01)
Other	-15.100	-0.038**
	(17.35)	(0.02)
Owns the land	-20.242**	-0.008
	(10.27)	(0.01)
Owns the structure	-45.142***	-0.050***
	(16.64)	(0.01)
Born in Accra	-15.463	-0.007
	(18.51)	(0.01)
Association member	17.615*	-0.003
	(10.19)	(0.01)
Age of business	0.384	0.000
	(0.71)	(0.00)
Female	-22.588	-0.012
	(15.56)	(0.01)
Age of respondent	0.598	-0.003
	(2.38)	(0.00)
Age squared (respondent)	-0.015	0.000
	(0.03)	(0.00)
Constant	88.784	0.341***
	(54.45)	(0.05)
Observations	1,673	1,673
R-squared	0.065	0.211

Notes: Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$; Sample weights have been applied across all models. Sample restricted to respondents who reported making at least one payment. Estimation by OLS.
Source: Authors' data.

Several significant results emerge. First, and in line with our expectations, we find strong evidence that the tax system for the informal sector is regressive among those that make any payments. While those in the two highest earning quintiles are more likely to pay more in absolute terms, as we would expect (column 1), relative payment decreases as earnings increase (column 2). Since the dependent variable (in column 2) is the proportion of gross earnings that is paid in taxes and fees, the coefficients can be interpreted as the percentage point difference from the reference category (quintile 1). So, for example, the top earning quintile pays, on average, 18 per cent less of their earnings on taxes and fees compared to the bottom quintile.[28] This has important implications for the fairness of the tax system, given survivalist earnings among the lowest quintiles.

Second, the effect of the type of business (whether street, store, or market-based) on tax payment in Accra's informal sector acts primarily through whether taxes are paid at all, not how much is paid. Among those who are paying some taxes or fees, this mostly has no significant impact on the absolute or relative amounts of tax paid once we control for other features of the respective economic activities. Ownership of land and business structures has a significant negative impact on absolute payments and on relative payment (for land ownership only). This goes against our expectations but may indicate that owners have greater power to negotiate the rates of taxation that they face. Being an employer is associated with higher absolute and relative payments, perhaps indicating a degree of progressivity in the taxes levied, if being an employer is also associated with having a larger business. The overall finding from the second column in Table 5.2, however, is that the level of earnings is the key predictor of tax payments. In a well-designed and progressively structured tax system, earnings quintiles would be expected to be either statistically insignificant or significant with the signs of the coefficients being positive (to denote relatively larger payments at higher earnings levels).

To visualise this more clearly, Figure 5.1 presents the relative tax burdens of operators in Accra's informal sector by quintile, conditional upon individuals reporting that they pay at least one fee or tax, with their respective distribution in a boxplot. Figure 5.2 presents the same data but segments it into the different categories of payments. While these figures show substantial variation in payments and fees within quintiles, they exhibit a clear pattern of regressivity. As we move from lower to higher earning quintiles, relative tax and fee burdens decrease. The difference here is particularly striking with respect to the lowest quintile. It is noteworthy that the system for taxing the informal sector in Accra is not merely regressive – it is particularly insensitive to those with a very low

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[28] We present the predictive margins by income graphically in Appendix D, showing that this regressivity is not limited to the difference between the lowest quintile and the upper quintiles (though this is particularly pronounced) but also exists to a statistically significant extent among the higher quintiles.

income. This suggests that current exemption thresholds are too high, with the lowest income earners being captured in the tax net that should otherwise be left out. Moreover, taxes, fees and licences are all regressive such that it is not formal taxes alone which result in the uneven burden of taxes and fees among the lower-earning segments of the informal sector.[29]

Figure 5.1 Rates of regressivity (conditional on payment) by earnings quintile and gender
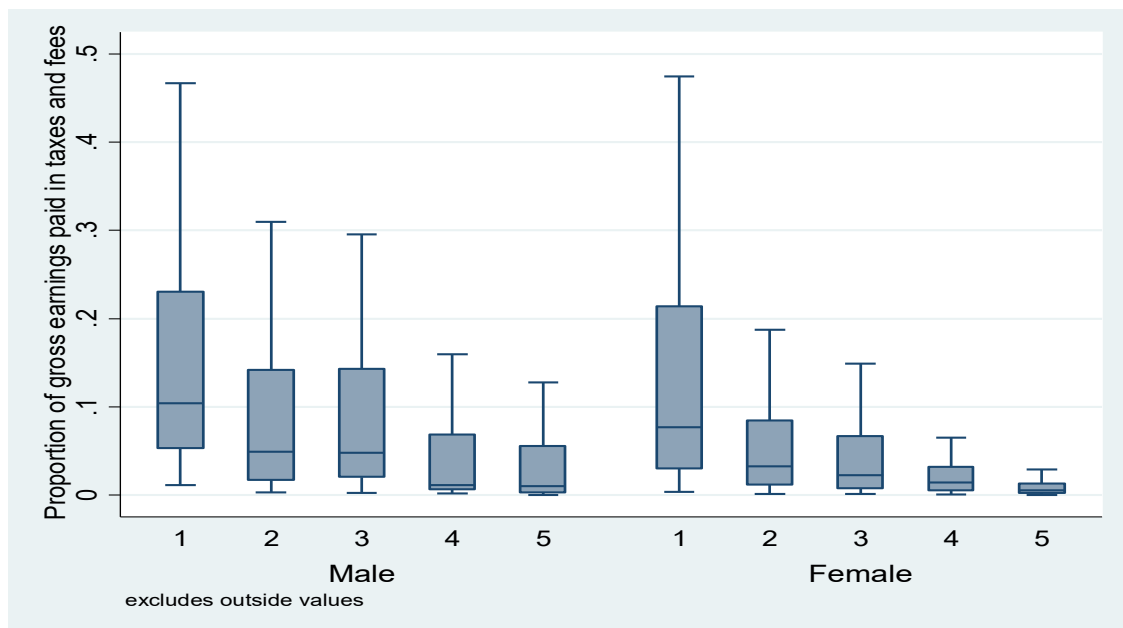
Notes: The data are weighted by population benchmarks. Estimates are conditional on tax payment. The box plot identifies the minimum, first quartile (p25), median (p50), third quartile (p75), and maximum values. Source: Authors' data.

Are these outcomes gendered? While women are likely to pay lower amounts in absolute terms, we find no significant impact of gender on relative payments. While this suggests that outcomes are not primarily driven by gender, that does not mean that these dynamics are not gendered. As the majority of workers in Accra's informal sector are women, the majority of the taxes and fees discussed here are paid by women. Furthermore, while women make up the majority of all earnings quintiles, they are relatively less represented in the upper quintile, and have a lower mean and median level of earnings. Consequently, the regressive nature of the dynamics described above also disproportionately affects women.

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[29] Analysis disaggregated by payment types is available upon request.

Figure 5.2 Average payments as a proportion of gross monthly earnings (conditional on payment) by earnings quintile
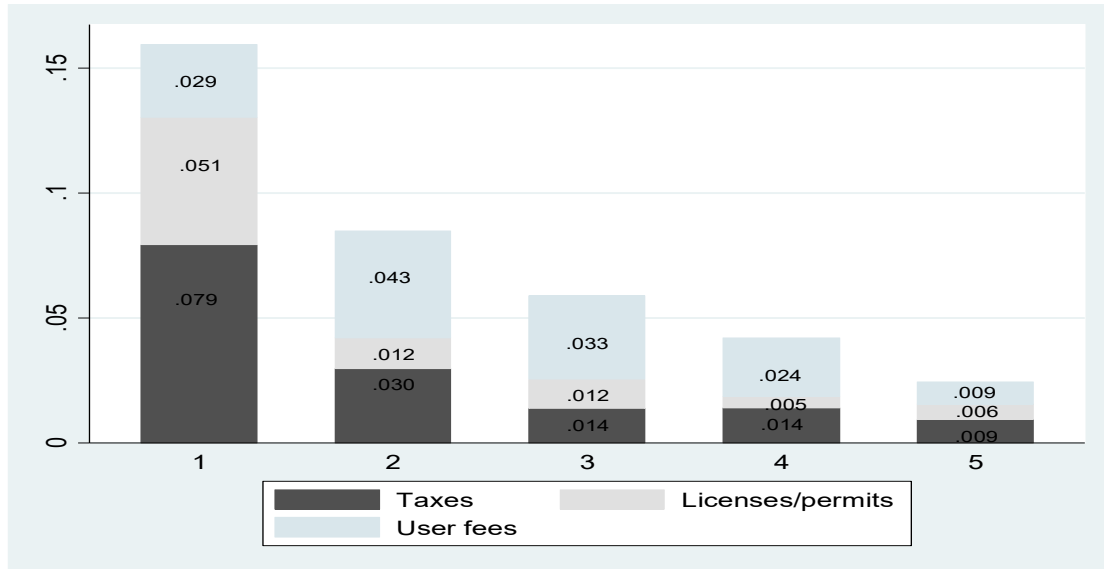
Notes: The data are weighted by population benchmarks. Estimates are conditional on tax payment. Source: Authors' data.

Overall, our data show that the current system of taxing Accra's informal sector operators is highly regressive at both the extensive and intensive margins. Relative to their earnings, it imposes alarmingly high burdens on some of the lowest income groups. At the same time, higher earning groups shoulder relatively low burdens in relation to their earnings. These findings are in line with related studies of the fiscal realities in the informal sector. For example, several studies of local government taxation in markets highlight the regressive, and gendered, nature of tax burdens (Joshi, Kangave and van den Boogaard 2024; Caroll 2011; Dube and Casale 2017; Akpan and Sempere 2022; Jalipa and Othim 2020; Ligomeka 2019; Tanzarn 2008; SEATINI and Oxfam 2017). While most of these studies are based solely on markets, and often on limited case studies, our survey data confirm that these trends hold when considering a representative sample of the informal sector, capturing greater heterogeneity in terms of sectors and types of work. Our data also allow us to examine more closely the mechanisms at play.

What is causing this regressivity? Broadly, as we have shown above, the direct taxes and fees paid by informal operators in Accra fall into two categories. The first is a fixed fee that is paid irrespective of income or type of economic activity. The prime example of this is the 'daily toll' collected by the AMA, a fixed amount of 1–2 Cedis paid per day, and paid predominantly by market traders or traders

operating in the immediate vicinity of city markets. Inflexible to earnings and charged on smaller and larger operators alike, these fees are regressive by definition. The second type is, by contrast, explicitly designed to be progressive: these payments classify operators into a set of categories and charge different fees depending on the category, with smaller operators paying smaller fees and larger operators paying larger ones. Typical examples of this are the 'tax stamp' collected by the GRA or the operating licences collected by the AMA. Both have schedules that differentiate different categories of businesses. For example, before its suspension during the Covid-19 pandemic, the tax stamp cost for the smallest category of hairdresser was 3 Cedis per quarter, while for a large hairdresser it was 35 Cedis. However, when we analyse the effective tax payment per quintile relative to earnings for these two taxes, we find that they are still highly regressive, especially with respect to the lowest earning quintile (see Appendix E).

Why does this latter type of payment result in regressive outcomes, despite being designed to be progressive? From a policy perspective, this is a critical consideration for the design of other tax and fee structures affecting the informal sector. We suggest two explanations. The first is that even though these tax schedules are progressive in absolute terms, they are still not progressive in relative terms – meaning the difference in the fixed rates between categories is not keeping up with the extremely high earnings inequality within Accra's informal sector. Here, a revision of these rates is a clear and highly practical policy implication of our data. The second is that the actual application of these categories is subject to discretion by tax agents, negotiation, and corruption. This is supported by qualitative evidence, as respondents in our focus group discussions did not consider decisions about the categorisation of firms and determination of payments to be transparent, and consequently perceived a sense of coercion and unfairness about these processes. Similarly, the evidence from the survey data suggests that the location of the informal activity is the single largest determinant of being within the tax net. This suggests that visibility and ease of access are, de facto, better predictors of tax payment than earnings, turnover or the size of the activity.

6. Implications for theory and policy

The idea that informal economic activities are untaxed and not contributing to public revenues is widely repeated by policymakers in lower income contexts. Following the Covid-19 pandemic and the search for new revenue streams for cash-strapped states, narratives of informal economies as an 'untapped goldmine' for government coffers have been commonplace. As described, in Ghana, the idea that new, simplified and broadly targeted tax innovations are needed to 'capture' the informal sector was a key driver behind the controversial introduction of the E-levy in 2022 (Anyidoho *et al*. 2023).

What has been strikingly absent in discussions around new ways to tax the informal sector is engagement with the fact that a variety of mechanisms to tax informal economic activities have already been in place for decades and, consequently, that informal businesses already pay a range of formal and informal taxes (Rogan 2019). There has likewise been a scarcity of scholarship that systematically analyses strategies to tax the informal sectors and their implications. This paper addresses this gap. It demonstrates that, contrary to popular and policy narratives, the majority of informal sector operators in Accra pay a range of taxes and fees, which together amount to a significant burden, especially for lower-earning operators. Notably, heterogeneity in incidence is strongly correlated with visibility to the state, while these taxes and fees are regressive among those that pay.

These findings have specific implications for policymakers in Ghana. First, given that the formal income tax threshold is remarkably close to the poverty line, there is a need to reconsider tax liability thresholds. Second, given that taxation of the informal sector is regressive even where policy is designed progressively (as with the tax stamp), this suggests that the rate of progressivity of informal sector taxation should be revised. We also believe our key findings have substantial external validity beyond Accra. In terms of its composition, Accra's informal sector is not atypical for an urban informal sector in Africa. Most of the tax strategies described here, including daily market fees and presumptive tax regimes, also exist in other urban centres around the continent, and we believe that the dynamics we describe here are common (see, for example, Mas-Montserrat *et al*. 2023). Our findings thus have at least three important policy implications related to ongoing efforts to tax informal businesses in low- and middle-income countries broadly.

First, the simple observation that informal operators already pay a wide range of taxes and fees means that new policies aimed at taxing the informal sector need to be understood as being layered on top of existing systems. While this may

appear to be a simple point, discussions about new ways to tax the informal sector are generally removed from analyses of existing burdens – the E-levy in Ghana is a notable example here. The question that emerges for policymakers is not how they can tax the informal sector, but how they may reform existing systems of taxation that affect informal operators. This shift in question can help move the policy discussion on this issue away from its current focus on registration and 'capture' (Moore 2023; Gallien *et al*. 2023) towards a discussion of policy goals and their relationship with existing systems. A look at the actual payments made by informal operators alongside their earnings may also contribute to a shift from framing the informal sector as a goldmine of potential revenue towards an understanding that a large number of informal businesses and workers operate at the intersection of economic vulnerability and political marginality.

Second, the skewed nature of informal sector taxation, the outsized influence of where and how a business operates, and its impact on the regressivity of these tax systems, hints at an important area of policy (re)design. The data we present here confirm other recent scholarship that has highlighted that broad-based registration and taxation strategies often fail at identifying higher-income taxpayers and disproportionately capture the working poor (Gallien, Occhiali and van den Boogaard 2023; Moore 2023). Broad-based tax policies, as we show here, lead to systems that are driven by ease of collection from the perspective of state agents, which make a poor proxy for income or potential tax liability. Aside from the equity implications of taxing those under or near the poverty line, this is also not a lucrative area for revenue authorities. Rather than layering further broad-based simplified tax mechanisms on top of existing ones, revenue authorities will benefit from thinking more explicitly about strategies to target high-income earners and evaders in the formal sector.

Finally, our analysis of the distributional consequences of the existing arrangements of taxing the informal sector in Accra, particularly with respect to their effects on the poorest quintile of informal operators, should be of utmost concern to policymakers. As we have outlined above, existing systems extract extremely high tax burdens from economic activities that are clearly survivalist and operating near or below the poverty line. The finding of highly regressive outcomes, despite progressive policy design, is important for wider policy discussions on taxing the informal sector. The ideas of simplicity and of everyone paying 'at least something small' are still common talking points among policymakers. However, our analysis shows not only that many of the ostensibly 'untaxed' are already making payments, but also that what looks like a small fee can add up, and that the equity effects of simplified arrangements can be substantial. The 'daily toll' is illustrative. Only representing 1–2 Cedi per day, it is often framed as a relatively benign tax, and even one with symbolic value, as it put into practice the idea that all citizens should contribute something to the

public purse. When asked about their largest tax payments, respondents in our focus groups often underestimated this payment due to its low per-day value. However, as this is paid every day, and at a flat rate, it adds up; we estimate that for people in the lowest earning quintile who pay the daily toll, it represents on average 14 per cent of monthly earnings. From a policy perspective, the built-in regressivity of these types of payments is often framed, at least implicitly, as a price worth paying for simplicity – our study both provides an estimation of this 'price', and an underlying argument for collecting this kind of data more commonly to assess the real policy impacts.

From a research perspective, our analysis highlights the importance of collecting evidence about the real impacts of taxing informal economies and recognising heterogeneity within the informal sector. Our findings are in line with a range of recent scholarship that has argued for a 'de-bundling' of the conception of informality, noting that not all informal work is necessarily unconnected to state regulatory structures or tax systems, while there is heterogeneity among informal operators in relation to both taxation and social protection (Gallien and van den Boogaard 2023; Holland and Hummel 2022). This study provides a productive starting point for new questions on the politics of informal work and formalisation. A common assumption – most famously embodied in both Judith Tendler's 'Devil's Deal' (Tendler 2002) and Alisha Holland's concept of 'forbearance' (Holland 2016) – is that these politics primarily revolve around uneasy equilibria of under-taxation and under-provision. What we find instead is the widespread existence of more complex incidences of over- and under-taxation, alongside various levels of service provision. How these arrangements are perceived, both by street-level bureaucrats and informal operators, how they are shaped by the strategies employed by capacity-constrained local and national authorities, what kind of social contracts they relate to, and how they can be transformed into more equitable arrangements, then become important questions for scholarship and practice on tax and informality.

Appendices

Appendix 1 Fees for basic services and informal taxes

As noted above, our analysis in this article focuses on formal taxes, levies and user fees. However, there are further costs of doing informal business in Accra that we have collected data on but have not focused on in this paper. Table A.1 below summarises the incidence and average monthly payment (among those who do pay this) for a range of payments made for basic services, as well as informal payments made both to traditional authorities and other actors.

First, informal sector operators pay fees for services such as water, electricity, waste collection, cleaning, and security. While in theory these are often discretionary payments and may be paid to actors outside of the state, in practice these are payments that informal sector operators must necessarily pay for services that are essential for the continued running of their enterprises. This is indicated by the fact that these fees have the highest incidence of payment among all the payments discussed in the paper (see Table A.1).

Second, informal sector operators may pay informal taxes, defined as non-market payments that are not defined or required by law and are enforced outside of the state legal system. There are a relatively large number of these informal payments to a range of actors but at very low incidences. Notably, only 6 per cent of our sample report paying informal taxes or fees. This is somewhat surprising, given a large and expanding literature that has highlighted the prevalence of these payments in different contexts (e.g., van den Boogaard, Prichard and Jibao 2019; van den Boogaard and Santoro 2022). There are several possible explanations for this relatively low rate. First, in the urban context of Accra, informal payments may indeed be relatively less prevalent than in other areas of the country. This impression is borne out in our focus groups, particularly with respect to traditional authorities. Second, there may be some social desirability bias or fear around reporting informal fees to facilitate access to permits or licences, which may have led to an underestimation of these types of payments.

Table A1 Payment types and incidence of payment: services fees and informal taxes

Category	Payment type	Paid to	Incidence of payment	Average monthly payment (Cedi)
Basic service fees	Water	AMA, landlords and private providers	0.593	69.2
	Electricity		0.757	106.6
	Waste/sanitation services		0.740	35.9
	Cleaning services		0.017	49
	Security		0.013	38
Informal taxes	Payments to traditional authorities for transport of goods	Traditional authorities	0.004	21.6
	Other payments to traditional authorities (aside from transport of goods)	Traditional authorities	0.017	17.83
	Additional payments/informal levies to access permits/licences	Various actors	0.017	32.2
	Additional payments/informal levies to access services	Various actors	0.005	55.6
	Illegal checkpoint levies	Unspecified	0.003	108.6

Source: Authors' data.

Appendix 2 Descriptive statistics

Table A2 Descriptive statistics of variables included in the regressions

Variable	Mean	Standard error (mean)	N	Standard deviation
Any payment	0.635926	0.009262	2700	0.481259
Absolute payment	45.13439	3.454819	2679	178.8182
Relative payment	0.054403	0.00246	2646	0.126534
Employer	0.155926	0.006983	2700	0.362852
Land ownership	0.212593	0.007875	2700	0.409218
Structure ownership	0.618148	0.009352	2700	0.485931
Born in Accra	0.642593	0.009225	2700	0.479325
Association member	0.074074	0.005041	2700	0.26194
Firm age	10.46593	0.169131	2700	8.788315
Female	0.741852	0.008424	2700	0.437697
Age	41.55037	0.230057	2700	11.95413

Notes: Sample weights have been applied.
Source: Authors' data.

Appendix 3 Robustness checks for regressions

## Table A3 Determinants of rate of payment (in absolute and relative terms)

	(1) Absolute payment	(2) Relative payment
Earnings quintile 2	9.608***	-0.032***
	(3.34)	(0.01)
Earnings quintile 3	14.612***	-0.048***
	(4.49)	(0.01)
Earnings quintile 4	20.902***	-0.060***
	(5.77)	(0.01)
Earnings quintile 5	40.229***	-0.083***
	(14.14)	(0.01)
Employer	34.475***	0.023***
	(12.73)	(0.01)
Sector = trade	4.239	-0.015***
	(9.03)	(0.01)
Sector = services	-3.403	-0.017**
	(6.23)	(0.01)
Sector = other	-24.280***	-0.033***
	(7.15)	(0.01)
Street-based	-0.948	-0.003
	(9.50)	(0.01)
Store-based	12.783	0.006
	(10.19)	(0.01)
Market-based	14.248	0.008
	(10.66)	(0.01)
Other	-8.616	-0.012
	(8.93)	(0.01)
Born in Accra	-13.222*	-0.007
	(7.67)	(0.00)
Association member	16.781**	0.005
	(8.27)	(0.01)
Firm age	-0.060	0.000
	(0.36)	(0.00)
Female	-23.116**	-0.010**
	(10.45)	(0.01)
Age (respondent)	0.396	-0.000
	(0.99)	(0.00)
Age squared	-0.008	-0.000
	(0.01)	(0.00)
Firm registered (AMA or GRA)	14.241**	0.036***
	(6.78)	(0.00)
Constant	28.965	0.096***
	(19.59)	(0.02)
Observations	2,654	2,646
R-squared	0.053	0.114

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1; Sample weights have been applied across all models. Estimation by OLS. Specification differs from Table 5.2 as follows: sample not restricted to respondents who reported making at least one payment; additional control for registration status with either the AMA or GRA; controls for land and structure ownership dropped.
Source: Authors' data.

Appendix 4 Predictive margins for the effective tax rate, by earning quintile

Figure A4 Marginal effects (predictive margins by earning quintiles)
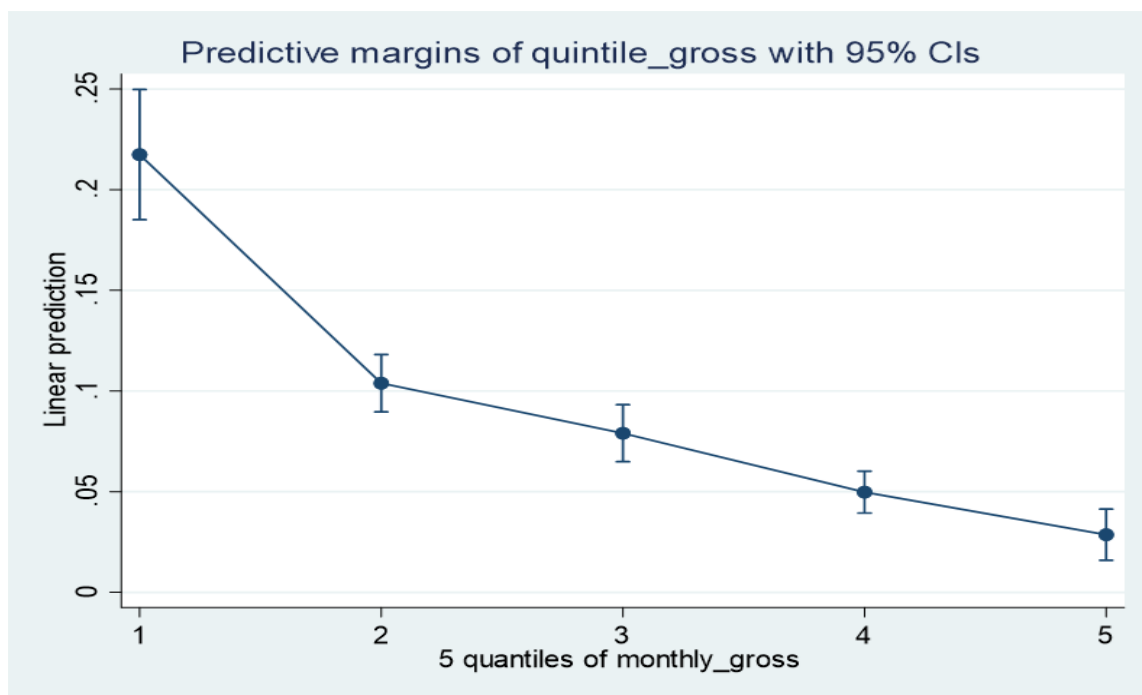
Note: predictive margins are estimated controlling for all other variables included in Table 5.2.
Source: Authors' data.

Appendix 5 Conditional tax rates for the three main 'presumptive' payments

Figure A5 Most common presumptive taxes as share of monthly earnings of those who pay them, by income quintile
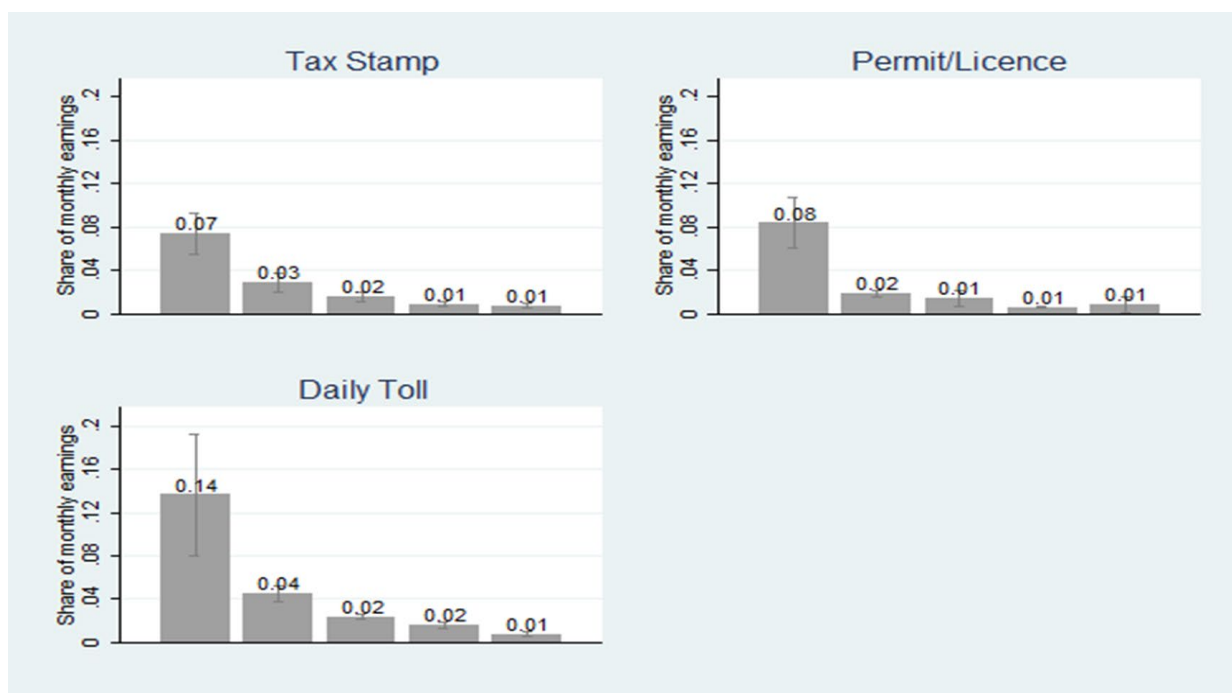
Notes: The data are weighted. Error bars denote 95% confidence intervals.
Source: Authors' data.

Appendix 6 Robustness checks for regressions using ethnicity instead of place of birth

Table A6.1 Determinants of making any payment

	(1)	(2)	(3)
Location			
Street-based	0.004	-0.005	-0.003
	(0.03)	(0.03)	(0.03)
Store-based	0.237***	0.195***	0.199***
	(0.03)	(0.03)	(0.03)
Market-based	0.330***	0.303***	0.292***
	(0.03)	(0.04)	(0.04)
Other	-0.084*	-0.118**	-0.119**
Sector	(0.05)	(0.05)	(0.05)
Trade		-0.047*	-0.040
		(0.03)	(0.03)
Services		-0.028	-0.008
		(0.03)	(0.03)
Other		-0.161***	-0.157***
		(0.06)	(0.05)
Earnings quintile 2		0.104***	0.105***
		(0.04)	(0.03)
Earnings quintile 3		0.075**	0.069**
		(0.04)	(0.04)
Earnings quintile 4		0.125***	0.122***
		(0.04)	(0.04)
Earnings quintile 5		0.133***	0.128***
		(0.04)	(0.04)
Employer		0.123***	0.109***
		(0.03)	(0.03)
Owns the land		-0.006	-0.004
		(0.03)	(0.03)
Owns the structure		0.060**	0.049**
		(0.02)	(0.02)
Ga (reference category: all other ethnicities)		-0.084***	-0.087***
		(0.02)	(0.02)
Member of association		0.097***	0.073**
		(0.03)	(0.03)
Age of firm			0.002*
			(0.00)
Female			-0.013
			(0.03)
Age of respondent			0.025***
			(0.01)
Age squared (respondent)			-0.000***
			(0.00)
Constant	0.553***	0.491***	-0.078
	(0.02)	(0.04)	(0.12)
Observations	2,700	2,654	2,654
R-squared	0.075	0.117	0.133

Notes: Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$; Column 1 reports the results of a linear regression focusing only on the location of a business, while column 2 includes a wider set of characteristics of these businesses and column 3 includes further data about the respondent and their business as controls, including their gender, age, and the age of the business. Sample weights have been applied across all models.
Source: Authors' data.

Table A6.2 Determinants of rate of payment (in absolute and relative terms)

	(1) Absolute payment	(2) Relative payment
Earnings quintile 2	12.918**	-0.077***
	(5.19)	(0.01)
Earnings quintile 3	18.728***	-0.102***
	(6.19)	(0.01)
Earnings quintile 4	28.044***	-0.119***
	(8.54)	(0.01)
Earnings quintile 5	58.193***	-0.141***
	(19.10)	(0.01)
Employer	39.465**	0.031***
Sector	(17.05)	(0.01)
Trade	12.922	-0.011
	(14.12)	(0.01)
Services	-3.316	-0.014
	(8.67)	(0.01)
Other	-31.777***	-0.029**
Location	(10.99)	(0.01)
Street-based	-15.410	-0.018*
	(20.39)	(0.01)
Store-based	3.069	-0.004
	(16.33)	(0.01)
Market-based	-13.366	-0.019**
	(17.62)	(0.01)
Other	-12.103	-0.023
	(16.64)	(0.01)
Owns the land	-11.031	-0.003
	(7.99)	(0.01)
Owns the structure	-51.662***	-0.053***
	(11.47)	(0.01)
Ga (reference category: all other ethnicities)	-23.632***	-0.019***
	(8.43)	(0.01)
Member of association	17.666*	-0.001
	(9.39)	(0.01)
Age of firm	0.083	0.000
	(0.49)	(0.00)
Female	-22.537	-0.006
	(13.87)	(0.01)
Age of respondent	-0.696	-0.003**
	(1.63)	(0.00)
Age squared (respondent)	0.002	0.000**
	(0.02)	(0.00)
Constant	108.999***	0.288***
	(37.71)	(0.04)
Observations	1,673	1,673
R-squared	0.079	0.217

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1; Sample weights have been applied across all models. Sample restricted to respondents who reported making at least one payment. Estimation by OLS.
Source: Authors' data.

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