UNDERSTANDING THE TAX PAYMENT COMPLIANCE OF COMPANIES: EVIDENCE FROM ESWATINI

COMPRENDRE LA CONFORMITÉ DES ENTREPRISES EN MATIÈRE DE PAIEMENT DES IMPÔTS: TÉMOIGNAGES DE L'ESWATINI

COMPREENDENDO A CONFORMIDADE COM O PAGAMENTO DE IMPOSTOS POR EMPRESAS: EVIDÊNCIAS DA ESWATINI

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Abstract

This paper investigates corporate income tax (CIT) payment compliance among corporations in Eswatini, an underexplored area critical for revenue-constrained low- and middle-income countries. Using a unique administrative dataset (2017–2022), we analyse factors driving timely and full tax payments. We combine descriptive analysis with a more robust Heckman selection model to address sample selection bias. Results show that, while 82% of filed returns included payments, only 55% were fully compliant, and 42% were late. Compliance was higher among larger firms and those in urban tertiary sectors, while smaller and rural firms frequently overpaid, potentially due to penalties. Electronic payments exhibited the highest compliance, whereas mobile and cash payments lagged. Regression analysis highlights company size, provisional tax filings and electronic payments as key compliance predictors. This study contributes to the tax compliance literature with actionable insights for revenue authorities, from the simplification of tax processes for smaller firms to the larger implementation of electronic tax payments.

Keywords: compliance, provisional tax, taxable income, multivariate regression

JEL codes: H26, H24, H32

RÉSUMÉ

Cet article examine la conformité du paiement de l'impôt sur le revenu des sociétés (IRS) parmi les entreprises en Eswatini, un domaine sous-exploré et crucial pour les pays à revenu faible et moyen dont les revenus sont limités. À l'aide d'un ensemble unique de données administratives (2017–2022), nous analysons les facteurs qui influent sur le paiement ponctuel et intégral de l'impôt. Nous combinons une analyse

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descriptive avec un modèle de sélection Heckman plus robuste pour corriger le biais de sélection de l'échantillon. Les résultats montrent que, si 82% des déclarations déposées incluaient des paiements, seulement 55 % étaient pleinement conformes et 42% étaient en retard. La conformité était plus élevée parmi les grandes entreprises et celles du secteur tertiaire urbain, tandis que les petites entreprises et les entreprises rurales payaient fréquemment trop cher, potentiellement en raison de pénalités. Les paiements électroniques affichaient la conformité la plus élevée, tandis que les paiements mobiles et en espèces étaient à la traîne. L'analyse de régression met en évidence la taille de l'entreprise, les déclarations fiscales provisoires et les paiements électroniques comme principaux indicateurs de la conformité. Cette étude contribue à la littérature sur la conformité fiscale en fournissant des informations exploitables pour les autorités fiscales, de la simplification des processus fiscaux pour les petites entreprises à la mise en œuvre plus large des paiements électroniques d'impôts.

Mots clés: conformité, impôt provisoire, revenu imposable, régression multivariée

RESUMO

O presente documento investiga o pagamento do imposto sobre o rendimento de pessoas colectivas (IRC) em Eswatini, uma área pouco crítica explorada em países de rendimento baixo e médio com restrições de receitas. Recorrendo a um conjunto único de dados administrativos (2017–2022), analisamos os factores que determinam o pagamento atempado e integral dos impostos. Combinamos a análise descritiva com um modelo de selecção de Heckman mais robusto para resolver o enviesamento na selecção da amostra. Os resultados demonstram que, embora 82% das declarações apresentadas incluíssem pagamentos, apenas 55% tinham conformidade totalmente e 42% estavam atrasadas. O cumprimento foi mais elevado entre empresas de maior dimensão e as dos sectores terciários urbanos, enquanto as empresas mais pequenas e rurais tenham muitas vezes pago excesso, possivelmente devido a penalizações. Os pagamentos electrónicos foram os que apresentaram maior conformidade, enquanto os pagamentos móveis e em numerário ficaram aquém. A análise de regressão destaca a dimensão da empresa, as declarações fiscais provisórias e os pagamentos electrónicos como principais indicadores de conformidade. O presente estudo contribui para a bibliografia do cumprimento das obrigações fiscais, com informações úteis para as autoridades fiscais, desde a simplificação dos processos fiscais para empresas mais pequenas até à implementação mais alargada dos pagamentos electrónicos de impostos.

Palavras-chave: conformidade, imposto provisório, renda tributável, regressão multivariada

I INTRODUCTION

The tax compliance of companies, particularly in relation to corporate income tax (CIT), is an interesting topic of research. Incorporated entities, as opposed to individual businesses, are characterised by a

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complex organisational structure, usually dedicated tax accounting staff and departments, and a variety of constraints and fiscal incentives that could push them to avoid taxes. At the same time, while compliance with the filing of taxes has been widely studied, to a lesser extent academics have explored issues around the actual payment of tax liabilities, which we label tax payment compliance, and how tax filing behaviour correlates with and turns into tax payment behaviour.

Tax payments can be regarded as equally important as tax filings. This is particularly true when considering the practical functioning of tax administrations in low- and middle-income countries, especially in sub-Saharan Africa (SSA). In this context of limited capacity, resource-strapped governments are particularly concerned about collecting tax payments to fund development. Unsurprisingly, tax administrations in SSA tend to prioritise tax payments – or the imposition of high penalties – to fill the public coffers, over the accurate filing of tax returns (Santoro & Waiswa, 2024). Higher and higher annual targets for tax collection are often sought by tax administrations, which have mobilised their capacity and resources to collect tax payments efficiently.

A thorough analysis of how well taxpayers comply with their tax payments obligations is key to any revenue administration as it allows for a deeper understanding of the patterns related to taxpayers' compliance behaviours. While various administrative and economic factors can influence compliance such as the businesses' financial capacity, tax authorities' enforcement activities, the complexity of tax systems, and the existence of incentives or penalties that affect compliance, deliberate tax evasion is one of the major contributing factors to non-compliance.

In this paper, we remedy the paucity of evidence around tax payment compliance by addressing the following key question: what are the patterns of CIT payments and what are the specific drivers of the tax payment compliance of companies? We focus on Eswatini, thanks to a strong research collaboration with its tax administrations (Lees et al., 2024). Eswatini is characterised by low levels of tax compliance, like much of the rest of the continent (ATAF, 2023). According to internal reports provided by the ERS research team, CIT voluntary compliance in Eswatini has been estimated to be between 46% and 60% in the years 2017 to 2022, indicating the reluctance of taxpayers to honour their obligations for what is one of the top three major taxes collected by the ERS. It is also noteworthy that a significant proportion of payers of income tax in Eswatini either do not file (declare any liabilities) or declare nil returns. Nil-filing is particularly common among corporate entities, while personal income taxpayers are more likely to miss their declarations altogether (Santoro & Mdluli, 2019). According to ATAF (2023), the proportion of taxpayers who filed nil CIT returns for 2022 in Eswatini stood at 71% of all the nil filers by all the tax heads, which was

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a rather common observation in most of the studied African countries. While much has been documented on the compliance patterns with tax filings in the country (Santoro, 2021), very little is known around compliance with tax payments.

We examine our research question by running a quantitative analysis of ERS administrative data. The data consists of companies' registration information, tax returns and tax payment data during the period 2017–2022. The study deploys both a descriptive analysis, through which we show payment behaviour across a variety of factors, visually describing patterns, and a stronger correlational analysis, in the shape of a multivariate probit regression model to identify key factors correlating with our tax payment compliance outcomes. Given the data available, we operationalise tax payment compliance by means of three outcome indicators: (i) whether the taxpayer pays anything for a tax declaration filed; (ii) whether they pay on-time or late; and (iii) whether they pay the tax liability declared in full, or whether they underpay or overpay. We complement the analysis of administrative data with a series of in-depth interviews, run with key departments at the ERS, so as to gather qualitative insights.

We present three sets of findings. First, by merely looking at compliance patterns, we show how, between 2017 and 2022, 82% of tax returns were accompanied by payments, although 42% of these payments were late. While 55% of payments matched the declared tax liabilities, 11% were underpaid and 34% were overpaid. Over time, the proportion of returns with payments declined, especially after 2019, likely due to the impact of COVID-19 and ongoing enforcement initiatives. However, timely payments improved, peaking in 2020, and accuracy in full tax repayments increased to about 60% by 2022.

Second, our analysis reveals key factors influencing tax payment compliance. Large and medium-sized businesses show higher compliance rates (approximately 90%) than micro and small businesses (about 80%), especially in on-time (86% vs. 50%) and full liability payments (70% vs. 54%). Smaller taxpayers are likely to make overpayments, due to late penalties. Geographically, compliance is lowest in Lubombo and highest in Shiselweni and Manzini, with urban taxpayers generally more compliant than rural ones. The tertiary sector leads in compliance, particularly in finance, information and real estate, while the primary agricultural sector lags due to a larger proportion of smaller taxpayers. Newer taxpayers tend to pay upon filing, whereas experienced taxpayers are more accurate and timely. Provisional returns have higher compliance than annual returns due to upfront instalment requirements. Electronic transactions ensure better compliance than card or cash payments, while mobile money performs poorly, likely due to its use by less-equipped and less knowledgeable taxpayers.

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Third, we present results from our multivariate regression analysis. The likelihood of payment is higher for large and medium-sized companies compared to small ones, with large companies being 9 percentage points more likely to pay. Complete filing profiles and provisional tax returns enhance payment probability by 8 and 7 percentage points, respectively, while late filing decreases it by 3 percentage points. Sector and location also play a role, with primary and secondary sectors, and districts like Lubombo and Manzini, showing lower compliance compared to the tertiary sector and Shiselweni district. For timely payments, the effect of company size is even more pronounced, with large companies seeing a 30-percentage point increase in on-time payment probability. Electronic transactions outperform cash, card and mobile money in ensuring on-time payments. Regarding payment accuracy, correct filing behaviour improves the likelihood of full payments, reducing both under- and overpayments. Large companies tend to repay more accurately. Once again, electronic transactions enhance payment accuracy.

The paper is structured as follows. Section II describes the contribution to the academic literature, while section III presents the study context. Data and methodology are discussed in section IV. Section V discusses the results and section VI concludes the paper with actionable policy recommendations.

II LITERATURE REVIEW

A growing body of literature investigates the determinants of tax compliance in low- and middle-income countries (LMICs), particularly in sub-Saharan Africa, where structural constraints make revenue collection especially challenging (Besley & Persson, 2014). Recent studies have leveraged tax administrative data to inform evidence-based policymaking across diverse domains of compliance. These include communication and information campaigns (Mascagni & Nell, 2021; Shimeles et al., 2017), analyses of VAT functioning and nil-filing behaviour (Mascagni et al., 2022; Brockmeyer et al., 2024), and evaluations of enforcement-focused interventions (Basri et al., 2021; Kotsogiannis et al., 2022; Santoro & Waiswa, 2024). Other contributions focus on the role of taxpayer education (Mascagni, Santoro & Mukama, 2023), tax agents (Occhiali & Kalyango 2025) and technology (Czjaka et al., 2024; Santoro et al., 2024; Mascagni, Mengistu & Woldeyes, 2021) in shaping compliance. Koloane et al (2023) identified the economic factors that influence sole traders' tax compliance, including debt, adequate working capital and tax audits.

While much of the literature distinguishes between corporate and individual taxpayers, this binary distinction may not hold in LMICs, where incorporated entities often include micro and small enterprises that behave similarly to individuals. In high-income contexts, corporations

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tend to exhibit greater tax sophistication, respond to distinct norms and networks, and face different costs of non-compliance (Armstrong et al., 2019; Hasan et al., 2017; Hanlon et al., 2007; Jacob et al., 2021). However, such dynamics may be less pronounced in LMICs.

This study contributes to this literature by examining tax payment compliance – an under-explored dimension – through rich administrative data in Eswatini. We fill the main gap in knowledge by focusing on tax payment, rather than tax filing, behaviour, and connecting compliance at the filing level with compliance at the payment level. We complement prior country-specific research on nil-filing (Santoro & Mdluli, 2019), survey-based compliance insights (Santoro, 2021) and behavioural interventions (Santoro et al., 2023).

III STUDY CONTEXT

In Eswatini, the three primary forms of direct income taxes are CIT, personal income taxes (PIT) and withholding taxes on income. The currently used Income Tax Order dates back to 1975 and has undergone several amendments aimed at streamlining Eswatini's tax administration process with prevailing developments at given points in time. The income tax year begins on 1 July and ends on 30 June. CIT is a tax currently levied at a standard rate of 27.5% on the taxable income (gross income less expenses, exemptions and permitted deductions) of businesses.

The major components of CIT are the so-called provisional tax payments, which are paid twice a year and are mostly due in June and December, in line with the tax year, and a third income tax payment (as applicable), which is made annually. This last payment is accompanied by the annual income tax return, to be submitted 120 days after the tax year-end as a confirmed liability for the taxpayer for that period. Large companies and VAT-registered entities whose tax year is in line with the ERS tax year, however, are given an extension to submit their annual income tax returns two extra months after the lapse of the 120 days, i.e., they must submit their returns by 31 December instead of 31 October.

At the end of the tax year, a taxpayer can either be required to make a payment, that is, if the provisional taxes paid are less than the final assessed liability or get a refund in the case of a provisional tax overpayment compared to the final assessed liability. If the provisional taxes paid are equal to the final assessed liability, then the taxpayer does not make any additional payments. If any amount of provisional tax is not paid in full within the relevant period prescribed for the payment of such, interest calculated at the rate of 18% per annum of the amount owed is charged from the date on which the payment is due until the date on which the payment is made.

Regardless of whether they were active throughout the year, all registered taxpayers are expected to file their returns. Taxpayers who

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had no business income for a given period are required to file a zero return, also known as a nil return, thus complying with the law (Santoro & Mdluli, 2019). This is different from a taxpayer who is reporting a loss (negative taxable income), even though they both record zero tax liability. The law imposes severe penalties for both failing to file and making a fraudulent assessment.

In terms of making the payments, several payment modes are available to taxpayers to fulfil their tax obligations. These include: (i) *Electronic funds transfers and in-branch transfers i.e., account-to-account transfers* (ERS bank accounts are available at all Eswatini banks and taxpayers must use the authorised ERS account from the same bank as the payment); (ii) *Direct bank deposits in the form of cash*; (iii) *Mobile Money (MoMo)*, which accepts all ERS payment codes with a transacting limit of E4 000 ($220.27) per day and has a one-day lead time for the clearance of payments into the relevant ERS system; and (iv) *Point of sales gadgets (speed-points)* catering for both debit and credit cards at all commercial border posts and service centres. In 2021, the ERS adopted the 'cashless payment regime' where all transactions are to be conducted cashless.

Taxpayers registered for income tax account for 80% of the total tax base. Eswatini collects a significantly higher proportion of income tax, and over half (54%) of the total revenue collected in 2022/2023 was income tax collections. PIT is the largest component, making up 35% of total revenue, and CIT, the subject of this study, accounted for 13% of the total revenue. The contribution of CIT to total revenues has notably been on an overall declining trend, as shown in Figure 1, signalling the need for prioritised compliance monitoring of the tax type to improve the revenue collections performance.

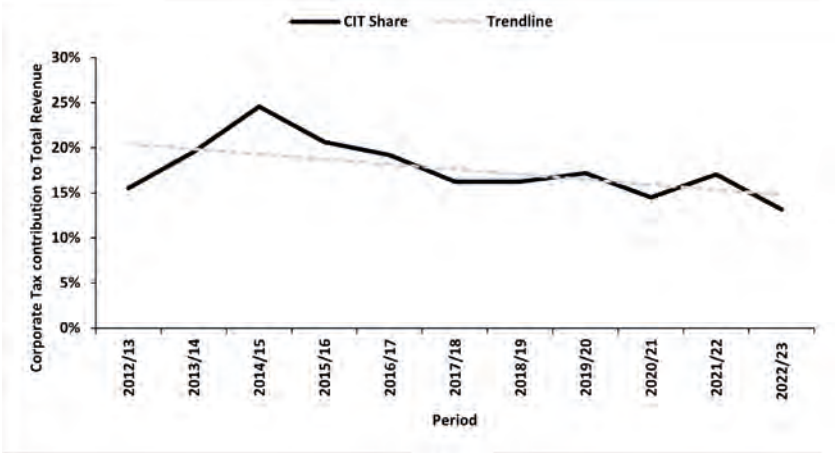

Figure 1: *Corporate tax trends 2012/2013–2022/2023*

Source: *Authors' calculations on ERS administrative data*

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IV METHODOLOGY

(a) Data sources

As the primary data source for our analysis, we used administrative data from the ERS database, accessed on 31 July 2023. Our analysis draws from the CIT returns database covering tax years 2017 to 2022, with a total of 28 977 returns submitted: 58% provisional and 42% annual. This data provides essential insights, including filing years, on-time filings, complete return profiles (two provisional and one annual return), and declared tax liabilities, which are crucial for measuring full tax payments.

We also incorporated the CIT payments database for the same period, merging it with the returns database using unique taxpayer identification numbers (TINs) and return IDs. This linkage allows for precise tracking of each tax return to its corresponding payment, enhancing our analysis of payment patterns. Key information from the payment database includes on-time payments, amounts paid (cross-checked with tax liabilities) and payment methods (cash, credit/debit card, electronic transactions and mobile money).

Additionally, we relied on taxpayer-level information from the tax registry, which provides data on location, economic sector, business size and registration year (a proxy for business age). The tax registry was merged with the other datasets via TINs.

Prior to analysis, we performed data cleaning, removing nil returns (returns with zero liabilities), which accounted for 63% of the original dataset, consistent with prior research on nil-filing in Eswatini (Santoro & Mdluli, 2019). We also excluded returns with refund positions, representing about 7% of the total, as payments are not expected in these cases.

Finally, we conducted five in-depth interviews with ERS officials from the Central Operations and ICT divisions to understand how tax liabilities, penalties and interests are calculated in the ERS system. These interviews were instrumental in explaining the observed trends in our results.

(b) Estimation strategy

In order to analyse tax payment patterns, we deploy both a descriptive analysis and correlational analysis. In both cases, we operationalise tax payment compliance using three outcomes: (i) whether the taxpayer pays anything for a tax declaration filed, built as a 0-1 indicator for whether, for a given tax return, a corresponding tax payment is found; (ii) whether they pay on-time or late (0-1 indicator variable); (iii) conditional on paying, whether they pay in full the tax liability declared, or whether they underpay or overpay (two 0-1 indicator variables for the cases of over- and underpayment, relative to full tax payment).

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The descriptive analysis simply displays payment behaviour across a variety of factors, visually describing patterns. For the correlation analysis, we first recur to a t-test for equality of means between compliant and non-compliant taxpayers. We then use a Heckman selection model (Heckman, 1979) to address the potential bias standard regressions suffer from, given the sample selection issues and likely endogeneity. As a matter of fact, while the probability of paying any tax is observed for all CIT taxpayers in our sample, the other tax payment outcome variables, such as paying on time or in full, are observed only for a non-random subset of the data – those taxpayers who actually performed a payment. In such cases, the Heckman selection model (Heckman, 1979) is a two-step econometric procedure designed to correct for such selection bias by jointly modelling the selection process, and the other outcomes of interest which are conditional on the selection process.

The Heckman selection model (Gronau, 1974; Lewis, 1974; Heckman, 1976) assumes that there exists an underlying regression relationship, as follows:

$Y_i = X_i\beta + \varepsilon_i$ *(outcome equation)*

where X_i is a vector of regressors, β the parameters of interest, and $\varepsilon_i \sim N(0, \sigma^2)$. The dependent variable Y_i, however, is not always observed. Instead, it is only observed if a latent selection variable $S^\star_i$ satisfies the following condition:

$S^\star_i = Z_i\gamma + u_i$ *(selection equation)*
$S_i = 1$ if $S^\star_i > 0$; 0 otherwise

where Z_i is a vector of covariates that determine selection, γ is a vector of parameters, and $u_i \sim N(0, 1)$. The binary variable S_i indicates whether the outcome Y_i is observed ($S_i = 1$) or not ($S_i = 0$).

A key assumption of the model is that the error terms ε_i and u_i are jointly normally distributed with correlation coefficient ρ – that is $corr(u_i, \varepsilon_i) = \rho$. When $\rho \neq 0$, the sample selection process is non-random, and standard estimation of the outcome equation using only observed cases leads to biased and inconsistent estimates. The Heckman model corrects for this bias and provides consistent, asymptotically efficient estimates of all parameters.

In this specific example, the selection equation is run on the outcome for the probability of paying any tax, while the outcome equations are run on the probability of paying on time and the probability of paying in full, both outcomes depending on whether the taxpayer paid taxes or not. In our dataset, the correlation coefficient ρ is different from zero

(ranging from -.9 to .5). This implies that selection bias is present and corrected by the model.

In the selection equation, controls in Z_i include business-level features, such as size (categorised into five segments, i.e., large, large-medium, medium, micro and small), an indicator for the company being young (the return being filed within the first three years after registration), four districts, aggregate economic sector (primary, secondary, tertiary). We also include tax return specific characteristics, namely, if the return is provisional or if it has been filed late. We then add an indicator for filing compliance, i.e., whether the taxpayer regularly reported all returns required in that year (two provisional and one annual). For the outcome equation, X_i mostly overlaps with Z_i, but we also include indicators for the payment mode used for the tax payment (cash, bank transfer, POS, mobile money).

V RESULTS

(a) Descriptive evidence

As a first set of results, we present descriptive patterns on tax payments compliance. A first key finding is that, of the total returns submitted in 2017–2022, about 82% correspond to a tax payment, while 18% are without a payment. This aggregate evidence is somehow positive as it indicates that the majority of returns are actually paid. A second aggregate result is that, conditional on paying, 42% of payments were late, that is, past their deadline. Such evidence indicates that, despite the probability of paying anything being quite high, challenges persist when it comes to on-time payment, implying fines and penalties for non-compliant taxpayers. A third result shows that, conditional on paying and comparing the payment amount and the tax liability: 55% of payments cover the full tax liability declared; 11% consist of underpayments (with an average of E234 000 or USD12 760 underpaid) and 34% represent overpayments (with an average of E181 000 or USD9 870 overpaid).

Trend over time. The proportion of tax returns with corresponding payments has gradually declined over time, as shown in Figure 1, with recent years exhibiting lower payment rates. This trend may reflect ongoing late payments from taxpayers following enforcement initiatives by the ERS. The highest compliance rate was recorded in 2019, before the Covid-19 pandemic, at 85%, suggesting that the pandemic may have negatively impacted tax compliance.

In contrast, timely payments have shown an increasing trend, peaking at 65% in 2020 before declining to 61.1% in 2022. Payment accuracy, measured by full repayment of tax liabilities, has improved

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over time, reaching about 60% in 2022, albeit at the cost of increased overpayments.

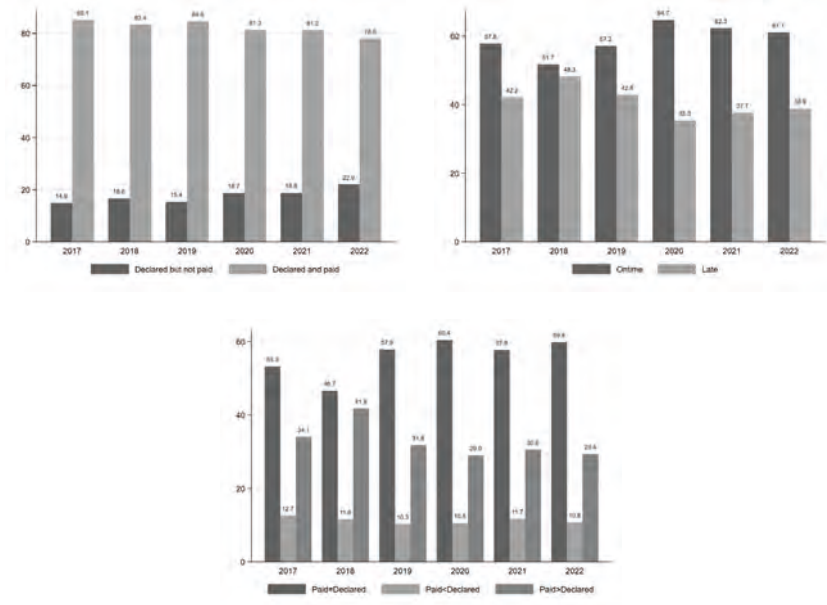

Figure 2: *Tax payment compliance by filing year, 2017–2022*

Source: *ERS returns and payments data*

Business size. In the ERS taxpayer register, taxpayers are classified by turnover into several segments: large (turnover > E100 million), large-medium (E25 million < turnover < E100 million), medium (E6 million < turnover < E25 million), small (E500 000 < turnover < E6 million) and micro (turnover < E500 000). Multinational corporations are categorised as large taxpayers for closer monitoring.

Figure 2 shows that large and medium-sized businesses have about 90% compliance with tax payments, compared to around 80% for micro and small businesses. The disparity is even greater for on-time payments – 86% for large businesses versus only 50% for micro ones – and for full payments – 70% for large versus 54% for micro taxpayers. Although larger businesses have lower rates of non-payment or partial payment, their tax liabilities represent a significant portion of total tax debt, often exacerbated by cash flow challenges linked to government dealings.

Notably, micro and small taxpayers are more likely to overpay due to late payments that incur penalties and interest. This suggests that larger companies are better equipped to comply, often using tax advisors and accounting software, while smaller taxpayers face higher compliance costs and penalties.

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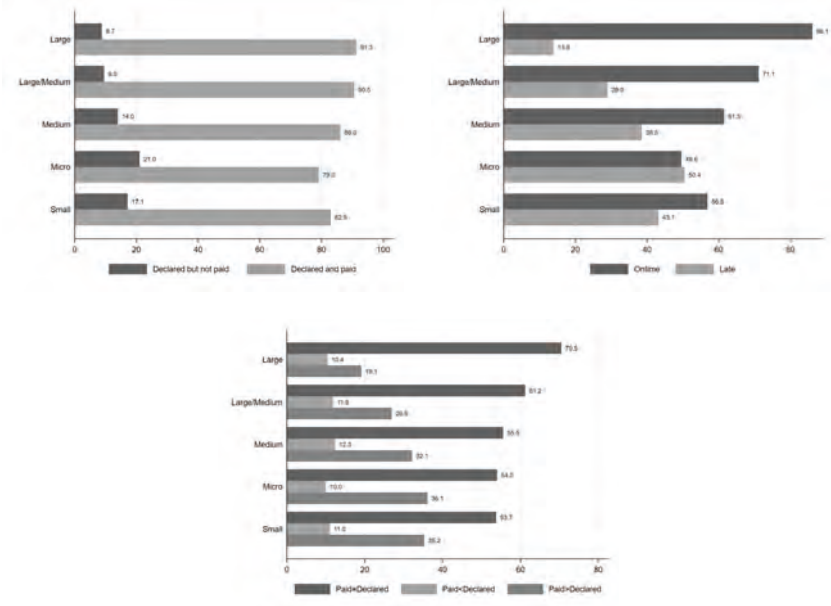

Figure 3: *Tax payment compliance by size, 2017–2022*

Source: *ERS returns and payments data*

Business location. Eswatini is divided into four administrative districts: Hhohho, Manzini, Lubombo and Shiselweni. Manzini serves as the central business district (CBD), where most companies are concentrated, while Hhohho houses the administrative capital, Mbabane, predominantly consisting of government offices and state-owned enterprises.

Appendix Figure A1 illustrates that taxpayers in Lubombo show the lowest compliance, while Shiselweni and Manzini perform better on all payment metrics. Notably, the CBD exhibits a low compliance rate, with only 59% of taxpayers paying on time and 55% paying in full. When examining compliance by urbanicity, Appendix Figure A2 confirms that urban taxpayers are generally more compliant than their rural counterparts, though the difference is not substantial across the three compliance indicators.

Business sector. The ERS employs the International Standard Industrial Classification (ISIC) revision 4 to categorise taxpayers by economic activity. Figure 3 shows that the tertiary sector exhibits the highest compliance across three tax indicators, while the primary sector has the lowest compliance. The secondary sector shows a notable incidence of over-payment, likely due to additional penalties for late filing, indicating higher non-compliance. Some taxpayers in this sector pay taxes due without submitting corresponding returns.

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Further analysis in Appendix Figure A3 reveals that the finance sector leads in filing and payment compliance at 90%, followed by information and communication (89%) and real estate (87%). These high-tech sectors benefit from automation and digitalisation, enhancing compliance compared to others that still rely on manual processes. The primary sector, largely agricultural, has a lower compliance rate of 72%, primarily due to a high proportion of smaller taxpayers who struggle to meet their obligations. Routine taxpayer education efforts have highlighted that agriculture often relies on manual processes, adversely affecting compliance. Additionally, farming associations face low literacy rates and depend on unreliable accountants. In the secondary sector, the construction industry is particularly affected by government payment issues, as it relies heavily on public sector contracts.

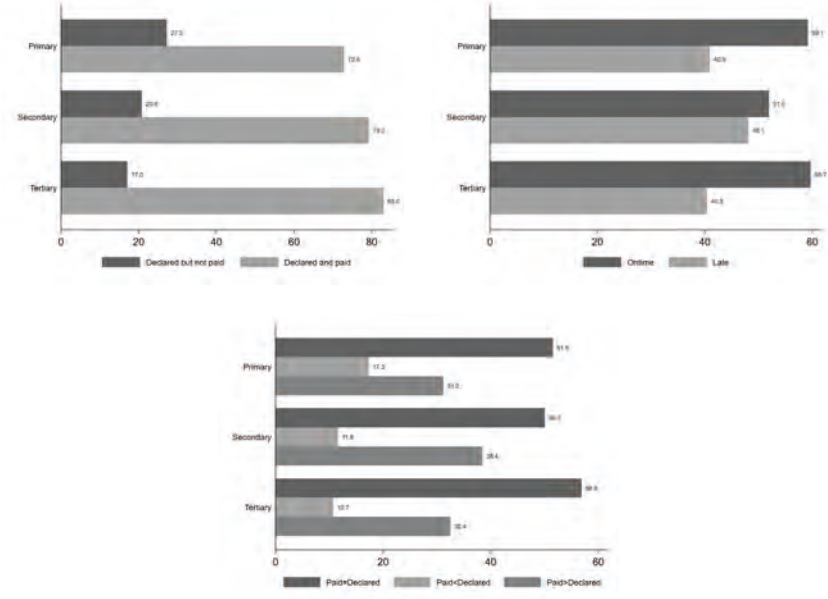

Figure 4: *Tax payment compliance by sector, 2017–2022*

Source: *ERS returns and payments data*

Business experience. Experience in the tax system, proxied by registration year and filing time, is another critical factor. We define young taxpayers as those filing within their first three years, while older taxpayers have been filing for over three years. As shown in Appendix Figure A4, younger taxpayers are more likely to pay, conditional on filing, than older ones. This may be due to smaller cash flows in early years, which are easier to manage. As businesses grow, they may face larger projects requiring more effective cash flow management. Older

taxpayers also encounter administrative challenges, such as ownership changes and internal conflicts.

Regarding payment accuracy, 'older' taxpayers are more likely to file on time and pay in full. This suggests that less experienced taxpayers may react to substantial penalties for non-compliance or make errors leading to over-payments. In contrast, seasoned taxpayers, having navigated the tax system for longer, are better equipped to ensure timely and accurate payments, thus minimising overpayments and penalties.

Tax return characteristics. After examining business dimensions, we now explore how tax return features correlate with payment compliance, anticipating a clear link between filing and payment behaviours. A key finding is that the relationship between meeting filing deadlines and payment behaviour is complex. As shown in Figure 5, while on-time filers are slightly more likely to pay, they are also more prone to late payments. This may be due to late filers becoming more aware of deadlines through penalties or communication from the ERS, prompting timely payments to avoid further penalties. Interestingly, late filers are more likely to pay in full compared to on-time filers, who tend to overpay, a pattern that warrants further investigation.

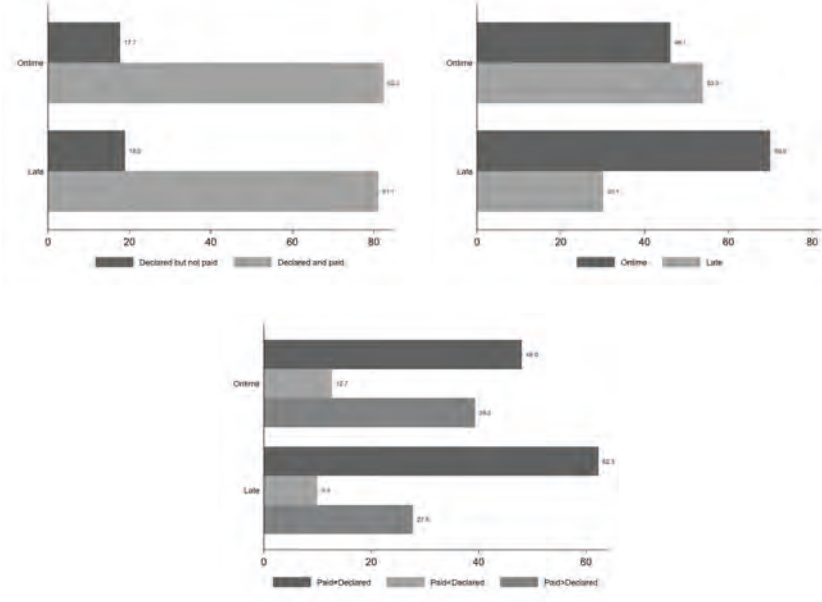

Figure 5: *Tax payment compliance by on-time filing, 2017–2022*

Source: *ERS returns and payments data*

Another significant pattern emerges when comparing the types of returns submitted – annual versus provisional. Appendix Figure A5 indicates

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that payment compliance is notably higher for provisional returns. The likelihood of paying anything is 85% for provisional returns, 10% higher than for annual returns (75%). On-time payments for provisional returns occur more than twice as frequently as for annual returns. Moreover, the likelihood of full payment is 66% for provisional returns versus only 39% for annual returns. This discrepancy may arise from the design of provisional declarations, where taxpayers typically pay towards their total annual liability, incurring higher interest compared to the final annual return. Provisional payments may also receive more proactive oversight from the ERS due to their revenue significance. Taxpayers who struggle to settle their liabilities often fail to make the required provisional payments, leading to requests for payment arrangements at the end of the reporting period.

Lastly, as expected, a more complete filing behaviour – submitting two provisional returns and one annual return in a fiscal year – is linked to improved tax payment compliance, as shown in Appendix Figure A6.

Payment mode. An important factor influencing compliance is payment mode. Digital payment options hold significant promise for improving compliance through timeliness, accuracy and transparency (Arewa & Santoro, 2022; Okunogbe & Santoro, 2023). Figure 6 shows that, for both on-time and full payments (since non-payments lack payment mode data), electronic transfers are highly effective in promoting compliance. Interestingly, card payments show the lowest rate of on-time payments, even lower than cash. The same pattern emerges for full payment accuracy, with electronic transfers leading, followed by mobile money, cash and cards. This may stem from the partial physical interaction required for card and cash payments. Additionally, mobile money's lower compliance rates may reflect characteristics of its user base, who may have less financial knowledge and access.

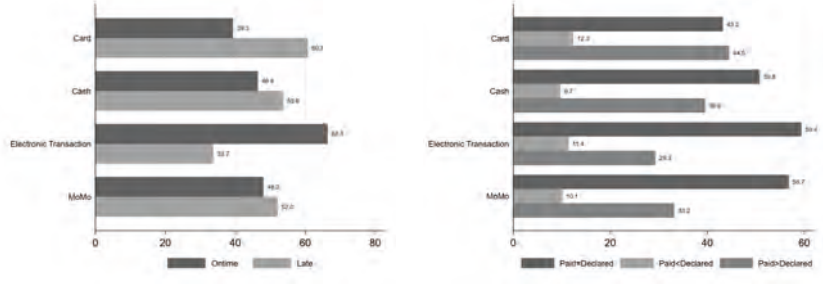

Figure 6: *Tax payment compliance by mode of payment, 2017–2022*

Source: *ERS returns and payments data*

(b) Correlational evidence

Following the descriptive analysis, we conducted a more rigorous correlational analysis. Table 1 presents a t-test for mean equality between two groups: taxpayers who declared but did not pay and those who both declared and paid.1 The results show statistically significant differences, reinforcing the descriptive findings and suggesting that tax payment compliance is associated with several key factors.

First, firm size plays a role, with large and medium firms more likely to comply, indicating potential compliance costs or barriers for smaller entities. Second, newly registered taxpayers (within three years) show higher compliance rates. Third, urban taxpayers, which are often larger, are more compliant, though compliance rates do not differ significantly by district, including the largest districts, Manzini and Hhohho. Fourth, the tertiary sector demonstrates higher compliance than the primary and secondary sectors. An important link between filing and payment behaviours also emerges: taxpayers who file late are less likely to meet payment obligations. Compliance is notably higher among those who file provisional returns and among taxpayers with complete filing records.

Table 1: *Mean differences by likelihood to pay, 2017–2022*

	Declared, not paid		Declared and paid		
	Mean	Obs	Mean	Obs	Difference
Large	0.04	4437	0.07	22349	–0.04***
Large/Medium	0.04	4437	0.08	22349	–0.04***
Medium	0.13	4437	0.16	22349	–0.03***
Micro	0.35	4437	0.26	22349	0.09***
Small	0.44	4437	0.42	22349	0.02**
Young	0.20	5146	0.25	23137	–0.05***
Urban	0.75	5310	0.80	23667	–0.05***
Hhohho	0.40	5122	0.41	22967	–0.01
Lubombo	0.11	5122	0.07	22967	0.04***
Manzini	0.44	5122	0.45	22967	–0.01
Shiselweni	0.05	5122	0.07	22967	–0.02***
Primary	0.08	5146	0.05	23137	0.03***
Secondary	0.19	5146	0.16	23137	0.03***
Tertiary	0.73	5146	0.79	23137	–0.06***
Filed late	0.54	5310	0.51	23667	0.02***
Provisional retrurn	0.45	5310	0.61	23667	–0.16***
Complete filing	0.18	5310	0.35	23667	–0.17***
N	28977				

Source: *ERS returns and payments data*

[1] T-test tables for the other outcomes are omitted for the sake of brevity and are available upon request.

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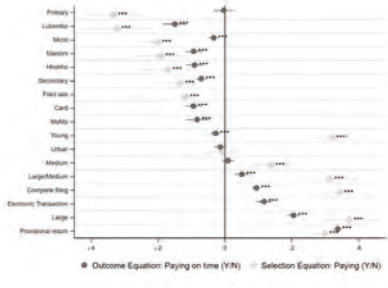
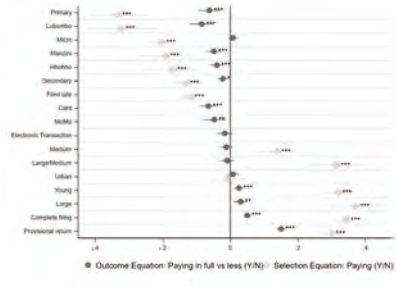
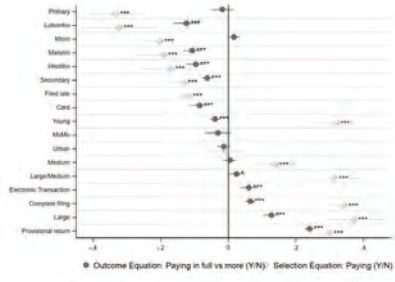
The results from the Heckman selection model, plotted in Figure 7, further support these patterns. We first consider the selection equation, inspecting the drivers of payment compliance at the extensive margin, and reported in more transparent tones across the graphs. Key results emerge: (1) firm size strongly correlates with compliance – compared to small firms, large firms are 37% more likely to pay, while micro firms are 20% less likely to do so; (2) filing behaviour matters, with complete filing profiles and provisional tax payments increasing payment likelihood by 34% and 30%, respectively, while late filing reduces it by nearly 12%; (3) sectoral and regional differences persist, with the primary and secondary sectors and districts like Lubombo, Manzini and Hhohho showing lower compliance than the tertiary sector and Shiselweni.



(a) probability of paying on-time



(b) probability of paying in full vs less



(c) probability of paying in full vs more

Figure 7: *Correlates with tax payment compliance – Heckman two-step selection model*

After controlling for sample selection, the likelihood of paying on time (Figure 7a) also correlates significantly with firm size, filing behaviour, sector and location. Larger firms have a 23% higher probability of on-time payment, approximately 50% of the outcome average. Provisional return payments exhibit the largest effect size. Electronic transactions

improve on-time payments compared to cash, while card and mobile money methods surprisingly underperform relative to cash.

Figures 7b and 7c show probit results for full repayment accuracy, distinguishing between under- and overpayments. Correct filing behaviour is associated with higher payment accuracy, reducing both under- and overpayments. Large firms demonstrate more accurate repayments than smaller ones. Payment methods also affect accuracy: card payments correlate negatively with full repayment accuracy, while electronic payments reduce overpayment likelihood, but not underpayments.

VI CONCLUSIONS AND POLICY RECOMMENDATIONS

This study examines factors influencing compliance with CIT payments. Key taxpayer characteristics analysed include sector, district, firm size, payment mode and filing practices. The study finds that larger firms are more likely to meet tax obligations than smaller businesses, likely due to greater resources and internal compliance capacity. Smaller companies often face penalties for late payments, leading to a higher incidence of overpayment compared to larger firms. Sectoral analysis reveals high compliance in the tertiary sector, particularly in finance, information and communication, and real estate, where fewer, larger firms contribute to overall compliance rates.

Electronic payments were associated with higher compliance, suggesting that remote payment options facilitate timely and complete submissions. In contrast, cash and card payments – requiring in-person interactions – were linked to lower compliance rates. Newly registered taxpayers (within three years) showed higher compliance in paying post-filing but underperformed in timely, full payments compared to experienced taxpayers. Additionally, taxpayers who filed late were less likely to pay their liabilities on time, highlighting the importance of timely filing for compliance. Those who completed two provisional returns and one annual return were the most compliant in their payment behaviour.

The findings suggest several policy and administrative steps for ERS and other African tax administrations to improve CIT compliance. First, while larger taxpayers are routinely monitored, smaller taxpayers require additional support and simplified processes to ease compliance. Given that smaller firms make up a large portion of taxpayers, the ERS should continue to develop strategies that reduce compliance burdens and foster voluntary compliance. The recent introduction of the presumptive tax regime, effective from July 2024, is a positive development in this regard, as it simplifies tax liability calculations for small businesses, potentially boosting their compliance rates without requiring expert support.

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Second, the presumptive tax regime may help to address compliance disparities among sectors. Sectors dominated by smaller firms, which currently show lower compliance rates, could benefit from targeted initiatives aimed at improving compliance. Sector-specific strategies and a better understanding of business life cycles could also assist, as younger firms tend to struggle with timely payments compared to established firms.

Third, the ERS should invest in proactive measures to enhance voluntary compliance, such as training programmes to increase taxpayers' awareness of their tax obligations. Clear, simple communication can nudge compliance, as shown by a study of Eswatini taxpayers where filing rates increased after taxpayer reminders (Santoro, 2024). Strengthening communication could also ensure that late-filers, who are likelier to pay following reminders, become consistent on-time filers.

Finally, the ERS should address the high volume of nil returns, which made up 63% of total returns in this study. Investigating these cases could clarify whether non-filers are inactive or need further compliance interventions. Enabling a portion of nil-filers to report positive liabilities could, in turn, significantly improve tax payment collection.

APPENDIX

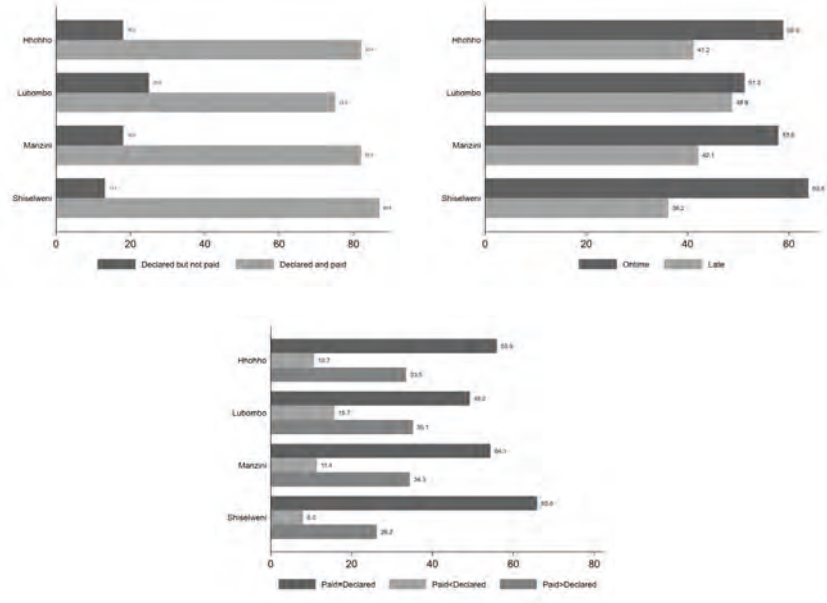

Figure A1: *Tax payment compliance by district, 2017–2022*

Source: *ERS returns and payments data*

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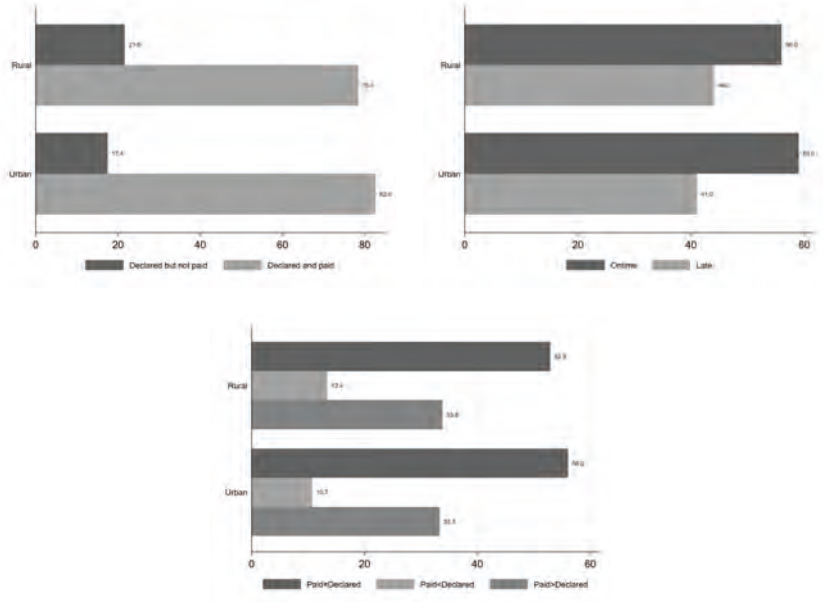

Figure A2: *Tax payment compliance by urbanicity, 2017–2022*

Source: *ERS returns and payments data*

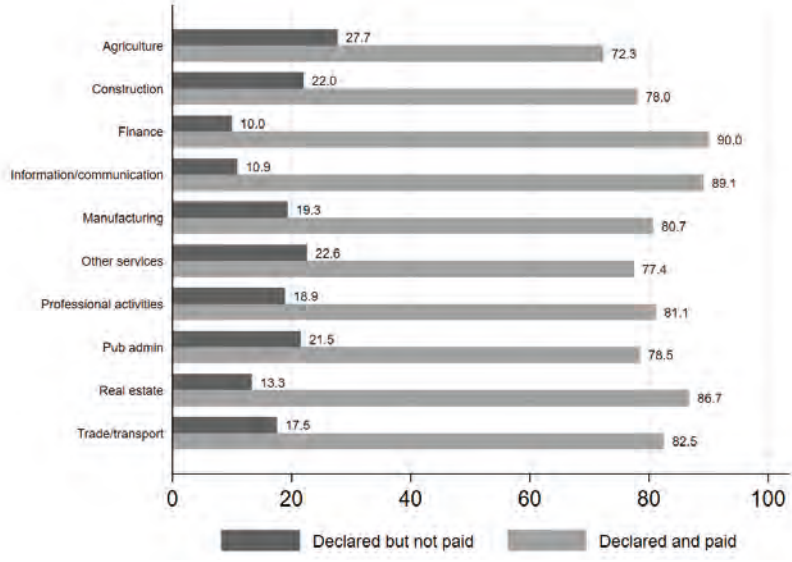

Figure A3: *Tax payment compliance by sector, 2017–2022*

Source: *ERS returns and payments data*

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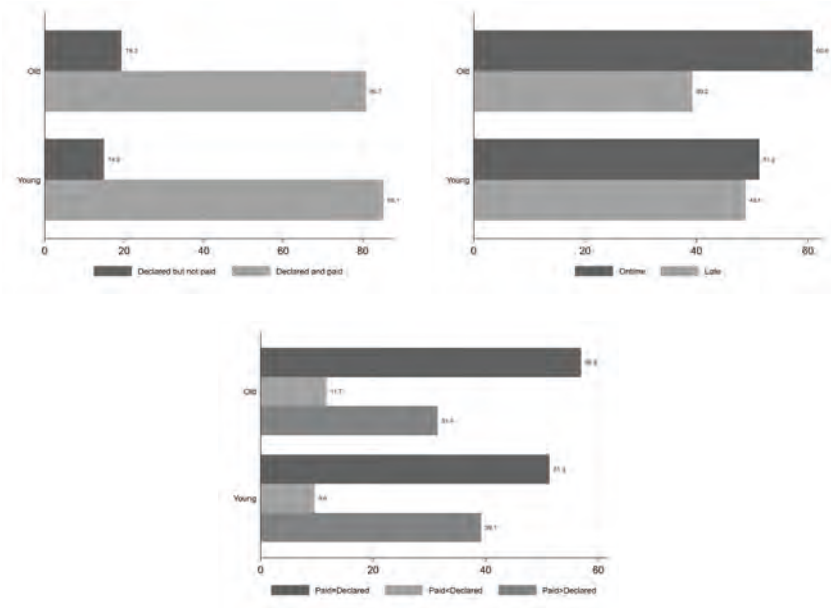

Figure A4: *Tax payment compliance by business experience, 2017–2022*

Source: *ERS returns and payments data*

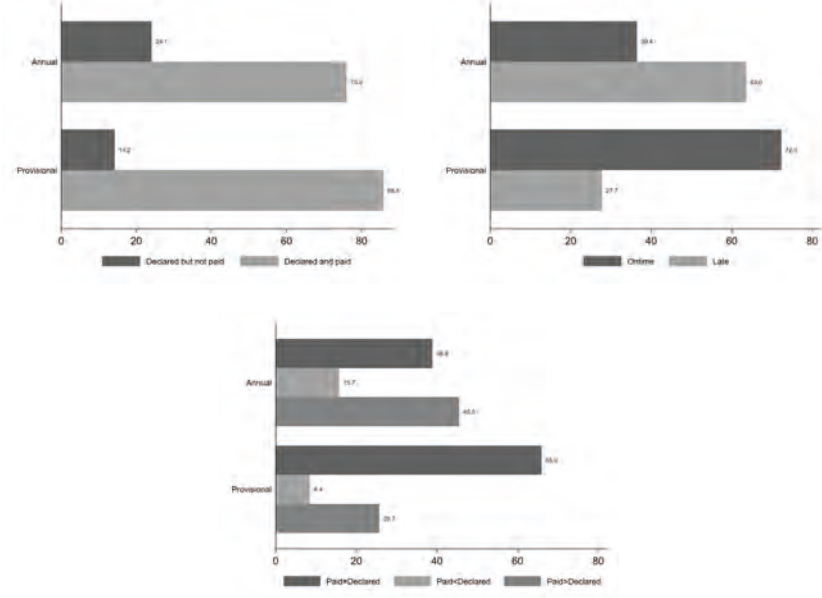

Figure A5: *Tax payment compliance by return type, 2017–2022*

Source: *ERS returns and payments data*

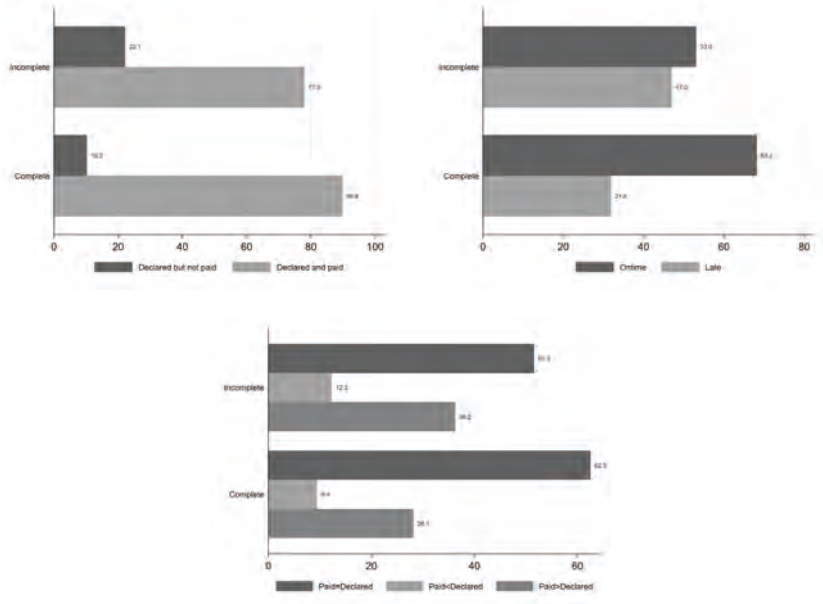

Figure A6: *Tax payment compliance by tax filing completeness, 2017–2022*

Source: *ERS returns and payments data*

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