Exploring the Potential Incidence of Corporate Income Tax in South Africa

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Abstract

The prevailing thinking amongst policymakers, researchers and the public has been that the burden of corporate income taxation has been borne by capital. As a result of this, there has been insufficient investigation into the passthrough mechanisms of corporate income taxation, particularly in the developing world. However, in recent years there has been an increasing amount of research being conducted, particularly from the developed world, that argues that a significant proportion of the burden of corporate income taxation is borne by labour. There is reason to believe that this is also the case in South Africa. I describe the equity outcomes for the South African tax system given passthrough of the corporate income tax onto labour. This suggests that if there is passthrough of the CIT onto labour, this would reduce the progressivity of South Africa's direct taxes. This suggests that the design and rate at which the corporate income tax is set must be considered through the lens of potential passthrough and that the corporate income tax may be reducing the degree to which South Africa's tax system is progressive and redistributive.

1. Introduction

Corporate Income Tax (CIT), a tax on the profits accrued by a corporation, is a prominent feature of most tax systems around the world. This is especially true in developing countries, where the corporate income tax is a significant source of revenue and where small tax bases result in a growing reliance on the revenue accrued from the CIT (Gordon and Li, 2009; Enache, 2023). In South Africa, CIT accounts for the third largest contribution to total tax revenue, amounting to R303 billion in 2024/2025, or 16.26% of the country's total tax revenue (SARS, 2024). CIT is, therefore, an important part of South Africa's tax system and provides a large contribution towards the country's expenditure. Moreover, Africa is the continent with the highest continental average statutory CIT rate (Bray, 2021). The scale and importance of the CIT highlights the importance of understanding its functioning.

Given the importance of CIT, there are many studies about the economic effects and the political economy of the CIT (Arlen and Weiss, 1995; Markle and Shackelford, 2012; Goolsbee, 2004; Armstrong et al, 2019). For instance, Markle and Shackleford (2012) discuss the corporate taxation of multinationals, finding that the location of the parent company of a multinational has a significant effect on the effective corporate tax burden facing the multinational. Along with this, Arlen, and Weiss (1995) discuss the political justifications of the CIT. Furthermore, Goolsbee (2004) discusses the impact of corporate taxation on firm decision making around organisation form. Further, Armstrong et al (2019) examine the interactions between firms regarding corporate tax planning. Despite this breadth of research, there is significantly less research on the incidence of the CIT. In seminal work, Harberger (1962) arrives at the conclusion that CIT has a 100% passthrough onto capital. This finding informs much of the subsequent research into the incidence of CIT (Gravelle, 2011). Along with this, the findings in Harberger (1962) have informed the tax policy decision-making of policymakers around the world. For instance, the United States Department of Treasury and the Congressional Budget Office accept the Harberger (1962) view of 100% passthrough onto capital and use this principle to inform tax policy and understand the equity of the tax system (Alison Felix, 2009). Further evidence of this can be found in that policymakers are concerned with double taxation of dividends with regards to the CIT (Black; et al, 2015). The incidence of the CIT is also infrequently discussed in analyses of the equity of tax systems, including in South Africa, as evidenced by Inchauste et al (2015). This implies that it is taken for granted that the CIT burden falls onto capital. This, however, may not be the case. The burden of the CIT could be borne by labour, capital, consumers, landowners, or shared between the four.

As such, there is a growing amount of contemporary literature which is re-examining the findings in Harberger (1962) and examining the incidence of the CIT theoretically and empirically. Perhaps the most prominent example of this is Fuest et al (2018). Here, the authors find that there is a 51% passthrough of the CIT burden onto labour. Along with this, this passthrough loads more heavily on low-skilled workers, women, and young people. Studying the United States, Suárez Serrato and Zidar (2016) show there to be a passthrough of the burden onto labour of between 30% and 35%. The authors suggest that such a passthrough is likely to make the corporate tax regressive in the country. Similarly, Arulampalam et al (2012) use nine European Union countries to estimate the passthrough of the CIT. Here, the authors find that there is a passthrough of 49% of the CIT burden onto labour. While most of this contemporary literature has focussed on the developed world,

Ayentimi and Osei-Yaw (2013) explore the CIT burden in Ghana. The authors find a passthrough of the burden onto labour in the country. Along with this, they find that the passthrough is perpetuated by conditions of high unemployment. This should be concerning to policymakers given South Africa's high rate of unemployment in comparison to the rest of the world.

Despite this, there is no research studying the passthrough of the CIT burden onto labour in South Africa. This is likely due to the pervasiveness of the view that 100% of the CIT burden is borne by capital. Along with this, there are data availability issues which undermine the possibility of effectively investigating this. There is a lack of dividends and share-holding data in South Africa, particularly that is matched with income data. This lack of availability makes it difficult to measure the size of the CIT burden shares in the country. Along with this, much of the research investigating the passthrough of the incidence onto labour has exploited differing CIT rates across territories, such as states in the United States. This is not possible in South Africa due to the CIT rate applying across the entire country. It is, however, particularly important to understand the equity outcomes of South Africa's tax system. This is evidenced by the high rates of inequality in the country. South Africa has one of the highest rates of inequality in the world, with a Gini coefficient of 0.63 (World Bank, 2023). If there is passthrough of the burden of the CIT onto labour in South Africa, this is likely to reduce the progressivity of South Africa's direct taxation system which would in turn, reduce the inequality alleviating power of direct taxes. This underlies the importance of building a greater understanding of the equity outcomes associated with the CIT in South Africa.

In this thesis, I contribute to the growing body of literature across the globe exploring the equity outcomes associated with the CIT, in particular, the passthrough of the CIT onto labour. In order to do so, I follow the approach of Piketty and Saez (2007) and Fuest et al (2018) to examine the equity effects of potential passthrough of the CIT onto wages in South Africa. I calculate the mean effective total income tax rates for different groups of the South African income distribution, given differing assumptions regarding the incidence of the CIT, using administrative tax data for South Africa. Here, I find that a 50% passthrough of the CIT incidence onto labour is associated with a mean effective CIT rate of 2.09% for the bottom 90% of the South African income distribution. This implies a mean effective total income tax rate of 6.17%, which is 51% higher than the rate this group faces if there is no passthrough onto labour. The relatively conservative estimate of a 25% passthrough of the CIT onto labour is associated with a 26% increase in the mean effective total income tax rate facing this group. Along with this, when disaggregating the South African income distribution into deciles, I find that the mean effective CIT rates on wages fall as incomes rise under any assumption of the passthrough. This is evidence of significant equity implications associated with the potential passthrough of the CIT in South Africa. While I am unable to estimate the exact incidence or passthrough of the CIT, I argue that given the extent of monopsony power in the labour market in South Africa and the prominent role of unions and unemployment in firm power, a significant passthrough of the CIT onto labour is likely and that the equity effects of this may be exacerbated for low-income and rural South Africans. This should be concerning to policymakers. There is a growing body of literature suggesting that there is a passthrough onto labour. Along with this, the conditions present in South Africa may enhance the chances that there is burden shifting. Therefore, these findings suggest further research into the equity outcomes associated with the CIT in South Africa. This includes an estimation of the burden

shares and whether there are sectors or types of firms where passthrough is particularly pervasive.

This thesis is structured as follows. In Chapter 2, I conduct a literature review. I begin by describing CIT, this includes CIT design, features of the CIT in South Africa, and an overview of CIT around the world. I follow this with a discussion around equity. Here, I explain the theory around tax equity, discuss the seminal research into CIT incidence, and explore the contemporary research regarding the passthrough of the CIT burden onto labour. I conclude the literature review by discussing the conditions in South Africa. I discuss South Africa's tax system and inequality. In Chapter 3, I engage in my analysis. Here, I discuss my data, my methodology, and my results. In Chapter 4, I discuss the likelihood of passthrough of the burden of the CIT onto labour in South Africa. I do so through a discussion of monopsony power in the labour market and the role of unions and unemployment in South Africa. Finally, in Chapter 5, I discuss the opportunities for further research that emerge out of my research.

2. Literature Review

2.1. What is the Corporate Income Tax?

Corporate or company income taxes (CIT) are a prominent feature of tax systems (DTC, 2018). Company income is taxed separately from other forms of income in most countries. (Black; et al, 2015). The taxable income of a firm is defined as the difference between a firm's revenue and a firm's costs. Thus, firms are taxed on their profits. However, there are caveats to the calculation of a firm's costs or expenses. That is, interest payments can be deducted while dividends cannot. Along with this, firms can deduct the depreciation of their assets (Black; et al, 2015). Therefore, the firm faces a tax burden that is equal to the statutory rate of the tax as a percentage of the profit accrued by the firm. In South Africa, firms can carry their assessed losses forward indefinitely (DTC, 2018). Therefore, a firm that accrued a profit in a given year may still be in a position of an assessed loss if the profit is not able to overcome the historical assessed loss. Along with this, firms cannot transfer losses to other firms (DTC, 2018). CIT is levied against corporations on their income as taxpayers in their own right (Jensen; Mathur, 2011). However, corporations are an amalgamation of shareholders, workers, and consumers. For this reason, central to the discussion of CIT is the question of how the tax burden is shared.

The treatment of corporations as legal entities leads to a concern over the potential for double taxation. This is the scenario where the company is first taxed on its income, and then the shareholders are taxed again on the same income once dividends are issued by the corporation. Black et al (2015) discuss the approaches that policymakers use to address this perceived issue. On either end of the spectrum of responses are the 'classical system' and the 'full imputation system'. The 'classical system' treats the company as an entirely separate entity from its shareholders. Under this regime, there is no relief against potential double taxation, with company income taxed followed by shareholders being taxed on their dividends, with no relief available. The negative behavioural implications associated with perceived double taxation have led to a general abandonment of outright 'classical systems' globally (DTC, 2018). Conversely, 'full imputation systems' permit the entirety of the tax paid on the company's distributed profits to be credited against a shareholder's income tax liability, thereby removing any possibility of double taxation. Alternatively, there are several potential modifications to these systems, including a partial 'imputation system' where a dividend-bearing individual receives an income tax credit equivalent to the corporation tax already paid. This results in an individual being required to pay only the difference between the corporate income tax rate and their personal income tax rate.

CIT accounts for the third largest contribution to South Africa's total tax revenue, representing 20.6% of accrued revenue in the 2022/2023 fiscal year (SARS, 2023). This percentage has increased from 15.9% in 2019/2020 but remains significantly lower than the peak of 26.7% reached prior to the global financial crisis of 2009 (SARS, 2023). Thus, the CIT plays an essential role in revenue generation in South Africa. The rate at which the CIT is levied varies from country to country. Before the 2022 tax year, the CIT rate in South Africa was set at 28% (SARS, 2023). This rate has now been reduced to 27% for assessment years ending after 31 March 2023 (SARS, 2023). Additionally, Small Business Corporations (SBCs) are subject to alternative taxation due to their importance for economic growth and job creation (Black; et al, 2015). Companies qualify to be taxed as SBCs if they meet criteria, including having a gross income

not exceeding R20 million (SARS, 2023). SBCs are subject to a bracketed progressive tax schedule that results in a significantly reduced effective tax rate. Along with this, mining companies are distinguished from non-mining companies in South Africa and face a different CIT system (Black; et al, 2015). The turnover tax is a tax in South Africa that aims to make it simpler for small businesses to meet tax obligations (SARS, 2022). The tax is available to firms with an annual turnover of R1 million or less and is applied on turnover rather than profit (SARS, 2022). These firms are subject to a bracketed tax schedule with rates of 0%, 1%, 2%, and 3% (SARS, 2022). Overall, there are 3.9 million companies registered for CIT in South Africa; however, only 432 large companies account for 67.1% of the revenue accrued from CIT (SARS, 2023), highlighting the concentration of South Africa's economy and tax base.

Between 1950 and 1990 South Africa's CIT structure took the form of many different orientations of the 'classical system' (Tredoux and van der Linde, 2021). During this period, the tax system viewed the company to be wholly separate from the shareholders. From 1990, the country transitioned towards a hybrid system which aims to eliminate double taxation (Tredoux and van der Linde, 2021). South Africa introduced the dividend withholding tax in 2012, where dividends are not subject to normal income tax but are rather subject to 20% tax once they are received by shareholders (Tredoux and van der Linde, 2021; DTC, 2018) The purpose of this tax is to make the CIT commensurate with marginal individual tax rates, with the combined CIT and dividend withholding tax rates amounting to 42.4% in 2018 (DTC, 2018).

Statutory CIT rates worldwide have consistently decreased since the 1980s, falling from a global average of 40.11% in 1980 to 23.54% in 2021 (Bray, 2021; Enache, 2023). This reflects a changing perception of the outcomes associated with higher CIT rates and a transition to more efficient types of taxation (Enache, 2023). However, the overall decline in CIT rates globally is slowing due to an increasing reliance on the CIT's revenue (Enache, 2023). Along with this, the revenue accrued from the CIT is more important to developing countries (Gordon and Li, 2009). CIT accounts for 19.3% of tax revenue in developing countries compared to 9.7% in developed countries (Gordon and Li, 2009). Figure 1 displays the statutory CIT rates of countries and territories around the world. Here, it can be noted that CIT rates vary across the world. The highest regional average statutory rate is found in Africa, with an average rate of 27.97% (Bray, 2021). Figure 1 displays this; it can be noted that there is a concentration of countries in Africa with a statutory CIT rate of greater than 30%. In contrast, the average rate for the 27 European Union nations is 21.30% (Bray, 2021). Figure 1 displays the varying nature of CIT rates in Europe. Poland and Portugal have CIT rates that are greater than 30%, while there are rates of less than 15% in the Republic of Ireland and Hungary, amongst others. This indicates significant regional variation in the rate at which CIT is imposed.

There is significant variation in how countries around the world engage with the perceived issue of double taxation. The 'full imputation system' is present in both Australia and Germany (DTC, 2018). In these countries, therefore, dividends are not taxed beyond being taxed through CIT. The United States of America makes use of a shareholder relief system, allowing for dividend exclusion, credit, or reduced tax rates for shareholders (DTC, 2018). Along with this, in 2021 India returned to an adjusted 'classical system' (Tredoux and van der Linde, 2021). This suggests a significant range of ideas around the design and collection of CIT around the

world. Along with this, the relevance of such tools regarding double taxation may rely on outdated assumptions around CIT incidence.

2.2. Equity, Incidence, and Taxation

2.2.1. **Theory**

Taxes are imposed on three potential tax bases. These tax bases are income, wealth, and consumption (Black; et al, 2015). When referring to equity in the context of tax policy, the word refers to a notion of fairness (Infanti, 2008). Equity is considered to be one of the properties of a 'good' tax (Black; et al, 2015). For this reason, the term requires a sense of subjectivity and implies a positive connotation. This relies on an acceptance of the notion that central to our conception of fairness of the tax system is distributive justice (Repetti, 2008). The equity of the tax system refers to the comparison between the tax base and the tax rate (Black; et al, 2015).

The principle of equity requires value judgements. Black et al (2015) outline the principles that may underpin these value judgements. The benefit principle is the first of these principles. This principle suggests that the tax burden should be applied in line with the receipt of benefits. A toll road is an example of this. The people who use the road more often pay a greater amount towards the maintenance of the road. There are several issues with this principle. It cannot be applied to all government spending as many of the public goods that governments provide do not have easily identifiable benefit apportioning. Along with this, this cannot provide for a redistributive fiscal policy because the distribution would likely be skewed towards the wealthy.

Black et al. (2015) discuss a second principle: the ability-to-pay principle. This principle overcomes the issues of public good financing and allows for a redistributive expenditure program. The ability-to-pay principle separates the tax collection from the tax expenditure. This principle results in two types of equity, namely horizontal equity, and vertical equity. Horizontal equity refers to the treatment of people with the same incomes (Infanti, 2008). Vertical equity refers to the treatment of people with different incomes (Infanti, 2008). Along with this, income is not a perfect measure of the ability-to-pay and the satisfaction of the principle may require some subjectivity over fairness. Vertical equity is generally addressed through progressive taxation systems.

The incidence of the tax defines the equity of a tax. Black et al (2015) discuss the concepts and measurements of incidence. A tax being collected implies that a person is paying it, and this person bears a burden of the tax. For instance, companies cannot bear the tax burden of the CIT, the burden must be held by people. The statutory incidence is the legal incidence of a tax. However, this does not account for who is actually paying the tax. The economic incidence of a tax focuses on who the burden falls on. That is, consumers in a grocery store do not pay VAT directly to SARS, however they do hold some, or all, of the burden of the VAT. Rather, this burden falls onto consumers through higher prices. Understanding the incidence of any given tax is a difficult endeavour. For instance, considerations can include how the economy responds to a tax rate change. Along with this, it may be necessary to account for both the distributional effects of the tax being levied and the distributional effects of the

spending that it finances. However, most government spending is not a result of an earmarked tax. Thus, this is difficult to account for. Along with this, different measurement techniques account for a different magnitude of effects. For instance, it may be necessary to account for the secondary effects of a tax.

A theory of selfishness may imply that only those who benefit from a progressive tax system are likely to support it (Doerrenberg and Peichl, 2013). That is, only those who achieve a net gain from a progressive tax system would be in favour of it, while individuals who are net contributors would not be. However, this is not the case. Income is a poor predictor of support for progressive taxation, and a progressive tax system is the preferred system for most people in democratic countries (Doerrenberg and Peichl, 2013). This may be because of several reasons. This includes a conception of fairness and a desire for reduced inequality (Musgrave and Slemrod, 1994). Beyond this, progressive taxation may reduce instability. It may allow for greater countercyclical fiscal policy, induce more saving, and provide for inequality alleviating social programs (Rao and Weller, 2010). All such outcomes lead to a reduction in instability. Along with this, as a tax system becomes more progressive, tax morale tends to increase (Doerrenberg and Peichl, 2013). In turn, this can be associated with greater tax compliance (Doerrenberg and Peichl, 2013). This suggests that a more progressive tax system may be associated with a reduction in tax evasion. Therefore, progressive taxation has the potential to address fairness concerns and may address some of the social ills associated with it.

For this reason, it is particularly important to consider the incidence of corporate income taxation. Consider a simple accounting principle: when corporate income taxes rise, there must either be reductions in payments to shareholders, lower wages, or an increase in consumer prices (Baker et al., 2020). Any of these options, and the endless scenarios in which any combination of the three in any ratio bear the burden of the tax, can result in significantly different implications for the progressivity of the tax. As a result of the importance of the CIT around the world, there has been significant amounts of scholarship regarding the CIT covering a wide breadth of topics (Markle and Shackelford, 2012; Arlen and Weiss, 1995; Goolsbee, 2004; Armstrong et al, 2019). Markle and Shackelford (2012) discuss the relationship that location has with effective corporate tax burdens. The authors find that the location of the parent company has a significant effect on the effective corporate tax burden a multinational company faces, while the location of subsidiary companies has an insignificant impact. Along with this, they find that companies domiciled in tax havens experience the lowest effective CIT rates, while those domiciled in Japan and the United States face the highest. Alternatively, Arlen and Weiss (1995) discuss the political economy of the CIT. The authors discuss the justifications, causes, and continued popularity of CIT. Here, the authors argue that the CIT persists due to the presence of a gap between the management and the ownership of companies. Goolsbee (2004) shows that corporate taxes have an impact on the organisational form of firms. The author proves that firms respond to the relative levels of personal and corporate income taxes through decision making around the organisational form of the firm. Along with this, Armstrong et al (2019) further discuss firm behaviour in response to corporate taxation. The authors show that the tax planning of competitor firms is an important determinant of a firms' corporate tax planning. However, despite this breadth of literature, there has been insufficient empirical and theoretical research into the mechanisms of passthrough of the CIT across the world, both in how progressive it is and how its differing design features may impact its progressivity.

The seminal research into CIT incidence is Harberger (1962). This provides the first formal model of corporate tax incidence (Gale and Thorpe, 2022). Harberger concludes that in a closed economy, the burden of CIT falls in full, or near to in full, on capital (Harberger, 1962). This finding has informed much of the thought regarding the tax's burden around the world and has served as a consensus amongst policy makers and researchers since its release (Gravelle, 2011). For instance, the Department of Treasury and the Congressional Budget Office both continue to accept Harberger's conclusion when analysing the distributional effects of the tax system in the United States (Alison Felix, 2009).

Harberger's model has many important features. It is a general equilibrium closed economy model with two sectors, namely the corporate and non-corporate sectors. Each sector provides a distinct good, and there is labour and capital mobility between sectors. Corporate taxes are imposed on all of the capital in the corporate sector, and it is assumed that there is normal return for all capital in both the corporate and non-corporate sectors (Gale and Thorpe, 2022). Under these assumptions, Harberger arrives at the result of the burden of CIT being borne by capital. The mechanism of this is that an increase to the tax results in a reduction in the returns to capital in the corporate sector, driving mobile capital to the non-corporate sector (Gale and Thorpe, 2022). This results in a reduction in the returns to capital in the non-corporate sector and raises the after-tax returns to capital in the corporate sector until the returns reach equilibrium at a rate which is lower than the rate that was present prior to the imposition of the tax increase (Gale and Thorpe, 2022). In this case, labour is able to move between the corporate sector and the non-corporate sector and can ensure wages are maintained (Gale and Thorpe, 2022). There are several relevant concerns with this model. The assumption of a closed economy is perhaps the most damaging concern. Relaxing this assumption requires acknowledgement of capital being thought to be more internationally mobile than labour (Gale and Thorpe, 2022). This would likely result in an increase in the amount of the burden which is borne by labour under the Harberger model. It is necessary to challenge this closed economy assumption due to how the world has changed, particularly since Harberger created this model in 1962. Free trade agreements and globalisation have transformed the global economy in the decades since the model was created (Jensen and Mathur, 2011). Much of the other seminal work regarding CIT incidence has been in reference to Harberger's work, as is best shown in Auerbach (2006).

Auerbach (2006) reviews the pre-eminent thought in CIT incidence. Here, it can be noted that the issue of CIT incidence remains unresolved by economics. Auerbach (2006) points out that there is yet to be certainty regarding the progressivity of the CIT despite many policymakers taking it for granted. Much of the work surrounding Harberger's findings has been interrogating his assumptions, in turn allowing for the questioning of the validity of Harberger's conclusion. However, this research does not amount to an alternate conclusion regarding the incidence of CIT.

2.2.2. **Empirical Findings**

However, in recent years economists have begun theoretically and empirically exploring the validity of the view that the entirety of the burden of CIT is borne by capital. Many researchers claim that significant proportions of the burden are being held by labour. Fuest et al (2018) is

perhaps the most notable example of this. The authors exploit differential local corporate tax rates in different German municipalities as an identification strategy. That is, the local business tax rate in Germany is set by municipal governments and it is possible to exploit the differences in local business tax rates to understand the effects of increases to CIT, particularly on wages. The authors find that workers in Germany bear around 51% of the burden of CIT. This accounts for more than half of the burden of the CIT, which has significant ramifications on the progressivity of the tax. Notably, the authors also find that there are stronger wage effects for low-skilled workers, women, and the youth, while high-skilled workers bear none of the burden of corporate taxation. This is, of course, a significant finding. If this is also the case in South Africa that would suggest that CIT is particularly regressive and policy makers should be thoughtful about increases to the rate of the tax if they are concerned about progressivity.

Furthermore, Arulampalam et al (2012) use data from nine European Union countries in the period between 1996 and 2003 to estimate the wage effects of CIT. They find that near 50% of the exogenous increase in CIT is passed onto labour through lower wages in the long run. Along with this, beyond these direct effects they hypothesise that it is likely that there are additional indirect effects which impact labour. These indirect effects could be reduced investment or increased commodity prices, for instance. This acts as further evidence of the passthrough of the burden of CIT onto labour in different parts of the world. This contributes to a view that it is worth exploring the incidence of the CIT in South Africa further.

Suárez Serrato and Zidar (2016) exploit the differential CIT rates in different states of the United States of America in one of the most prominent contemporary papers researching the incidence of the CIT. The authors compare counties with differential rates to estimate the incidence of CIT. Their methodology allows them to estimate proportions of the incidence borne by firm owners, labour, and landowners. Firstly, however, their findings reject the potential notion that the entirety of the burden falls onto labour in the United States. The authors can reject this hypothesis outright despite its growing prominence in contemporary research. Suárez Serrato and Zidar (2016) find that the owners of firms bear around 40% of the incidence of CIT in the United States of America, and labour bears between 30% and 35% of the incidence. Along with this, they suggest that landowners bear between 25% and 30% of the burden. Thus, their conclusion suggests the proportion that is shifted onto labour is not insignificant and may still amount to a regressive tax in the United States despite the largest proportion of the incidence falling onto capital.

While much of the contemporary literature regarding CIT incidence has focussed on the developing world, Ayentimi and Osei-Yaw (2013) explore whether the burden of CIT is borne by labour in Ghana. They discover, empirically, that there is backward shifting of the burden of the CIT in Ghana onto labour. This backward shifting in Ghana is likely through both reduced wage rates and a reduction in labour hours and is perpetuated by high unemployment. These insights from the developing world provide further evidence of the possibility of labour bearing a significant proportion of the burden of CIT in South Africa. Along with this, it is particularly concerning for the case of South Africa if the potential for shifting of the burden onto labour is perpetuated by conditions of high unemployment due to South Africa's particularly high unemployment rate relative to other countries. This suggests that the proportion of the burden that is passed onto labour may be particularly high in South Africa.

The authors were not able to find a precise or average proportion of the burden that falls onto labour despite finding evidence of backward shifting. This is in line with much of the research into CIT incidence which has failed to come to precise conclusions regarding the incidence shares.

There are other mechanisms in which welfare can be affected beyond direct passthrough onto labour, most notably through a potential passthrough onto consumers. Jacob et al. (2023) find that higher local business taxes are associated with increases in consumer prices, exploiting the same features of the German local business tax system that Fuest et al. (2018) use. This is an important finding for the possible progressivity of the tax. Higher consumer prices contribute towards making the tax more regressive.

Institutional and behavioural features in a country affect the degree to which CIT incidence is passed onto labour. Labour market institutions are particularly important to the incidence of CIT on wages (Fuest; et al, 2018). This is particularly important for policymakers. It may be the case that the environment ultimately decides whether CIT is progressive, and policymakers should be aware of the features of the environment that impact the tax's progressivity. For instance, it is plausible that union participation rates may have an effect on the size of the passthrough onto labour, as collective bargaining is likely to reduce a wage effect. Along with this, employment protection is also likely to reduce passthrough due to job protection preventing effects associated with reducing the size of the workforce. On the other hand, conditions of high unemployment may increase the potential for passthrough onto labour. Therefore, the dynamics present in South Africa could be leading to many different outcomes regarding what the passthrough of the CIT onto labour could be.

There remains no consensus on how the incidence of CIT is apportioned and whether the tax is inequality enhancing despite the growing body of contemporary research suggesting significant proportions of the burden of CIT falling onto labour. Nallareddy et al (2022) find that cuts to the CIT rate lead to increases in income inequality in the short term despite the contemporary passthrough research. However, this may not be the case in the medium to long term. The rewards to owners of firms are immediate once the tax is cut, however, there may be potential benefits to labour that only emerge later (Nallareddy; et al, 2022). Therefore, it is possible that while corporate tax cuts are inequality enhancing in the short term, they may have neutral or reducing effects on inequality in the medium to long term.

2.3. South Africa: Taxation and Inequality

It is important to understand the nature of South Africa's tax system when discussing the CIT. The '2024 Budget Report' released by National Treasury (2024) displays many of the features and statistics associated with South Africa's tax system. The South African government makes use of the tax system for the purposes of revenue raising and to attempt to ensure the goals of economic growth and employment growth are met. Along with this, South Africa has an economy defined by high rates of inequality relative to other countries. A small tax base relative to other countries results in further challenges for tax policy. As such, South Africa relies on progressive direct taxation. South Africa collects a large amount of tax revenue as a percentage of GDP, amounting to 25% in 2024, compared to the global average of 14.3%

(World Bank, 2022). This amounts to a gross tax revenue of R 1,863 billion in 2024/2025. This has risen to this level through year-on-year growth from a level of R1,250 billion in 2020/2021.

Along with this, National Treasury (2024) goes on to describe the PIT in South Africa in 2024/2025 and prior. The PIT is piecewise linear and progressive, with a top marginal income tax rate of 45%. In 2024/2025 South Africa collected R739 billion in revenue from the PIT making up the largest share of the country's tax revenue. This, too has risen year-on-year, having been at a level of R487 billion in 2020/2021.

National Treasury (2024) shows that VAT makes up the second largest contribution to South Africa's tax revenue. VAT is an indirect tax on the consumption of goods and services in South Africa. VAT is charged at a rate of 15%, having been increased from a rate of 14% in 2018. The tax accounts for R478 billion in tax revenue in 2024/2024. This, similarly, has grown since 2020/2021, from a total of R331 billion in that year.

Furthermore, National Treasury (2024) highlights the CIT as the third largest contribution to tax revenue in South Africa in 2024/2025. This accounts for a revenue of R303 billion in this year. This, however, has decreased compared to the revenue accrued from CIT in particular years amongst the last five years, with reported revenue from CIT of R320 billion and R345 billion in 2021/2022 and 2022/2023 respectively. However, the revenue accrued from CIT is greater in 2024/2025 than it was in 2020/2021 and 2023/2024.

The equity outcomes associated with South Africa's PIT and VAT have received significant attention. Firstly, the attempts towards ensuring progressivity of the PIT can be highlighted by the bracketing of the PIT rate (National Treasury, 2024). That is, this attempt towards progressivity can be noted in that a higher rate of taxation is applied to higher incomes. Along with this, the progressivity of the PIT in South Africa has been studied by many researchers. Nyamongo and Schoeman (2007) explore the progressivity of the tax between 1989 and 2003. The researchers find that the tax is progressive across this period through several measures, including the effective progression method, redistributive effects method, and the disproportionality technique. Furthermore, Steenekamp (2012) studies how progressive the tax is, and the trends in its degree of progressivity. The author finds that across the period between 1994 and 2011, the PIT is progressive and is of increasing importance, in its size and proportion, to the country's fiscus. However, they also find that the PIT has been falling in its progressivity across this period. Inchauste et al (2015) conduct research that is further evidence of the attention paid towards the PIT. Here, the researchers point out, once again, that the PIT is progressive in South Africa. The researchers show this through a number of measures. As a result of these conclusions, it is often claimed that South Africa's direct taxes are progressive (Steenekamp, 2012; Inchauste et al, 2015).

Along with this, potential regressivity of the VAT, and solutions to it has received significant attention. For example, Inchauste et al (2015) find that the VAT can be deemed to be slightly regressive, neutral, or even slightly progressive. Furthermore, there has been an interest towards the distributional impact of the VAT from researchers as the VAT rate was increased from 14% to 15% in 2018. Gcabo et al (2019) suggest that the increase in the VAT rate can be associated with an increase in poverty and inequality. There has also been an interest in solutions to potential regressivity of the VAT because of this focus on the regressivity of the

tax. Calitz and Jansen (2015) researched the use of zero-rating items and whether this is an effective solution to the potential regressivity of the VAT. Zero-rating is the practice of exempting items that are deemed to be essential to low-income households from the VAT. The authors argue that targeted social assistance programmes are a more effective tool to overcome the challenges associated with the VAT. This view is shared by Gcabo et al (2019). This effectively demonstrates both the state and researchers having an interest in engaging with the distributional impact of the VAT.

However, the distributional impact of the CIT in South Africa does not receive similar amounts of attention. For instance, the paper by Inchauste et al (2015) discuss the distributional impact associated with the fiscal policy of South Africa. In this paper, both direct and indirect taxes are discussed. The CIT's distributional impact is not explored despite the tax contributing the third largest contribution to South African tax revenue. Along with this, the researchers, upon discussing the progressivity of the PIT, take it for granted that direct taxes are progressive in South Africa once they have pointed out that the PIT is progressive. Similarly, there are many cases where it is taken for granted that the CIT is progressive. For instance, Steenekamp (2012) argues in their research that the progressivity of direct taxes in South Africa is constrained by what they believe to be the low rates of the CIT. This implies that the author believes that the CIT is progressive, and that its rate being higher would increase the progressivity of the South African tax system. This is in line with researchers taking it for granted that the CIT burden is on capital. Tax systems correcting for perceived double taxation is a further example of this. In South Africa, this is attempted through the dividends tax (Tredoux and van der Linde, 2021). This policy suggests that policy makers believe that the CIT is a tax on capital in South Africa.

The concerns regarding the passthrough of the CIT onto labour are particularly important to policy makers in the developing world. Axelson et al (2024) point out two major reasons for this. Firstly, weakness of institutions may provide top income earners with greater opportunities to avoid taxation. Secondly, conditions of greater, perceived, inefficiency and corruption in the public sector may increase the incentive to change behaviour in light of a tax rate change. These potential dynamics can be noted in reality. Axelson et al (2024) point out that in 2017 taxpayers significantly reduced their reported taxable income in South Africa in response to the increase to the top PIT rate from 41% to 45%. A portion of this change to reported taxable income is a change in reporting behaviour. That is, top income earners in South Africa adjust tax deduction and investment income. Along with this, there were also large reductions in different types of employment income, such as bonus payments, which can potentially be interpreted as employee-employer collusion, to divert income into non-taxable components. Along with this, post reform, South African top income earners reduced their labour supply and productivity. This suggests that top income earners in South Africa have significant behavioural responses to tax rate changes.

It is necessary to explore whether is includes the shifting of income from the income tax base to the corporate tax base. This necessity is reinforced by the understanding of the shifting of income in response to tax rate changes. That is, an increase to the CIT rate results in increases to personal income and reductions to corporate income, while an increase in the PIT rate results in increases to corporate income and reductions to personal income. This type of income shifting is both possible and can be seen to have occurred in response to reforms such as the Tax Reform Act of 1986 in the United States of America (Gordon and Slemrod, 1998).

Such shifting has significant implications. Policymakers must re-evaluate the efficiency and equity outcomes associated with changes to the tax schedule if the potential for this sort of shifting is present (Gordon and Slemrod, 1998). In the developing world, where weak enforcement reduces the efficiency of corporate taxation, the issues related to this potential income shifting may be exacerbated. Along with this, firms can reduce revenue and increase costs to reduce their taxable profit under weak enforcement mechanisms (Bachas and Soto, 2021). This could increase the scope for income shifting.

These considerations should be of the utmost importance to policymakers that are concerned with taxing high-income earners and addressing inequality in the developing world, and in South Africa in particular. Therefore, policy makers should not think of taxes in isolation and should consider income shifting when considering the equity outcomes of differing taxation schedules and the optimal rates of a given tax.

Inequality and conditions present in South Africa highlight the importance of ensuring that tax policy is equitable. Progressive tax policy cannot, in and of itself, alleviate inequality in its entirety in South Africa (Hollander; et al, 2024). However, progressive tax policy should form part of the greater fiscal policy agenda towards inequality alleviation. Along with this, the importance of avoiding regressive tax policy is highlighted by South Africa's conditions.

Inequality is important for several reasons. Primarily, inequality matters because people care about it (Saez, 2017). Fairness and the distribution of resources are things that matter to the public and can, therefore, have impacts on public satisfaction. Wealth and income act as the two economic resources that are generally the subject of inequality measurement (Saez, 2017). Lack of fairness in the distribution of these resources can be found in the role of inheritance, access to higher quality education and the role of nepotism, amongst many other things. Along with this, there are several other reasons why policymakers should be concerned about inequality. One such reason is political instability and, in extreme cases, the threat of revolution emerge from situations of high inequality (Acemoglu and Robinson, 2002). Therefore, in the interests of protecting stability, policymakers must address situations of high inequality.

Along with this, there are several other consequences of inequality. High inequality can be associated with high property crime through two major mechanisms (Neckerman and Torche, 2007). Firstly, if property crime is driven by expected returns from committing the crime, increased inequality is likely to increase the expected returns from property crime and thus lead to increased occurrences of it (Neckerman and Torche, 2007). Secondly, increased inequality is likely to relate to increased interpretations of relative deprivation, which may be related to an increase in the rate of crime (Neckerman and Torche, 2007). Along with this, it is not just property crime that may be positively correlated with inequality. Violent crime increases with income inequality (Wilkinson and Pickett, 2009:495). This is the case for several reasons, however, it is likely to primarily be a result of the entrenchment of social division through inequality. These social divisions increase as inequality increases, leading to greater economic segregation and the erosion of trust and civic participation across a society (Neckerman and Torche, 2007). These concerns should be particularly pronounced in the South African context, with the presence of continued spatial apartheid (Noble and Wright, 2016) and a policy interest in nation building (Constitution of the Republic of South Africa,

1996). In the South African context, this manifests in the difficulty for political and economic powers to effectively develop powerful coalitions in the support of developmental policy strategies (Makgetla, 2020). Furthermore, inequality contributes to an increasingly polarised political environment (Neckerman and Torche, 2007). Such polarisation may give rise to populism and may result in challenges for democracy. Along with this, rising inequality is likely to result in increases in support for redistributive policy, yet is not associated with increasing implementation of redistributive policy (Neckerman and Torche, 2007). When examined empirically, there are several further social problems associated with inequality. For instance, rates of obesity, racism and drug abuse have been found to be positively correlated with greater inequality (Wilkinson and Pickett, 2009). Along with this, educational outcomes and the well-being of children are negatively associated with the rate of inequality (Wilkinson and Pickett, 2009). These social ills are undesirable, and they could potentially result in the perpetuation of inequality. These consequences associated with inequality act as further justification for the interest in inequality alleviation in South Africa.

Milanovic (2016) describes many of the features of inequality in the contemporary era. Within-country inequality in much of the world has been rising since the early 1980s following a period of falling after the first World War. As such, technological progress and globalisation have led to a rise in income disparities. These processes saw an increasingly open economy that allowed for competition from India and China and allowed for an increase in the demand for service sector jobs, which are often highly paid. This resulted in further disparities between the rich and the poor in much of the world. Along with this, as Milanovic (2016) points out, the pro-rich policy of the post-1980s era, particularly associated with the neo-liberalism of Ronald Reagan and Margaret Thatcher has further entrenched this trend. This is important for policymakers in a country that is concerned with the negative consequences of inequality.

The conditions present in South Africa should make this particularly concerning for policymakers. South Africa suffers from one of the highest inequality levels in the world (World Bank, 2023). Along with this, the country's history of deliberate racial inequality due to Apartheid and settler colonialism makes it such that the issue of inequality is particularly prescient. Thus, concerns over the damaging effects of inequality are heightened in the South African context and the focus from policymakers on curbing inequality should be greater. In the period between 1993 and 2008, South Africa experiences increases in both mean and median real incomes across all four of the traditional racial groups in the country (Leibbrandt; et al, 2012). However, this does not describe the evolution in inequality over this period despite signifying poverty reduction in the country. When decomposing the South African income distribution into deciles, only the top 10% of earners in South Africa saw an increase in their share of total income throughout the period between 1993 and 2008. Whereas every other decile in the income distribution saw a fall in their share of total income (Leibbrandt; et al, 2012). This indicates a growth in inequality, with the richest South Africans, by income, becoming comparatively richer when compared to all other South Africans. This is further exemplified in a comparison of the growth rate of the incomes of the top income earners and the growth rate of the mean national income. In the period between 2003 and 2018 the incomes of the country's top earners continued to diverge from the remainder of earners (Bassier and Woolard, 2021). In this period, top incomes grew at around 5% per year, while the average national income grew at around 2.5% (Bassier and Woolard, 2021). This affirms the view that inequality has continued to rise in post-Apartheid South Africa. Along with this,

the Gini coefficient increased from 0.66 in 1993 to 0.7 in 2008 (Leibbrandt; et al, 2012). This, therefore, suggests a clear growth in income inequality in this period.

Wealth inequality is also particularly high in South Africa relative to other countries around the world, as is the case with income inequality. In a paper exploring the wealth distribution in SA, Chaterjee et al (2022) document this, showing that the bottom 50% of the wealth distribution in South Africa in 2017 possess negative wealth, while people between the 50th percentile and the 90th percentile have a net wealth that amounts to half of the national average. This is as opposed to the top 10% of wealth holders in South Africa in that year holding 86% of the wealth in the country. This extreme wealth inequality is perhaps best exemplified by the fact that the top 0.01% of the wealth distribution in 2017, a group made up of just 3560 individuals, hold 15% of the wealth in the country. Along with this, there are few, if any, signs of wealth inequality reduction in South Africa's democratic era.

Furthermore, labour market income accounts for 85% of South Africa's Gini coefficient in 2008, which can be found when decomposing the sources of South African inequality (Leibbrandt; et al, 2012). This suggests that the interaction between labour and corporations may be integral to understanding and addressing inequality in South Africa. Capital income grows at a rate of 10% to 15% annually while salaries and bonuses make up a greater than 80% share of the incomes of the 95th to 99th percentile of income earners (Bassier and Woolard, 2021). Along with this, capital income as a proportion of an individual's income grows across the income distribution. For instance, in 2014, capital income as a share of total income grows from 10% to 20% between the 95th and 99th percentiles of incomes before growing to near 50% for the 100th percentile (Bassier and Woolard, 2021). This implies that capital income is both growing at a significant rate year-on-year and is a likely contributor to growing inequality. Inequality of this nature is associated with several social ills in South Africa and displays a failure to redress many of the racist policies of the Apartheid era. For this reason, further research into policy that addresses South African inequality is necessary.

Policymakers face different challenges in decision making surrounding tax policy design and scope in the developing world as opposed to the developed world. State capacity and particularly the ability for the state to collect taxes is fundamental to development (Besley and Persson, 2009). Along with this, richer nations have historically had the capacity to invest in their state capacities (Besley and Persson, 2009). Therefore, poorer nations are frequently in positions of possessing lesser state capacity and have reduced scope for tax policy decision making. Therefore, investments into state capacity are of the utmost importance to countries in the developing world. An aspect of a state's capacity to collect tax revenue is the maturity of the financial sector (Gordon and Li, 2009). The state is capable of taxing firms if it is possible to make use of banking records to identify taxable income (Gordon and Li, 2009). Therefore, they require that the banking records are available to them and that firms do not have the ability to engage in disintermediation. These concerns may be more prominent in poorer countries that possess less mature banks (Gordon and Li, 2009). That is, firms have a greater scope and reason not to make use of the financial intermediaries in the country, and the banks may not possess the records required for efficient collection in countries where banks are less advanced. Along with this, where financial institutions are less developed, the value that they provide firms is diminished, and thus, the incentive to continue to use their services is reduced (Gordon and Li, 2009). For this reason, in countries with less advanced banks, the state has

less capacity to raise taxes for firms due to the risk of disintermediation. Despite the maturity of the country's financial sector, these dynamics are worthy of consideration in the South African case (IMF, 2022).

3. Analysis

3.1. Data

In this thesis, I make use of administrative tax data for South Africa that is available in the National Treasury Secure Data Facility (NT-SDF).[1] The datasets that I use are the firm-level CIT-IRP5 panel, the Income Panel, and the Employment Panel. The CIT-IRP5 firm-level panel is drawn from the records of completed IT14 and ITR14 forms (Kreuser, Gavin and Pieterse, 2016). These forms are the tax certificates of all businesses which are tax residents in South Africa. The IT14 was in place until the 4th of May 2013, and the ITR14 has been used since (Kreuser, Gavin and Pieterse, 2016). While the CIT-IRP5 panel provides important information regarding the tax liabilities of firms, it does not provide sufficient information regarding employees. For this reason, I use the individual level Income and Employment panels too. These panels include information from the IRP5 and IT3(a) forms, which an employer must issue to an employee if remuneration has been paid or has become payable (Kreuser, Gavin and Pieterse, 2016). These panels provide additional information regarding the incomes and employment of South African income earners.

For my analysis, I make use of data covering the period between 2011 and 2019. The more contemporary Income and Employment panels in the administrative tax microdata at the NT-SDF are not yet sufficient for my analysis. The data requires cleaning and merging at several different points. The three panels share firm-level CIT reference numbers, which allows me to merge the individual-level panels with the CIT-IRP5 panel. Along with this, the individual panels include individual tax reference numbers which I use for the merging of the individual level panels, and which allows for the same individual working for two different employers to be matched. Therefore, I create a panel where individuals are both matched with their employers, and the same individuals with more than one employer in a given year are matched. Once merged, I clean the panel. I remove gross incomes below R5,000 and negative taxable incomes in order to overcome reporting errors in the data. For these low and negative incomes, there is a high frequency of perceptible reporting errors which informed the decision to clean them out of the dataset. Along with this, I remove all variables other than gross income, taxable income, PIT incidence, and CIT incidence. I create these panels for each year between 2011 and 2019. In 2016, 7 168 558 respondents are accounted for in the panel.

Once I match my panels the CIT incidence data is, however, very noisy. The methodology of applying the CIT incidence a firm faces onto the firm's employees equally is an imperfect solution. For instance, it is feasible that this may result in an employee facing a CIT incidence which is greater than their income, resulting in an effective CIT incidence facing this employee of greater than 100%, and sometimes it resulted in cases of employees facing CIT incidences of greater than 1000%. For this reason, it was necessary to remove outliers in order to remove the noise from my panels. The Interquartile Range method is a method of outlier removal which overcomes data being left- or right-skewed (Patil, 2023). This method makes use of the interquartile range (IQR) of the data, the difference between the 75th (Q3) and the 25th (Q1) percentiles to identify outliers. This method creates a lower bound (Q1 – 1.5 x IQR) and an

[1] This data was accessed at National Treasury in Pretoria, South Africa. Access was attained through application to SA-TIED and UNU-WIDER, resulting in funded travel and access to the NT-SDF in September 2024.

upper bound (Q3 + 1.5 x IQR) and removes the outliers that do not fall between these two bounds (Patil, 2023). Therefore, I use this method of outlier removal to overcome the skewedness of my panels through the removal of outliers.

3.2. Methodology

In this paper, I follow the approach of Piketty and Saez (2007), and Fuest et al (2018) to examine the effects of a potential passthrough of CIT on wages. This methodology applies a corporate income tax burden onto individuals under differing assumptions of the passthrough of the CIT onto wages (Fuest; et al, 2018). That is, a portion of the tax burden that is faced by a firm is disaggregated and added to the tax burden facing the employees of that firm in shares defined by their full-time employee share. The size of the portion of the firm's tax burden that is placed on the employees is decided by the assumption regarding the passthrough of the tax burden onto wages. Put simply, if it is assumed that 50% of the incidence is on wages, half of the firm's tax burden is disaggregated and placed onto the employees of that firm. Once this is done, the entire population is then disaggregated into percentiles allowing for understanding of the potential distributional impacts of the assumed passthrough onto wages. This approach allows for the calculation of effective CIT rates for individual income earners in South Africa under differing assumptions regarding the passthrough of the CIT onto wages.

Table 1 recreates a key table from Fuest et al (2017) indicating their main findings. This table shows how different CIT incidence assumptions affect average income tax rates across the income distribution in the United States of America in 2004 and Germany in 2015. Here, the population is disaggregated into three groups: the bottom 90% of the income distribution, the top 10%, and the top 1%. The mean effective PIT rates, the mean effective CIT rates, and the mean effective total income tax rates are reported for each of these groups for three different incidence assumptions: 100% of the incidence falling onto capital; 50% falling onto capital (50% on wages); and 0% of the incidence being passed onto capital (100% on wages).

When the CIT incidence is assumed to fall entirely on capital (Panel 1), effective CIT rates in both Germany and the United States are progressive. This corresponds to the traditional view of the corporate income tax. In the opposite case where the CIT incidence falls entirely on wages (Panel 3), the effective CIT rates become regressive in both countries, with effective CIT tax rates of 0% for the top 10% and the top 1% of the income distribution and effective tax rates exceeding 2% in the bottom 90% of the income distribution. This is consistent with the fact that while labour income dominates in the lower part of the income distribution, capital income becomes more prominent as a source of income in the top decile and percentile. Even in the scenario where the CIT incidence is split equally across capital and labour (Panel 2), while taxes remain progressive in Germany, they are significantly less progressive than in Panel 1, as the effective CIT rates reduce in the top 10% and top 1% of the income distribution and rise in the bottom 90% of the income distribution. When looking at the United States, the incidence of the CIT becomes regressive in panel 2, with the effective CIT tax rates being highest in the bottom 90% of the income distribution. This highlights the importance of understanding the incidence of CIT, successfully displaying the potential equity ramifications of passthrough of the CIT incidence onto labour. This table effectively displays the scale of the unaccounted-for impact on the total effective income tax rates that are paid if it is indeed the

case that there is a notable passthrough of the CIT onto labour. For this reason, the recreation of this table within the context of South Africa is an important tool for understanding the potential equity consequences of CIT in the country.

To recreate this, I follow the process outlined in Fuest et al (2017). I begin by calculating the effective PIT rate for each taxpayer, by dividing an individual's total PIT liability by their total taxable income.

$$Effective\ PIT\ Rate = \frac{PIT\ Liability}{Taxable\ Income}$$

I do this for every individual taxpayer in South Africa. Following this, I calculate the total CIT liability for each firm in the dataset and then divide this by the total number of employees at that firm to calculate the CIT liability per employee. Given firms in South Africa employ many part-time workers, I calculate the number of full-time equivalent employees. For each employee in this panel, there is an employment start date and an employment end date. Using the start and end dates of employment, the number of days worked is found. This is used to find a full-time employee share for each respondent, through the division of the number of days worked by 365. 365 is chosen despite the fact that there are fewer than 365 working days in the year. This is due to 365 representing the maximum number of days that a person could feasibly work in a (non-leap) year. Along with this, the results are not sensitive to this choice. This is then summed by firm-level reference number, resulting in a total full-time employee number for each firm. I match this with with the CIT-IRP5 panel, making use of the firm-level reference number. This allows me to find the CIT liability per full-time equivalent employees for each firm through the division of a firms' total CIT liability by the number of full-time equivalent employees they have. I simultaneously apply this value to each of the employees, including in the case of working for more than one firm in a given year. This acts as an effective CIT incidence for each income earner in the South African income distribution.

$$CIT\ Liability\ per\ FTE = \frac{Total\ CIT\ Liability}{No.\ of\ FTEs}$$

Unfortunately, it is not possible to account for the incidence outcomes of the passthrough onto capital due to a lack of access to matched dividends and share-holding data for the South African population. Capital incomes, and in particular, dividend incomes are insufficiently accounted for in both administrative tax data and survey data in South Africa (Chatterjee; et al, 2020). However, dividend income is strongly concentrated at the top of the South African income distribution (Chatterjee; et al, 2020). This is in line with the concentration of wealth in South Africa, with the top 1% accounting for 54.7% of the country's wealth in 2017 (Chatterjee; et al, 2020) Along with this, across emerging economies, including South Africa, households hold little in terms of financial assets, and if they are wealth owning, often hold tangible assets such as real estate (Badarinza; et al, 2019). These two facts imply that dividend earnings are likely to be highly concentrated at the top of the South African income distribution. Therefore, I have made the assumption that only people within the top 1% of the South African income distribution are dividend earners, and that only this group of earners

would experience the capital incidence of CIT. As a result of this, the CIT incidences that I report for the top 1% of the South African income distribution do not account for portion of the CIT incidence that falls onto capital. This does not undermine the results for the remainder of the population. My results are not sensitive to my assumption beyond this. That is, if this assumption was relaxed to an assumption that dividend earnings were concentrated in the top 2% of the income distribution, it would lead to CIT incidence reporting for the top 2% that does not account for the incidence onto capital, while the remainder of the distribution would be unaffected. Nonetheless, this certainly marks an opportunity for further research.

3.2.1. **Passthrough Scenarios**

The passthrough scenarios and population disaggregation discussed in this paper differ from those that are present in the table from Fuest et al (2017). In Fuest et al (2017) the authors present a table, as represented by Table 1, with the population disaggregated into three groups, P0-P90, P90-P100, and P99-P100, and considers three passthrough scenarios. These passthrough scenarios are no passthrough onto wages, 50% passthrough onto wages, and 100% passthrough onto wages. In Table 3 I make use of the Fuest aggregation of the population, disaggregating the population into P0-P90, P90-P99, and P99-P100. The second group is chosen to be P90-P99 rather than P90-P100 due to the assumption that only the top 1% of the income distribution are dividend earners. Here passthrough scenarios are the same as in Fuest et al (2017), however, the scenarios of 25% and 75% passthrough onto wages have been added to provide further information. Following this, Table 4 makes use of the same passthrough scenarios and disaggregates the top half of the distribution into deciles. This aggregation is chosen to describe the potential effects for these groups. The same aggregation for the bottom half of the distribution is not included in the paper due to it not providing valuable insights.

3.3. Results

3.3.1. **Gross Income, Taxable Income and Effective PIT Rates**

In this section, I describe features of the South African income distribution, with particular focus on gross income, taxable income, and effective PIT rates.

In Table 2 I report the gross income, taxable income, income ratios, and effective PIT rates for deciles of the income distribution of South African taxpayers[2] in 2011 and 2019. These years are the first and last years in my analysis. In regard to mean annual gross income, the main takeaway is that while incomes rose for each decile, the rate of growth is larger for incomes higher up the South African taxpayer income distribution. This suggests that there is a widening of inequality across this period. The mean annual gross income for the first decile was R8,828.89 in 2011. This rose to R11,049.20 in 2019. However, more noticeable increases are displayed in the 3rd decile (P21-P30), where the mean annual gross income grew from R26,901.70 to R41,468.54 in this period, representing a 54.15% increase. Meanwhile, mean annual gross income growth between 2011 and 2019 is 43.03% in the fifth decile, and 41.24%

[2] For the remainder of this paper 'the income distribution' refers to the income distribution of South African taxpayers.

in the 6th decile. This growth rate increases as incomes rise, reaching growth rates of 49.87% in the 8th decile and 54.32% in the 9th decile. Finally, in the 10th decile, at the top of the South African income distribution, mean gross income grew from R696,569.25 in 2011 to R1,231,997.77 in 2019, this represents a growth rate of 76.87% for this period."

Taxable income in these years displays similar trends for growth. Along with this, mean annual taxable income as a ratio of mean annual gross income falls across the income distribution in both years represented in Table 2. For instance, in 2011, mean taxable income is 98.4% of mean gross income for the 1st decile. By the 7th decile this falls to 91.9%, and in the 10th decile, at the top of the South African income distribution, this falls to a low of 85.6%. Thus, taxable income is near equal with gross income for income earners near the bottom of the income distribution, while people near the top of the income distribution have made use of tax deductibles, such as medical aid and retirement contributions, resulting in taxable income being smaller than their gross income. The use of deductibles at the top of the income distribution and not at the bottom of the distribution reduces the progressivity of South Africa's tax system, due to taxpayers at the top of the distribution paying tax on a reduced income.

The effective PIT rates in both years display the progressivity of South Africa's PIT system. The effective PIT rates for the bottom 50% of earners in South Africa are low and fluctuating in both displayed years. In this group, gross incomes are low, and thus the low effective PIT rates are to be expected. Mean effective PIT rates generally fall to a low in the third decile across this period, before rising to the point in which the rate crosses the threshold of 1%. Following the passing of this threshold, around halfway through the income distribution, the mean effective PIT rates in each of years of analysis rise until the top of the distribution, reaching a peak of 27.33% for the 10th decile in 2019.

In Figure 2 I display the effective PIT rate by decile for the top half of the South African income distribution. This figure shows the effective PIT rate for each of the years between 2011 and 2019. This figure displays the slow growth in effective PIT rates for each of these five deciles across this time period, despite reductions between 2012 and 2014. The mean effective PIT rate for the 6th decile (51st percentile to the 60th percentile) was 2.92% in 2011. This rate rose to 3.25% in 2012. Following this, the rate fell to 2.44% by 2014. Following this, there were year-on-year increases until 2019, with a mean effective PIT rate of 3.57% for this portion of the income distribution.

A similar trend is present for each of the remaining deciles, with initial increases to the effective PIT rate, followed by a short period of decreasing effective PIT rates, before finally increasing to a high in 2019. In the 8th decile this is the case, however with slight differences. Mean effective PIT rates first increase from 10.07% to 10.23% in between 2011 and 2012, and then the rate decreases to a low of 9.05% in 2014. The rate then increases to 9.68% in 2016, which then proceeded to decrease minimally in the next year to 9.64%. In the following year, 2018, the mean effective PIT for this group is greater than the 2011 level for the first time since 2012, reaching 10.31%. Finally, in 2019, the rate grew to 11.36%. Figure 2 displays these trends.

The growth in mean effective PIT rates over the course of this period was large in the 10th decile of the gross income distribution, with the mean rate increasing from 24.8% in 2011 to 27.33% in 2019. This growth towards the top of the income distribution is further exemplified by the growth in the rate the 100th percentile experiences, with the mean rate increasing from 33.48% to 36.16% between 2011 and 2019. These trends in the growth in mean effective PIT rates across the income distribution are indicative of the PIT system becoming increasingly progressive.

This represents a progressive PIT system in South Africa, where the effective rate of taxation increases across the South African income distribution. As discussed, the effective PIT rate for the bottom 50% of the income distribution is below 1% and increases gradually across the remaining 50% of the income distribution before eventually reaching a peak of 36.16% for the top 1% in 2019. This progressive income tax system is in line with the goal of redistribution. However, as I have discussed, it is plausible that there is some passthrough of CIT in South Africa onto labour. If this is the case, this distorts the outcomes of the South African income tax system, both in how progressive it is and the effective rates of taxation that wage earners experience across the South African income distribution.

3.3.2. **Incidence of the CIT**

In this section, I replicate the table produced by Fuest et al (2017) for South Africa to explore the potential ramifications for the effective total income tax rates that South African income earners face given differing incidence assumptions. I create two versions of this table, making use of two different ways of aggregating the South African income distribution. Along with this, I describe trends in the findings of the tables across the period between 2014 and 2019.

Table 3 describes this dynamic under the conditions of five different assumptions regarding the incidence of CIT. This table effectively shows that there are substantial equity concerns associated with the CIT if there is passthrough of the burden onto labour. In Panel 1, the CIT incidence falls entirely onto capital and, therefore, is exclusively borne onto those between the 99th and 100th percentiles, under the assumption that only the top 1% of the income distribution have dividend income. This can be understood in that the total effective income tax rate for both P0-P90 and P90-P99 is the same as their effective PIT rates. This is further exemplified by the ratios of total effective income tax rates to effective PIT rates being 1. As discussed earlier, given I do not observe dividend income, this part of the analysis is omitted.

In Panel 2 I describe the case where 75% of the incidence of CIT falls onto capital and there is a 25% passthrough onto labour. In this case, the group of the income distribution between the 1st and 90th percentiles experience an effective mean CIT rate of 1.05%. This suggests the mean effective total income tax for this group in this period is 5.12%. This value, therefore, suggests an increase in the mean effective total income tax rate for this group of 26% compared to the case where the entirety of the burden falls onto capital. The group between the 90th and 99th percentile experience a mean effective CIT rate of 1.01% and the group between the 99th and 100th percentiles experience a mean effective CIT rate of 0.8%. This represents increases of 4% and 2% to their respective mean effective total income tax rates as compared with the case of 0% passthrough onto labour, notwithstanding the effects of CIT incidence on capital in these two cases. This is an important finding that suggests that even in the relatively

conservatively estimated case of a 25% passthrough onto labour there is a mean effective total income tax liability increase of 26% for the majority of the South African income distribution when compared to the assumption of no passthrough onto labour. This suggests that such a passthrough would make South Africa's direct tax system less progressive.

Similarly, Panel 3 describes the case of a 50% passthrough onto labour of the CIT incidence, with the remaining incidence being borne by capital. Here, the portion of the South African income distribution between the 1st and 90th percentile experience a mean effective CIT incidence of 2.09%. This results in a mean effective total income tax rate for this group of 6.17%. This is noticeably higher than the counterfactual laid out in Panel 1, suggesting a 51% increase to the mean effective total income tax rate for this group compared to the case where 100% of the CIT burden falls onto capital. The groups between the 90th percentile and the 99th percentile and between the 99th percentile and the 100th percentile experience mean CIT incidences on wages of 2.01% and 1.60%, respectively. This represents an increase when compared to the counterfactual of 8% and 5% in their mean effective total income tax rate, respectively. Therefore, under this assumption the effects on progressivity would be even larger.

In Panel 4, I explore the case of a 75% passthrough onto labour. This degree of passthrough is associated with a mean effective CIT rate of 3.14% for the bottom 90% of the South African income distribution. This suggests a mean effective total income tax rate of 7.21% for this group. This is particularly high, representing an increase of 77% when compared to the case where the entirety of the burden of CIT is borne by capital. Similarly, this case results in noticeable, however smaller impacts on the tax burden on the top 10% of the income distribution. The group between the 90th and 99th percentiles of the income distribution experience a mean effective CIT rate of 3.02%, resulting in a 13% increase to their mean effective total income tax rate compared to Panel 1. The group between the 99th and 100th percentiles face a mean effective CIT rate of 2.4% in this case. This results in an increase of 7% of their mean effective total income tax rate on wages compared to the case where the entirety of the burden falls onto capital. However, this does not consider the impact of the incidence on capital for this group.

In Panel 5 accounting for the effects of changes in the burden on capital is not relevant. In this panel I describes the possibility of a 100% passthrough of the CIT burden onto labour. In this scenario, the mean effective CIT rate for the group between the 1st and 90th percentile of the income distribution is 4.18%. This results in a mean effective total income tax rate of 8.26%, which is 103% greater than the case of 100% of the burden falling onto capital. Therefore, the case of 100% passthrough onto labour suggests a greater than doubling effect on the mean effective income tax rate for the bottom 90% of the South African income distribution. This scenario is also associated with a 17% increase to the mean effective total income tax rate for the group between the 90th and 99th percentiles of the distribution when compared with the scenario laid out in Panel 1, as a result of a 4.02% mean effective CIT rate for this group. The top 1% of the distribution experience a 10% greater value in their mean effective total income tax on wages. However, this portion of the population is likely to benefit from the burden not falling onto capital.

The results I articulate in Table 3 are important. If it is the case that there is a passthrough of the burden of CIT onto labour, there are large and notable increases to the effective tax burden on the South African public as compared to the conventional view where there is no passthrough onto labour. These effects are larger for the bottom 90% of the income distribution, both in the size of the effective tax and in the ratio of total effective income tax rate against their effective PIT rate, which acts as the scenario where there is no passthrough onto labour. This is, of course, a concern, as it implies that if there is passthrough of the CIT burden onto labour, the CIT in South Africa is likely to be regressive. In order to further investigate this idea, it is necessary to engage with different aggregations of the population.

In Table 4, similarly to Table 3, I describe the incidence outcomes associated with five assumptions regarding the incidence of CIT in South Africa. These assumptions are as they were in Table 3. In Table 4, I disaggregate the top 50% of the South African income distribution into deciles, therefore representing the top 5 deciles of the income distribution. This allows for further insights into the potential outcomes of CIT burden passthrough, in particular, the outcomes for the progressivity of the South African income tax system.

In Panel 1 I assume that the entirety of the burden falls onto capital. Under these conditions there is no CIT incidence on wages for any decile. Therefore, the mean effective total income tax rate for each of these deciles is their effective PIT. In 2016, decile 6 experiences a mean effective PIT rate of 2.84%. The 7^{th}, 8^{th} and 9^{th} deciles experience mean effective PIT rates of 6.31%, 9.68% and 15.52%, respectively. Finally, the top 10% of the South African income distribution experienced a mean effective PIT rate of 25.27%. This appropriately displays the progressivity of the PIT system in South Africa, particularly in the case where there is no passthrough of the CIT onto labour. The clear, non-linear growth in mean effective PIT rates across these deciles, with rates increasing fastest at the top of the income distribution shows this. Furthermore, this is evident through there being a near 10 percentage point increase in the mean effective PIT between the 9^{th} and 10^{th} deciles as compared with a near 3.5 percentage point increase in the mean effective PIT between the 6^{th} and 7^{th} deciles.

These progressivity outcomes begin to erode as differing assumptions regarding the incidence of the CIT are made. In Panel 2, I assume that 25% of the CIT incidence is passed onto wages, with the remaining incidence falling onto capital. Here, it is noteworthy that the mean effective CIT rates fall as incomes rise. The mean effective CIT rate for the 6^{th} decile is 1.19%, it then falls to 1.17% in the 7^{th} decile, it falls again to 1% in the 8^{th} decile and finally it falls to 0.98% for both the 9^{th} and 10^{th} deciles. Therefore, the mean effective CIT rate in the case of a 25% passthrough of the CIT burden onto labour is highest for people between the 51^{st} and 60^{th} percentile of the income distribution. Furthermore, the people in this decile experience a 42% higher mean effective total income tax rate compared to the case with no passthrough onto labour. Similarly, a 18% increase can be reported for the 7^{th} decile, 10% for the 8^{th} decile, 6% for the 9^{th} decile, and 4% for the 10^{th} decile. Under the relatively conservative estimate of a 25% passthrough onto labour these increases are alarming both in scale and distribution.

Similarly, Panel 3 displays the incidence outcomes associated with the assumption that 50% of the CIT incidence is borne by labour, while the remaining 50% is borne by capital. Once again, the mean effective CIT rate decreases as the income deciles increase. Decile 6 is associated with a mean effective CIT rate of 2.38%. This decreases in each subsequent decile

until it reaches 1.95% in decile 10. For the 6th decile the mean effective total income tax rate is 5.21% as opposed to the rate of 2.84% this group experiences in the counterfactual case of a 0% passthrough onto labour. This difference can be categorized as an 84% increase in the mean effective income tax burden for people between the 6th decile of the South African income distribution under this assumption. This difference becomes smaller across the income distribution, the 7th decile sees a 37% increase, a 21% increase experienced by the 8th decile, 13% for the 9th decile, and finally, 8% for the 10th decile.

Panel 4 depicts a similar trend. In this panel it is assumed that 75% of the burden of the CIT is passed onto labour, while just 25% is experienced by capital. In this case the 6th decile sees a difference of 126% in their mean effective total income tax rate as compared with no passthrough of the CIT burden onto labour. This is due to a mean effective CIT rate of 3.57% for the decile in this case. A large difference is also experienced by the 7th decile, with a 55% larger mean effective total income tax for this decile. This difference is 31% for the 8th decile, 19% for the 9th decile and 12% for the 10th decile.

Along with this, there are large effects in Panel 5. Panel 5 represents the assumption that there is a 100% passthrough of the burden of the CIT onto labour. In this case the mean effective total income tax rate for the 6th decile is 168% greater than in the case of no passthrough onto labour. The 7th decile sees a difference of 74% due to a mean effective CIT rate of 4.66% in this case. 41% is reported for the 8th decile, 25% for the 9th, and 15% for the 10th.

In each of these cases it is noticeable that the mean effective CIT rate on wages, falls as the income increases across deciles. Along with this, the ratio of the mean effective total income tax rate against the mean effective PIT rate also falls as income increases across deciles. This suggests that the passthrough of the CIT burden onto labour is likely to be regressive regardless of the size of the passthrough.

These findings are not unique to the year of 2016. Figure 3 displays the mean effective total income tax rate by decile for the years between 2014 and 2019 under the assumption of a 100% passthrough of the CIT burden onto labour. Notably, this shows relative consistency in the mean effective total income tax rates across this period. This suggests that the findings displayed in Table 3 and Table 4 are not unique to 2016.

Figure 4 displays the ratios of the mean effective total income tax rate against the mean effective PIT rate for each of the top five deciles of the South African income distribution during the period between 2014 and 2019. Here, the assumption is that there is a 25% passthrough of the burden of the CIT onto wages. This ratio acts as an effective measure of the difference between the tax burdens faced under this assumption and the assumption that there is no passthrough onto wages. Shown in Figure 4, this ratio becomes smaller as incomes increase. That is, in 2014, this ratio is 1.5, representing a 50% difference for the 6th decile, while the ratio is 1.04 for the 10th decile, representing a 4% difference. This suggests that the growth in mean effective income tax burden as a result of a 25% passthrough of the CIT in 2014 is, on average, more than twelve times larger for the 6th decile of the South African income distribution than for the 10th decile.

Similarly, Figure 5 once again displays the ratios of mean effective total income tax rates against mean effective PIT rates by decile for the period between 2014 and 2019. However, in this case the assumption regarding the incidence of the CIT is that 75% of the burden is passed onto labour. Here, what is most noticeable is how large the ratios are for all deciles over the course of this period, despite their clear downward trend. For instance, in 2014, the 6th decile saw a ratio of 2.5, this is associated with a 150% difference between the mean effective total income tax burden for this decile in the case of a 75% passthrough of the CIT burden and the case where there is no passthrough onto labour. Along with this, in the same year decile 7 sees a difference of 63%, decile 8 sees 36%, decile 9 sees 22%, and decile 10 sees 13%. Therefore, if it is the case that there is a passthrough of the CIT burden the way that we understand tax burdens and the progressivity of South Africa's tax system should be greatly impacted.

4. Discussion: The Case for Passthrough onto Wages in South Africa

As mentioned earlier, an increase in the CIT must be paid by at least one of capital, labour, or consumers, through a reduction in profits, a reduction in remuneration to workers, or through an increase in consumer prices (Baker; et al, 2020). While the classical assumption has been that the incidence of CIT falls entirely on capital, studies like Fuest et al (2017) and Suárez Serrato and Zidar (2016) show that in countries like Germany and the US, there is a sizeable incidence on labour. In the previous section, I show that if one assumes some incidence of CIT onto labour in South Africa, the tax system becomes less progressive. We, however, do not have any estimates of the CIT incidence for SA. Despite this, certain institutional features of South Africa, in particular firms with monopsony power and unionization, may suggest a substantial passthrough of the burden onto wages.

4.1. Monopsony Power

It has historically been argued that the labour market may be monopsonistic, although this assertion has faced changing acceptance over the last 50 years (Boal and Ransom, 1997). In the case of a perfectly competitive labour market, a firm that was paying a wage at a level greater than the going wage would instantaneously be met with new potential recruits, while a firm that was offering a wage that was lower than the going wage would instantaneously have all of their workers leave (Green; et al, 1996). The monopsonistic labour market assumes, rather, that this process would take a particular period to take effect. The monopsony model assumes that there are frictions in the labour market, such that the supply of labour is not perfectly elastic (Green; et al, 1996). This matches intuition regarding how workers behave. There are many reasons why a worker may remain at a firm despite a lower wage than the going wage, for instance, convenience, loyalty, comfort, or location. For this reason, the monopsonistic labour market is not only possible in the case of an isolated labour market with access to only one hiring firm (Boal and Ransom, 1997). Thus, monopsonistic labour markets may be present even in the case of environments with many firms and many workers.

Along with this, monopsony models of the labour market can explain outcomes that occur in reality, which cannot be explained using perfectly competitive models. While perfectly competitive markets cannot explain why firms have trouble filling some jobs even when offering the going wage, monopsony models can explain persistent vacancies at firms, particularly as excess demand due to an upward sloping labour supply curve (Boal and Ransom, 1997). It is clear that, in reality, many firms are not capable of hiring as many workers at the going wage as they may want to. Along with this, the perfectly competitive market would suggest that there should not be wage dispersion between workers of equal productivity who work in similar jobs (Boal and Ransom, 1997). This is, however, a common occurrence. On the other hand, wage dispersion within and between markets is perfectly understandable under a monopsonistic market (Boal and Ransom, 1997). Along with this, dual labour market theory provides additional support for the hypothesis of monopsonistic labour markets in South Africa. The South African labour market can be said to be separated into groups, defined by well-educated individuals in the high-paid formal sector and the periphery which encompasses the remainder of the South African labour force (Uys and Blaauw, 2006). This labour market dualism will have an impact on the potential monopsony power of firms. Firms who employ labour from the high-paid formal sector, defined by low rates of

unemployment, will have little power over wage-setting below the market rate. On the other hand, firms employing labour from the periphery are likely to have additional wage setting power. Thus, the passthrough effects associated with monopsony power in South Africa are likely to disproportionately effect those outside of the high-paid formal sector of South Africa's economy. Additionally, monopsonistic models can explain the positive correlation between firm size and wage size, with researchers previously failing to explain the phenomenon (Green; et al, 1996). Perfectly competitive models of the labour market would suggest that there would a negative effect on employment associated with the introduction or the increase of a minimum wage (Boal and Ransom, 1997). However, it has been suggested that increases to a minimum wage have no effect, or even in some cases a positive effect, on employment (Boal and Ransom, 1997). For instance, Card and Krueger (1994) study the effects of a minimum wage increase on fast-food workers in New Jersey. The authors find there to be no increase in unemployment as a result of the minimum wage increase. This is not incompatible with the monopsony model, as it is with the perfectly competitive model (Boal and Ransom, 1997). As with wage dispersion, there is evidence of wage discrimination along the lines of race and gender in labour markets like South Africa and the United States of America. For instance, even when controlling for productivity, white women tend to earn less than white men in the United States of America (Boal and Ransom, 1997). Similarly, Alarakhia et al (2023) find an adjusted gender pay gap of 7.9% in South Africa. Such an outcome is inconsistent with the mechanisms of a perfectly competitive labour market. This discrimination is possible to explain in the context of differing group labour elasticities under a monopsonistic labour market (Boal and Ransom, 1997). However, this need not suggest that there are not biases that underlie this discrimination.

Firms in South Africa can be said to have monopsony power if they can reduce wages without workers immediately resigning. In South Africa a wide distribution of wages can be associated with a particular individual labourer (Bassier, 2019). This is inconsistent with the perfectly competitive model, which would suggest that each of these labourers would be in the best-paying possible employment scenario, or that firms would respond by providing an alternative that is equal to the highest wage (Bassier, 2019). This suggests a firm-wage premia that is consistent with an upward-sloping labour supply curve and, therefore, a monopsonistic labour market. Furthermore, while under the conditions of a competitive labour market labour supply elasticities should be high. Labour supply elasticities in South Africa are in fact, low (Bassier, 2019). This is once again consistent with the case of firms having monopsony power in South Africa. This all contributes to an understanding that the South African labour market has monopsonistic features. South Africa's particularly high unemployment may explain these features. In situations such that the rate of unemployment is high, as is the case in South Africa, workers, when faced with a wage cut, anticipate fewer alternate job offers and therefore become less likely to quit as a result of the wage cut (Bassier, 2023). Along with this, firms have greater power to appeal to the unemployed and thus have lesser competition with other firms for workers, empowering them once again to reduce wages (Bassier, 2023). This explanation further entrenches the idea that the South African labour market has elements of monopsony.

If firms do not have the power to set wages, then the scope for passthrough of the CIT onto labour is far smaller. In the South African context, firms, in fact, have a large ability to determine wages, consistent with the monopsonistic features of the South African labour

market. Firm wage premia can be said to account for 25% of the differences in wages, 60% of the gender wage gap, and 40% of the mean gap in earnings for low- and middle-income workers (Bassier, 2019). Therefore, firms have noticeable power over wage-setting in South Africa. In fact, labour market monopsony that can be found in the South African context suggests a greater wage-setting power for firms as compared with any country in the industrialized world (Bassier, 2019). This suggests that it may be the case that firms may have greater power to passthrough the burden of CIT onto labour than firms in the developed world.

Along with this, there is evidence of South African executives taking advantage of systems to extract rents. In corporate South Africa there are a number of issues surrounding ethics, as is evident in widespread corruption and a lack of an ethical corporate culture amongst firm executives (Badenhorst-Weiss and van Wyk, 2017). This can be evidenced by the behaviour of firm executives with regards to rent sharing. A positive correlation between share-based compensation to executives and share repurchases can be found in South Africa (Steenkamp; et al, 2023). From such a correlation, it can be suggested that firm executives in South Africa make use of share repurchases to increase their share-based compensation, extracting additional rents. This amounts to self-enrichment which exacerbates income inequality in South Africa (Steenkamp; et al, 2023). This suggests that firm executives in South Africa are willing and capable of unethical behaviour with the intention to extract further rents.

For this reason, it is likely that there is a significant passthrough of the CIT onto wages in South Africa. In contexts such that firms do not envisage consequence, firms have shown interest in rent seeking in response to revenue shocks. Along with this, there is reason to believe that many firms in South Africa hold monopsony power in the labour market. This empowers these firms to be able to reduce real wages without employees immediately resigning. This condition allows for the passthrough of the burden of the CIT onto wages without an immediate exodus of workers from the firm. Finally, firm executives in South Africa have displayed interests in unethical rent seeking behaviour, suggesting that there would be no ethical reason for firms not to pass the burden of the CIT onto labour. Therefore, the rate of passthrough of the CIT burden is likely to be conditional on the scope a particular firm has for wage-setting, the number of employees a firm has, and the size of their CIT burden.

4.2. Unions and Unemployment

Unemployment and union membership are important considerations when considering firms' ability to pass the CIT burden onto labour in South Africa. The country is one of, if not the, most unequal places on earth, with one of the highest wage Gini coefficients in the world, reported at 0.63 (World Bank, 2023). While this is a result of the gap between the earnings of the high-income earners and low-income earners, it is also due to the high number of unemployed individuals in the South African labour market. Between the second quarter of 2022 and the end of the third quarter of 2024, the number of people employed in South Africa grew by a total of 1,200,000 to 16.9 million (Stats SA, 2024). Along with this, the official unemployment rate in South Africa has risen from 25.4% in third quarter of 2014 to 32.1% in the third quarter of 2024 (Stats SA, 2024). This accounts for 8 million people being unemployed (Stats SA, 2024). The expanded unemployment rate has increased from 35.8% to 41.9% across this period. This suggests 12.2 million unemployed people in South Africa when

using the expanded definition of unemployment (Stats SA, 2024). This unemployment rate is particularly large and results in considerations that policymakers in many other countries need not consider.

Along with this, South Africa has high rates of union membership, resulting in its own considerations. Between 1997 and 2016, the number of union members in the private sector grew from 1,813,217 to 2,596,084 members; this represents a decrease in the percentage of private sector workers that are unionised from 35.6% in 1997 to 18.2% in 2016 (Bhorat and Stanwix, 2018). On the other hand, the rate of union membership for public sector workers increased over the course of this period. This rose from 835 795 members representing 55.2% of public sector workers in 1997 to 1 192 447 members representing 66.1% in 2016 (Bhorat and Stanwix, 2018). This represents significant proportions of the South African labour market that is unionised, however there are concerns regarding the falling rate of union membership amongst private sector workers. Furthermore, in South Africa working in a large firm is associated with a greater likelihood of being in a union (Ntuli and Kwenda, 2014). Along with this, living in an urban environment is also associated with a greater likelihood of being a member of a union (Ntuli and Kwenda, 2014). Thus, if union membership provides protection against the passthrough of the CIT burden onto labour, individuals working for smaller firms and living in rural areas are less likely to benefit from such protection.

Along with this, as can be expected given the additional bargaining power associated with union membership, union membership is associated with a wage premium (Kerr and Wittenberg, 2021). However, in South Africa the concentration of union membership has moved to a higher point in the South African income distribution since 1993 (Kerr and Wittenberg, 2021). That is, higher unionisation rates are reported towards the top of the South African income distribution. For this reason, while unions were initially inequality alleviating, they are now inequality enhancing in South Africa (Kerr and Wittenberg, 2021). This displays that there is a lower rate of unionisation amongst those towards the bottom of the South African income distribution, and thus these individuals do not benefit from the advantageous features of unionisation, which may include protection from the potential passthrough of the CIT. Along with this, firms that have high rates of union membership experience a larger labour supply elasticity on rent-sharing (Bassier, 2023). That is, the additional bargaining power achieved through union membership empowers workers to be more sensitive to a firm's rent-seeking behaviour. Along with this, firms with greater rates of unionisation tend to achieve greater profits (Bassier, 2019). This suggests that unionisation results in workers both achieving greater rent-sharing outcomes and being more likely to be working in a profitable firm.

This represents some of the competing pressures South Africa's economic environment presents for the ability for firms to pass the burden of the CIT onto labour. South Africa's high and rising unemployment rate is likely to further empower firms towards monopsony power over workers, allowing for the passthrough of the burden onto wages. However, firms' rent-seeking power, and thus their power to pass the burden onto wages, is undermined by union membership, which provides workers with greater elasticity to rent-seeking. At the same time, the rate of union membership in the private sector has fallen since 1997, and therefore, this issue for firms is becoming less prevalent.

5. Opportunities For Future Research

The findings put forward by this paper, namely that accounting for some CIT passthrough onto labour, likely makes the tax system in South Africa less progressive, contributes to a small, but growing, set of literature relating to the incidence of CIT around the world. This paper highlights the importance of further research into the incidence of CIT in South Africa in order to achieve an understanding of the incidence of South Africa's direct taxes and the progressivity of South Africa's tax system as a whole.

At the time of writing, the administrative tax data available to researchers at the NT-SDF does not allow for a matching of the employment and income panels with a matched panel of dividend earnings. Without access to this, a full understanding of the effective total income tax rate impacts of the CIT under differing assumptions of the tax incidence is not achievable. That is, dividend income would allow for the calculation of the effective burden of the portion of the CIT that is loaded onto capital. This paper has assumed that dividend earners make up a small proportion of the South African income distribution, entirely found in the 100th percentile of the distribution. This, however, may not be the case. Therefore, further research depicting the incidence on capital under differing assumptions of CIT burdens would further illuminate the understanding of effective CIT incidence in South Africa.

Along with this, importantly, this paper does not estimate burden shares of the CIT in South Africa. Thus, this marks an opportunity for further research in this domain. The most notable barrier to such an endeavour is an appropriate identification strategy. Much of the contemporary literature internationally that has estimated the burden shares has relied on rate changes across territorial borders. For instance, Fuest et al (2018) explore the case of Germany. Here, the authors can exploit the differing local municipal corporate taxation rates, allowing for a more straightforward pathway to understanding the burden of corporate taxation. Similarly, Suárez Serrato and Zidar (2016) make use of the differing levels of state corporate taxation between different states in the United States of America. Such an identification strategy is not available to researchers of South Africa's CIT burden due to the CIT rate being consistent across all provinces or municipalities in the country. However, there remain potential identification strategies. Firstly, on the 31st of March 2023 the CIT rate that is applied was reduced from 28% to 27% (Mandy, 2024). The years either side of this change may allow for some estimation of the burden share. Alternatively, Small Business Corporations (SBCs) face bracketed CIT rates (Mandy, 2024), which may allow for some form of estimation. However, there are certainly issues associated with the use of SBCs. It is likely that larger corporations, with a greater number of employees are important to the analysis of CIT burden shares in South Africa.

Relating to the pressures associated with the size of the given labour force in a firm, union participation, unemployment, and wage sizes, it is possible that firms in differing sectors have differing scopes for the passthrough of the CIT burden onto labour. For this reason, an important possible future contribution to the research of CIT incidence in South Africa would be an exploration of this. This may allow for a greater understanding of the impacts of passthrough of the CIT burden. That is, such an analysis may be able to identify sectors, portions of the income distribution, or different demographic groups that are disproportionately affected by passthrough of the burden of the CIT.

Further, there is scope for research into optimal policies surrounding South Africa's CIT system. South Africa attempts to correct the perceived issue of double taxation through several mechanisms (Tredoux and van der Linde, 2021). Most notably, dividends are not subject to the PIT, but rather to a dividends tax, which is set at 20% (Tredoux and van der Linde, 2021). Dividend income, being taxed separately, and at a rate below that of the top PIT rates, serves to overcome perceived issues of double taxation (Tredoux and van der Linde, 2021). However, the degree to which double taxation is a concern is a matter of the proportion of the CIT burden that falls onto capital. This, amongst other design principles of the CIT, is certainly an issue that requires further research and attention from policy makers.

6. Conclusion

This thesis contributes to a small and growing body of contemporary literature that seeks to explore the incidence of corporate taxation. The seminal research in this field, Harberger (1962), suggests that the entirety of the burden of corporate taxation is borne by capital. However, contemporary researchers have begun theoretically and empirically investigating the potential for a passthrough of the burden onto labour. Perhaps, the most notable example of this is Fuest et al (2018), where it is found that there is 51% passthrough of corporate taxation in Germany. Work of this nature is significant in that it challenges the consensus regarding the equity outcomes of corporate taxation. Research of this type is yet to have been done in South Africa. In this thesis I investigate the potential equity outcomes associated with the CIT in South Africa. I estimate the effective income tax rates that different portions of the South African income distribution face given differing assumptions regarding the passthrough of the CIT in South Africa. I find that there are significant increases in the mean effective total income tax rates that South African income earners face in the case of passthrough of the CIT burden onto labour. Even under the relatively conservative estimate of 25% passthrough onto labour, the bottom 90% of the South African income distribution faces a 26% higher mean effective total income tax rate than they do under the assumption of there being no passthrough onto labour. Along with this, mean effective CIT rates on wages decrease as incomes rise. For this reason, if there is passthrough of the CIT incidence onto labour there are significant equity and progressivity ramifications for the South African tax system. Along with this, I discuss the likelihood that there is significant passthrough of the CIT onto labour in South Africa. Here, I suggest that firms with monopsonistic power in the labour market suggest that it is likely for there to be notable passthrough of the CIT burden onto labour in South Africa. Along with this, through a discussion on unions and unemployment, I suggest that this may be exacerbated for low-income and rural South Africans. My findings suggest significant scope for further research into CIT incidence. Firstly, my incidence calculations can be expanded on with the inclusion of the incidence on capital in mean effective CIT rates which can be achieved with dividends data that is matched with income data. Secondly, an important extension is the estimation of the burden shares in South Africa. Thirdly, an investigation into the scope for passthrough for different sectors or firm types in South Africa would provide further insight into the equity dynamics of the CIT. Finally, passthrough of the CIT onto labour has policy design implications, thus an investigation into the optimal imputation policy would be a valuable contribution to the field.

Tables

Table 1: Recreation of Table D8 from Fuest et al (2017)

Table 1 is a recreation of a table from Fuest et al (2017). It displays the effects of assumptions regarding the incidence of CIT on average tax rates across the income distributions for the United States of America in 2004 and Germany in 2015. In each country, three groups within the income distribution, people up to the 90th percentile, people between the 90th and 100th percentile, and people between the 99th and 100th percentile have their average effective PIT rates, CIT rates and total income tax rates reported.

	PIT	CIT	Total	Ratio	PIT	CIT	Total	Ratio
	US (2004)				**Germany (2015)**			
Population Average	11.5	2.3	13.7		12.3	2.0	14.4	
Panel 1 – CIT incidence: 0% wages, 100% capital								
P0-90	5.4	1.5	7.0		5.5	0.2	5.7	
P90-100	14.7	2.3	16.9	1.4	21.8	2.7	24.6	4.3
P99-100	22.7	4.0	26.8	2.9	27.4	7.4	34.8	6.1
Panel 2 – CIT incidence: 50% wages, 50% capital								
P0-90	5.4	2.4	7.8		5.5	1.2	6.7	
P90-100	14.7	1.1	15.8	1.0	21.8	1.4	23.2	3.5
P99-100	22.7	2.0	24.8	2.2	27.4	3.7	31.1	4.6
Panel 3 – CIT incidence: 100% wages, 0% capital								
P0-90	5.4	2.5	7.9		5.5	2.0	7.5	
P90-100	14.7	0.0	14.7	0.8	21.8	0	21.8	2.9
P99-100	22.7	0.0	22.7	1.9	27.4	0	27.4	3.7

Table 2: Descriptive Statistics for Deciles of the South African Income Distribution

Table 2 displays the gross income, the taxable income, the income ratio, and the mean effective PIT rate for deciles of the South African taxpayer income distribution. These figures are reported for 2011 and 2019. The income ratio refers to the ratio of taxable income to gross income. That is, the income ratio reported for P1-P10 in 2011 of 0.984 suggests that mean taxable income for that particular group is 98.4% of the size of the mean gross income for that group. The effective PIT rate refers to PIT liability as a percentage of income.

	Gross Income	Taxable Income	Income Ratio	Effective PIT Rate (%)
2011				
P1-P10	R8,828.89	R8,686.76	0.984	0.61
P11-P20	R17,638.00	R17,318.95	0.982	0.42
P21-P30	R26,901.70	R26,401.29	0.981	0.35
P31-P40	R37,166.25	R36,294.26	0.977	0.38
P41-P50	R51,007.27	R49,243.32	0.966	0.55
P51-P60	R70,758.80	R66,786.76	0.944	2.93
P60-P70	R100,211.19	R91,956.28	0.919	6.32
P71-P80	R152,355.76	R135,501.04	0.890	10.07
P81-P90	R252,528.68	R220,027.93	0.872	15.52
P91-P100	R696,569.25	R597,233.20	0.856	24.80
2019				
P1-P10	R11,049.20	R10,791.18	0.978	0.91
P11-P20	R26,173.65	R25,299.83	0.967	0.95
P21-P30	R41,468.54	R39,866.89	0.962	0.71
P31-P40	R55,127.58	R51,993.26	0.943	0.75
P41-P50	R72,956.62	R67,811.71	0.930	1.08
P51-P60	R99,943.54	R91,773.22	0.919	3.57
P61-P70	R147,526.35	R134,199.42	0.910	7.44
P71-P80	R228,335.73	R205,935.18	0.902	11.36
P81-P90	R389,726.51	R345,917.89	0.889	17.31
P91-P100	R1,231,997.77	R1,008,221.80	0.842	27.33

Table 3: 2016 Incidences Table with Fuest Aggregation of the Population

Table 3 displays the effects of five different assumptions regarding the incidence of the CIT rate in South Africa for the year 2016. The population is aggregated into three groups, between P0 and P90, P90 and P99, and P99 and P100. Under each of these assumptions, the average effective PIT, CIT, and total income tax is reported. Along with this, the ratio of the respondents' average effective total income tax rate against their average effective PIT rate is displayed. This ratio depicts the scale of the difference between the average effective income tax under the assumption of 100% of the CIT incidence falling onto capital and the particular assumption in question. The ratios denoted with asterisks have not taken account of the incidence on capital when considering the average effective total income tax rates of the respondents.

	PIT	CIT	Total	Ratio
2016 – Post IQR Outlier Removal				
Panel 1 - CIT incidence: 0% wages, 100% capital				
P0-P90	4.07	0	4.07	1
P90-P99	23.76	0	23.76	1
P99-100	32.06	(Incidence on capital)	32.06 (+ incidence on capital)	1*
Panel 2 – CIT incidence: 25% wages, 75% capital				
P0-P90	4.07	1.05	5.12	1.26
P90-P99	23.76	1.01	24.77	1.04
P99-P100	32.06	0.80 (+75% of the incidence on capital)	32.86 (+75% of the incidence on capital)	1.02*
Panel 3 – CIT incidence: 50% wages, 50% capital				
P0-P90	4.07	2.09	6.17	1.51
P90-P99	23.76	2.01	25.77	1.08
P99-P100	32.06	1.60 (+50% of the incidence on capital)	33.66 (+50% of the incidence on capital)	1.05*
Panel 4 – CIT incidence: 75% wages, 25% capital				
P0-P90	4.07	3.14	7.21	1.77
P90-P99	23.76	3.02	26.78	1.13
P99-P100	32.06	2.40 (+25% of the incidence on capital)	34.46 (+25% of the incidence on capital)	1.07*
Panel 5 – CIT incidence: 100% wages, 0% capital				
P0-P90	4.07	4.18	8.26	2.03
P90-P99	23.76	4.02	27.79	1.17
P99-P100	32.06	3.20	35.26	1.10

Table 4: 2016 Incidences Table for Deciles above the 50th Percentile

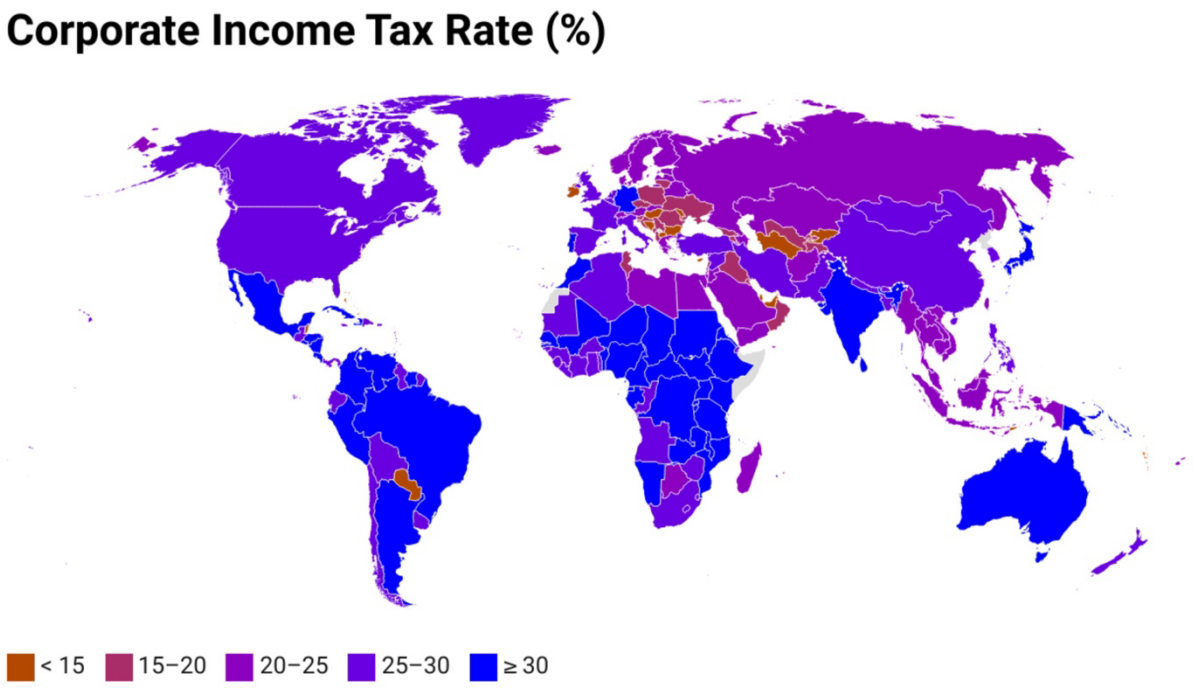
Table 4 displays the effects of five different assumptions regarding the incidence of the CIT rate in South Africa for the year 2016. The population is aggregated into the five deciles above the 50th percentile. Under each of these assumptions, the average effective PIT, CIT, and total income tax is reported. Along with this, the ratio of the respondents' average effective total income tax rate against their average effective PIT rate is displayed. This ratio depicts the scale of the difference between the average effective income tax under the assumption of 100% of the CIT incidence falling onto capital and the particular assumption in question. The ratios denoted with asterisks have not taken account of the incidence on capital when considering the average effective total income tax rates of the respondents.

	PIT	CIT	Total	Ratio
2016 – Post IQR Outlier Removal				
Panel 1 - CIT incidence: 0% wages, 100% capital				
P51-P60	2.84	0	2.84	1
P61-P70	6.31	0	6.31	1
P71-P80	9.68	0	9.68	1
P81-P90	15.52	0	15.52	1
P91-P100	25.27	(incidence on capital)	25.27 (+ incidence on capital)	1*
Panel 2 – CIT incidence: 25% wages, 75% capital				
P51-P60	2.84	1.19	4.02	1.42
P61-P70	6.31	1.17	7.47	1.18
P71-P80	9.68	1.00	10.68	1.10
P81-P90	15.52	0.98	16.50	1.06
P91-P100	25.27	0.98 (+ 75% incidence on capital)	26.26 (+ 75% incidence on capital)	1.04*
Panel 3 – CIT incidence: 50% wages, 50% capital				
P51-P60	2.84	2.38	5.21	1.84
P61-P70	6.31	2.33	8.64	1.37
P71-P80	9.68	1.99	11.67	1.21
P81-P90	15.52	1.96	17.48	1.13
P91-P100	25.27	1.95 (+ 50% incidence on capital)	27.23 (+ 50% incidence on capital)	1.08*
Panel 4 – CIT incidence: 75% wages, 25% capital				
P51-P60	2.84	3.57	6.40	2.26
P61-P70	6.31	3.50	9.80	1.55
P71-P80	9.68	2.99	12.67	1.31
P81-P90	15.52	2.94	18.46	1.19
P91-P100	25.27	2.93 (+ 25% incidence on capital)	28.20 (+ 25% incidence on capital)	1.12*
Panel 5 – CIT incidence: 100% wages, 0% capital				
P51-P60	2.84	4.75	7.59	2.68
P61-P70	6.31	4.66	10.97	1.74
P71-P80	9.68	3.98	13.66	1.41
P81-P90	15.52	3.92	19.44	1.25
P91-P100	25.27	3.90	29.18	1.15

Figures

Figure 1: Statutory CIT Rates Around the World

Figure 1 displays the statutory CIT rates for countries and territories around the world. Countries and territories are categorised into five colour-coded groups based on their statutory CIT rate. The groups are those with a rate lower than 15%, those with a rate between 15% and 20%, those with a rate between 25% and 30%, and those with a rate above 30%.



(Data from: Enache, 2023)

Figure 2: Effective PIT Rate by Decile above the 50th Percentile

Figure 2 displays the average effective PIT rate by decile for each of the five deciles above the 50th percentile. This displays the mean effective PIT rate for each of the five decile groups in each of the years between 2011 and 2019.

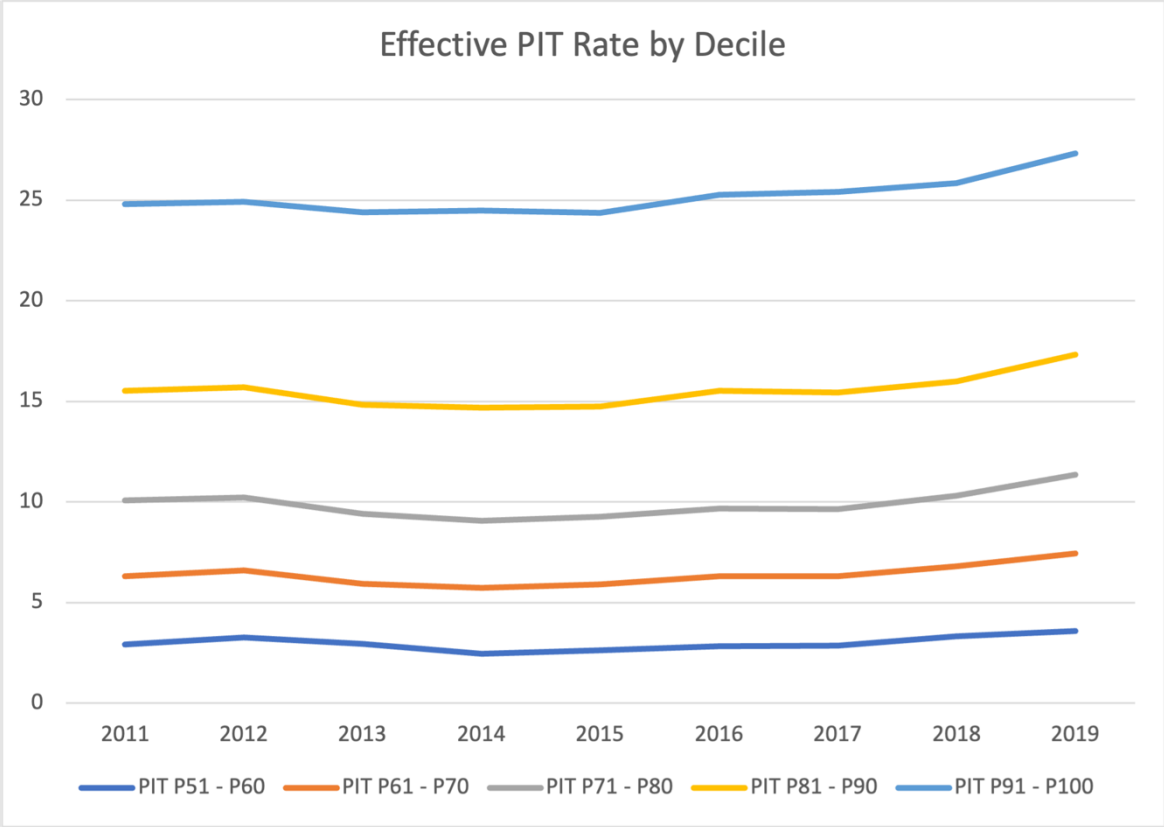


Figure 3: Average Total Effective Income Tax Rate above the 50th Percentile Between 2014 and 2019 (100% Passthrough onto Labour)

Figure 3 displays the mean effective total income tax rate for each of the five deciles above the 50th percentile of the South African income distribution for each of the years between 2014 and 2019. This displays that the mean effective total income tax rates are relatively consistent across this period.

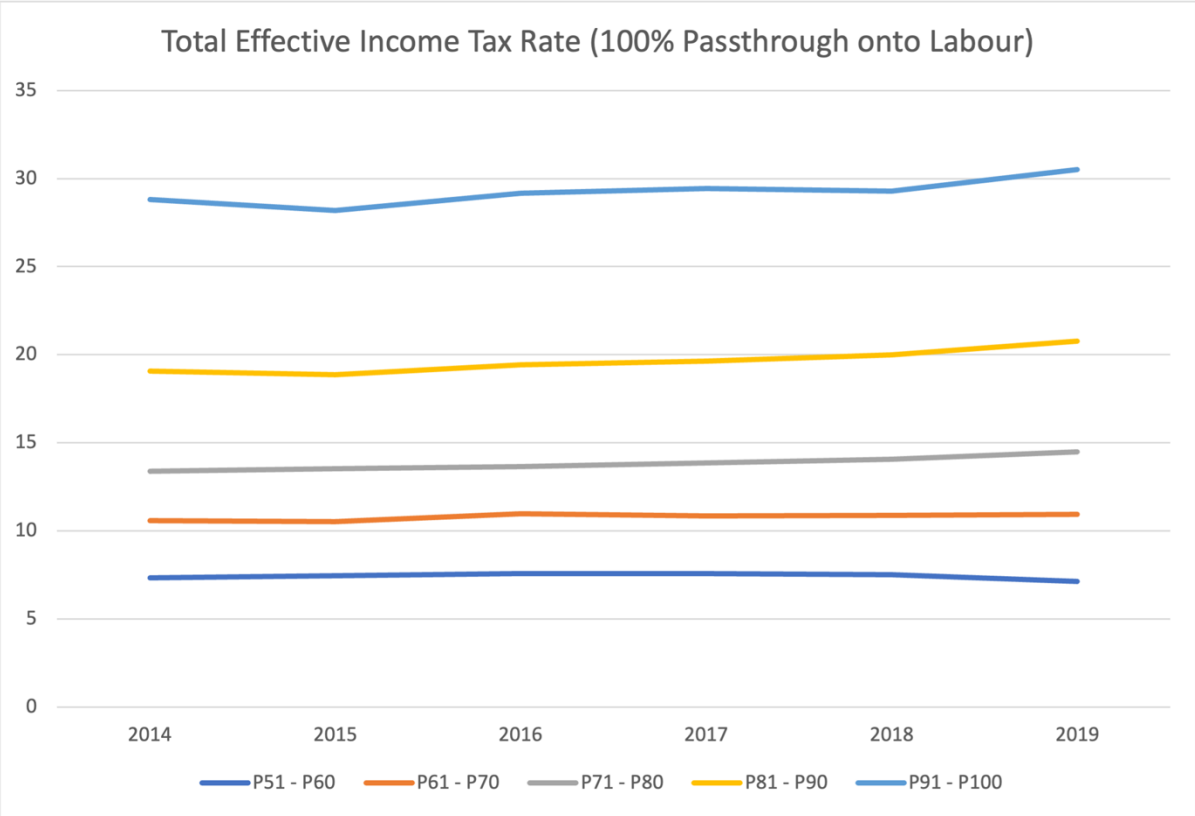


Figure 4: Ratio of Total Rate of Tax against PIT rate by decile with 25% Passthrough onto Labour

Figure 4 displays the ratios of the mean effective total income tax rate against the mean PIT rate for each of the five deciles above the 50th percentile across the period between 2014 and 2019. This ratio is a measure of the difference between the effective income tax rates these groups experience in the case of a 100% passthrough of the CIT onto capital, as displayed by their PIT rate, given they would not face an effective CIT rate, and the case where there is a 25% passthrough of the CIT onto labour.

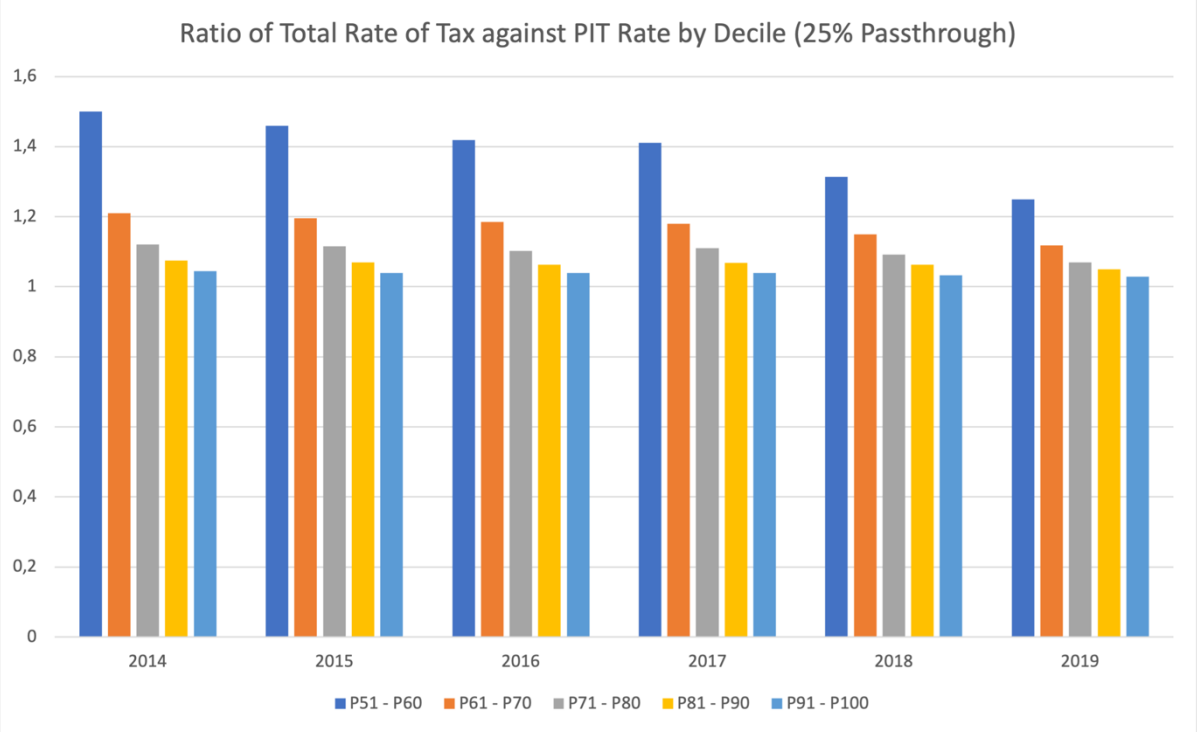
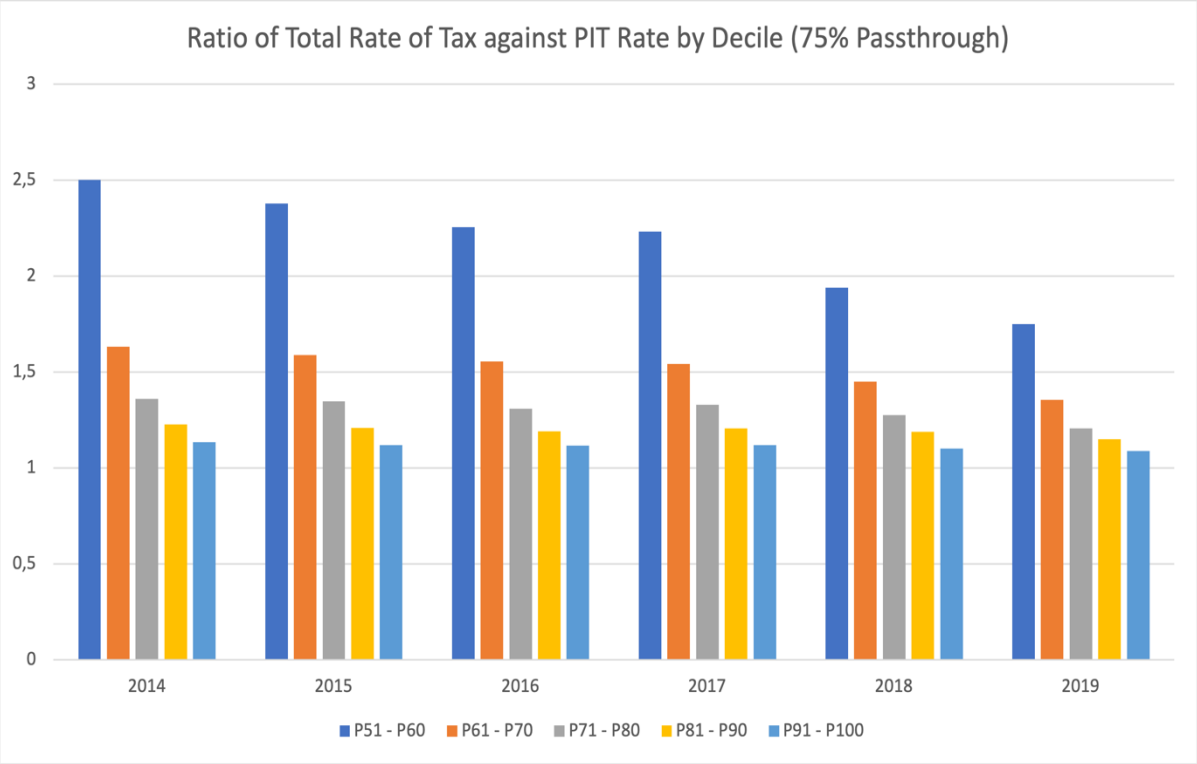


Figure 5: Ratio of Total Rate of Tax against PIT rate by decile with 75% Passthrough onto Labour

Figure 5 displays the ratios of the mean effective total income tax rate against the mean PIT rate for each of the five deciles above the 50th percentile across the period between 2014 and 2019. This ratio is a measure of the difference between the effective income tax rates these groups experience in the case of a 100% passthrough of the CIT onto capital, as displayed by their PIT rate, given they would not face an effective CIT rate, and the case where there is a 75% passthrough of the CIT onto labour.



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Appendix

Appendix 1: Number of observations per year

Appendix 1 is a table depicting the number of observations, namely individual taxpayers in South Africa, included in the panel created for each year.

Year	Number of Observations
2011	6 528 998
2012	6 721 982
2013	6 541 675
2014	6 620 401
2015	6 963 639
2016	7 168 558
2017	7 334 457
2018	7 385 515
2019	7 242 737

Appendix 2: 2011 Incidences Table with Fuest Aggregation of the Population

Appendix 2 displays the effects of five different assumptions regarding the incidence of the CIT rate in South Africa for the year 2011. The population is aggregated into three groups, between P0 and P90, P90 and P99, and P99 and P100. Under each of these assumptions, the average effective PIT, CIT, and total income tax is reported. Along with this, the ratio of the respondents' average effective total income tax rate against their average effective PIT rate is displayed. This ratio depicts the scale of the difference between the average effective income tax under the assumption of 100% of the CIT incidence falling onto capital and the particular assumption in question. The ratios denoted with asterisks have not taken account of the incidence on capital when considering the average effective total income tax rates of the respondents.

	PIT	CIT	Total	Ratio
2011 – Post IQR Outlier Removal				
Panel 1 - CIT incidence: 0% wages, 100% capital				
P0-P90	4.13	0	4.13	1
P90-P99	23.31	0	24.23	1
P99-100	31.71	(Incidence on capital)	31.71 (+ incidence on capital)	1*
Panel 2 – CIT incidence: 25% wages, 75% capital				
P0-P90	4.13	1.50	5.62	1.36
P90-P99	23.31	1.41	24.71	1.06
P99-P100	31.71	1.05 (+75% of the incidence on capital)	32.76 (+75% of the incidence on capital)	1.03*
Panel 3 – CIT incidence: 50% wages, 50% capital				
P0-P90	4.13	2.99	7.12	1.72
P90-P99	23.31	2.81	26.12	1.12
P99-P100	31.71	2.09 (+50% of the incidence on capital)	33.80 (+50% of the incidence on capital)	1.07*
Panel 4 – CIT incidence: 75% wages, 25% capital				
P0-P90	4.13	4.49	8.61	2.09
P90-P99	23.31	4.22	27.52	1.18
P99-P100	31.71	3.14 (+25% of the incidence on capital)	34.85 (+25% of the incidence on capital)	1.10*
Panel 5 – CIT incidence: 100% wages, 0% capital				
P0-P90	4.13	5.98	10.11	2.44
P90-P99	23.31	5.62	28.93	1.24
P99-P100	31.71	4.18	35.90	1.13

Appendix 3: 2011 Incidences Table for Deciles above the 50th Percentile

Appendix 3 displays the effects of five different assumptions regarding the incidence of the CIT rate in South Africa for the year 2011. The population is aggregated into the five deciles above the 50th percentile. Under each of these assumptions, the average effective PIT, CIT, and total income tax is reported. Along with this, the ratio of the respondents' average effective total income tax rate against their average effective PIT rate is displayed. This ratio depicts the scale of the difference between the average effective income tax under the assumption of 100% of the CIT incidence falling onto capital and the particular assumption in question. The ratios denoted with asterisks have not taken account of the incidence on capital when considering the average effective total income tax rates of the respondents.

	PIT	CIT	Total	Ratio
2011 – Post IQR Outlier Removal				
Panel 1 - CIT incidence: 0% wages, 100% capital				
P51-P60	2.93	0	2.93	1
P61-P70	6.32	0	6.32	1
P71-P80	10.07	0	10.07	1
P81-P90	15.52	0	15.52	1
P91-P100	24.80	(incidence on capital)	24.80 (+ incidence on capital)	1*
Panel 2 – CIT incidence: 25% wages, 75% capital				
P51-P60	2.93	1.88	4.80	1.64
P61-P70	6.32	1.75	8.07	1.28
P71-P80	10.07	1.50	11.57	1.15
P81-P90	15.52	1.45	16.97	1.09
P91-P100	24.80	1.35 (+ 75% incidence on capital)	26.16 (+ 75% incidence on capital)	1.05*
Panel 3 – CIT incidence: 50% wages, 50% capital				
P51-P60	2.93	3.75	6.68	2.28
P61-P70	6.32	3.51	9.83	1.56
P71-P80	10.07	3.01	13.07	1.30
P81-P90	15.52	2.91	19.43	1.19
P91-P100	24.80	2.71 (+ 50% incidence on capital)	27.51 (+ 50% incidence on capital)	1.10*
Panel 4 – CIT incidence: 75% wages, 25% capital				
P51-P60	2.93	5.63	8.56	2.92
P61-P70	6.32	5.26	11.58	1.83
P71-P80	10.07	4.51	14.58	1.45
P81-P90	15.52	4.37	19.88	1.28
P91-P100	24.80	4.06 (+ 25% incidence on capital)	28.86 (+ 25% incidence on capital)	1.16*
Panel 5 – CIT incidence: 100% wages, 0% capital				
P51-P60	2.93	7.50	10.43	3.56
P61-P70	6.32	7.02	13.33	2.11
P71-P80	10.07	6.02	16.08	1.60
P81-P90	15.52	5.82	21.34	1.37
P91-P100	24.80	5.41	30.22	1.22

Appendix 4: 2012 Incidences Table with Fuest Aggregation of the Population

Appendix 4 displays the effects of five different assumptions regarding the incidence of the CIT rate in South Africa for the year 2012. The population is aggregated into three groups, between P0 and P90, P90 and P99, and P99 and P100. Under each of these assumptions, the average effective PIT, CIT, and total income tax is reported. Along with this, the ratio of the respondents' average effective total income tax rate against their average effective PIT rate is displayed. This ratio depicts the scale of the difference between the average effective income tax under the assumption of 100% of the CIT incidence falling onto capital and the particular assumption in question. The ratios denoted with asterisks have not taken account of the incidence on capital when considering the average effective total income tax rates of the respondents.

	PIT	CIT	Total	Ratio
2012 – Post IQR Outlier Removal				
Panel 1 - CIT incidence: 0% wages, 100% capital				
P0-P90	4.24	0	4.24	1
P90-P99	23.40	0	23.40	1
P99-100	31.84	(Incidence on capital)	31.84 (+ incidence on capital)	1*
Panel 2 – CIT incidence: 25% wages, 75% capital				
P0-P90	4.24	1.24	5.47	1.29
P90-P99	23.40	1.17	24.58	1.05
P99-P100	31.84	0.93 (+75% of the incidence on capital)	32.77 (+75% of the incidence on capital)	1.03*
Panel 3 – CIT incidence: 50% wages, 50% capital				
P0-P90	4.24	2.47	6.71	1.58
P90-P99	23.40	2.35	25.75	1.10
P99-P100	31.84	1.86 (+50% of the incidence on capital)	33.71 (+50% of the incidence on capital)	1.06*
Panel 4 – CIT incidence: 75% wages, 25% capital				
P0-P90	4.24	3.71	7.95	1.88
P90-P99	23.40	3.52	26.92	1.15
P99-P100	31.84	2.79 (+25% of the incidence on capital)	34.64 (+25% of the incidence on capital)	1.09*
Panel 5 – CIT incidence: 100% wages, 0% capital				
P0-P90	4.24	4.95	9.18	2.16
P90-P99	23.40	4.69	28.10	1.20
P99-P100	31.84	3.72	35.57	1.12

Appendix 5: 2012 Incidences Table for Deciles above the 50th Percentile

Appendix 5 displays the effects of five different assumptions regarding the incidence of the CIT rate in South Africa for the year 2012. The population is aggregated into the five deciles above the 50th percentile. Under each of these assumptions, the average effective PIT, CIT, and total income tax is reported. Along with this, the ratio of the respondents' average effective total income tax rate against their average effective PIT rate is displayed. This ratio depicts the scale of the difference between the average effective income tax under the assumption of 100% of the CIT incidence falling onto capital and the particular assumption in question. The ratios denoted with asterisks have not taken account of the incidence on capital when considering the average effective total income tax rates of the respondents.

	PIT	CIT	Total	Ratio
2012 – Post IQR Outlier Removal				
Panel 1 - CIT incidence: 0% wages, 100% capital				
P51-P60	3.25	0	3.25	1
P61-P70	6.60	0	6.60	1
P71-P80	10.23	0	10.23	1
P81-P90	15.69	0	15.69	1
P91-P100	24.91	(incidence on capital)	24.91 (+ incidence on capital)	1*
Panel 2 – CIT incidence: 25% wages, 75% capital				
P51-P60	3.25	1.55	4.80	1.48
P61-P70	6.60	1.42	8.02	1.22
P71-P80	10.23	1.26	11.49	1.12
P81-P90	15.69	1.17	16.86	1.07
P91-P100	24.91	1.14 (+ 75% incidence on capital)	26.05 (+ 75% incidence on capital)	1.05*
Panel 3 – CIT incidence: 50% wages, 50% capital				
P51-P60	3.25	3.10	6.34	1.95
P61-P70	6.60	2.85	9.45	1.43
P71-P80	10.23	2.52	12.75	1.25
P81-P90	15.69	2.35	18.04	1.15
P91-P100	24.91	2.27 (+ 50% incidence on capital)	27.18 (+ 50% incidence on capital)	1.09*
Panel 4 – CIT incidence: 75% wages, 25% capital				
P51-P60	3.25	4.64	7.89	2.43
P61-P70	6.60	4.27	10.87	1.65
P71-P80	10.23	3.78	14.01	1.37
P81-P90	15.69	3.52	19.21	1.22
P91-P100	24.91	3.41 (+ 25% incidence on capital)	28.32 (+ 25% incidence on capital)	1.14*
Panel 5 – CIT incidence: 100% wages, 0% capital				
P51-P60	3.25	6.19	9.44	2.91
P61-P70	6.60	5.70	12.29	1.86
P71-P80	10.23	5.04	15.27	1.49
P81-P90	15.69	4.70	20.39	1.30
P91-P100	24.91	4.55	29.46	1.18

Appendix 6: 2013 Incidences Table with Fuest Aggregation of the Population

Appendix 6 displays the effects of five different assumptions regarding the incidence of the CIT rate in South Africa for the year 2013. The population is aggregated into three groups, between P0 and P90, P90 and P99, and P99 and P100. Under each of these assumptions, the average effective PIT, CIT, and total income tax is reported. Along with this, the ratio of the respondents' average effective total income tax rate against their average effective PIT rate is displayed. This ratio depicts the scale of the difference between the average effective income tax under the assumption of 100% of the CIT incidence falling onto capital and the particular assumption in question. The ratios denoted with asterisks have not taken account of the incidence on capital when considering the average effective total income tax rates of the respondents.

	PIT	CIT	Total	Ratio
2013 – Post IQR Outlier Removal				
Panel 1 - CIT incidence: 0% wages, 100% capital				
P0-P90	3.93	0	3.93	1
P90-P99	22.82	0	22.82	1
P99-100	31.58	(Incidence on capital)	31.58 (+ incidence on capital)	1*
Panel 2 – CIT incidence: 25% wages, 75% capital				
P0-P90	3.93	0.42	4.35	1.11
P90-P99	22.82	0.39	23.21	1.02
P99-P100	31.58	0.36 (+75% of the incidence on capital)	31.94 (+75% of the incidence on capital)	1.01*
Panel 3 – CIT incidence: 50% wages, 50% capital				
P0-P90	3.93	0.84	4.77	1.21
P90-P99	22.82	0.78	23.60	1.03
P99-P100	31.58	0.71 (+50% of the incidence on capital)	32.29 (+50% of the incidence on capital)	1.02*
Panel 4 – CIT incidence: 75% wages, 25% capital				
P0-P90	3.93	1.26	5.19	1.32
P90-P99	22.82	1.17	23.99	1.05
P99-P100	31.58	1.08 (+25% of the incidence on capital)	32.65 (+25% of the incidence on capital)	1.03*
Panel 5 – CIT incidence: 100% wages, 0% capital				
P0-P90	3.93	1.68	5.61	1.43
P90-P99	22.82	1.56	24.38	1.06
P99-P100	31.58	1.44	33.01	1.04

Appendix 7: 2013 Incidences Table for Deciles above the 50th Percentile

Appendix 7 displays the effects of five different assumptions regarding the incidence of the CIT rate in South Africa for the year 2013. The population is aggregated into the five deciles above the 50th percentile. Under each of these assumptions, the average effective PIT, CIT, and total income tax is reported. Along with this, the ratio of the respondents' average effective total income tax rate against their average effective PIT rate is displayed. This ratio depicts the scale of the difference between the average effective income tax under the assumption of 100% of the CIT incidence falling onto capital and the particular assumption in question. The ratios denoted with asterisks have not taken account of the incidence on capital when considering the average effective total income tax rates of the respondents.

	PIT	CIT	Total	Ratio
2013 – Post IQR Outlier Removal				
Panel 1 - CIT incidence: 0% wages, 100% capital				
P51-P60	2.94	0	2.94	1
P61-P70	5.94	0	5.94	1
P71-P80	9.40	0	9.40	1
P81-P90	14.82	0	14.82	1
P91-P100	24.38	(incidence on capital)	24.38 (+ incidence on capital)	1
Panel 2 – CIT incidence: 25% wages, 75% capital				
P51-P60	2.94	0.42	3.36	1.14
P61-P70	5.94	0.39	6.33	1.07
P71-P80	9.40	0.42	9.82	1.04
P81-P90	14.82	0.45	15.26	1.03
P91-P100	24.38	0.39 (+ 75% incidence on capital)	24.77 (+ 75% incidence on capital)	1.02
Panel 3 – CIT incidence: 50% wages, 50% capital				
P51-P60	2.94	0.85	3.78	1.29
P61-P70	5.94	0.78	6.72	1.13
P71-P80	9.40	0.83	10.23	1.09
P81-P90	14.82	0.89	15.71	1.06
P91-P100	24.38	0.77 (+ 50% incidence on capital)	25.15 (+ 50% incidence on capital)	1.03
Panel 4 – CIT incidence: 75% wages, 25% capital				
P51-P60	2.94	1.27	4.21	1.43
P61-P70	5.94	1.17	7.11	1.20
P71-P80	9.40	1.25	10.65	1.13
P81-P90	14.82	1.34	16.15	1.09
P91-P100	24.38	1.16 (+ 25% incidence on capital)	25.54 (+ 25% incidence on capital)	1.05
Panel 5 – CIT incidence: 100% wages, 0% capital				
P51-P60	2.94	1.69	4.63	1.58
P61-P70	5.94	1.56	7.50	1.26
P71-P80	9.40	1.66	11.07	1.18
P81-P90	14.82	1.78	16.60	1.12
P91-P100	24.38	1.54	25.92	1.06

Appendix 8: 2014 Incidences Table with Fuest Aggregation of the Population

Appendix 8 displays the effects of five different assumptions regarding the incidence of the CIT rate in South Africa for the year 2014. The population is aggregated into three groups, between P0 and P90, P90 and P99, and P99 and P100. Under each of these assumptions, the average effective PIT, CIT, and total income tax is reported. Along with this, the ratio of the respondents' average effective total income tax rate against their average effective PIT rate is displayed. This ratio depicts the scale of the difference between the average effective income tax under the assumption of 100% of the CIT incidence falling onto capital and the particular assumption in question. The ratios denoted with asterisks have not taken account of the incidence on capital when considering the average effective total income tax rates of the respondents.

	PIT	CIT	Total	Ratio
2014 – Post IQR Outlier Removal				
Panel 1 - CIT incidence: 0% wages, 100% capital				
P0-P90	3.77	0	3.77	1
P90-P99	22.93	0	22.93	1
P99-100	31.53	(Incidence on capital)	31.53 (+ incidence on capital)	1*
Panel 2 – CIT incidence: 25% wages, 75% capital				
P0-P90	3.77	1.09	4.86	1.29
P90-P99	22.93	1.12	24.05	1.05
P99-P100	31.53	0.90 (+75% of the incidence on capital)	32.43 (+75% of the incidence on capital)	1.03*
Panel 3 – CIT incidence: 50% wages, 50% capital				
P0-P90	3.77	2.18	5.94	1.58
P90-P99	22.93	2.24	25.17	1.10
P99-P100	31.53	1.80 (+50% of the incidence on capital)	33.33 (+50% of the incidence on capital)	1.06*
Panel 4 – CIT incidence: 75% wages, 25% capital				
P0-P90	3.77	3.26	7.03	1.87
P90-P99	22.93	3.35	26.28	1.15
P99-P100	31.53	2.70 (+25% of the incidence on capital)	34.23 (+25% of the incidence on capital)	1.09*
Panel 5 – CIT incidence: 100% wages, 0% capital				
P0-P90	3.77	4.35	8.12	2.15
P90-P99	22.93	4.47	27.40	1.20
P99-P100	31.53	3.61	35.13	1.11

Appendix 9: 2013 Incidences Table for Deciles above the 50th Percentile

Appendix 9 displays the effects of five different assumptions regarding the incidence of the CIT rate in South Africa for the year 2014. The population is aggregated into the five deciles above the 50th percentile. Under each of these assumptions, the average effective PIT, CIT, and total income tax is reported. Along with this, the ratio of the respondents' average effective total income tax rate against their average effective PIT rate is displayed. This ratio depicts the scale of the difference between the average effective income tax under the assumption of 100% of the CIT incidence falling onto capital and the particular assumption in question. The ratios denoted with asterisks have not taken account of the incidence on capital when considering the average effective total income tax rates of the respondents.

	PIT	CIT	Total	Ratio
2014 – Post IQR Outlier Removal				
Panel 1 - CIT incidence: 0% wages, 100% capital				
P51-P60	2.44	0	2.44	1
P61-P70	5.74	0	5.74	1
P71-P80	9.05	0	9.05	1
P81-P90	14.68	0	14.68	1
P91-P100	24.48	(incidence on capital)	24.48 (+ incidence on capital)	1*
Panel 2 – CIT incidence: 25% wages, 75% capital				
P51-P60	2.44	1.22	3.66	1.50
P61-P70	5.74	1.21	6.95	1.21
P71-P80	9.05	1.08	10.14	1.12
P81-P90	14.68	1.09	15.78	1.07
P91-P100	24.48	1.09 (+ 75% incidence on capital)	25.57 (+ 75% incidence on capital)	1.04*
Panel 3 – CIT incidence: 50% wages, 50% capital				
P51-P60	2.44	2.44	4.88	2.00
P61-P70	5.74	2.41	8.15	1.42
P71-P80	9.05	2.17	11.22	1.24
P81-P90	14.68	2.20	16.88	1.15
P91-P100	24.48	2.17 (+ 50% incidence on capital)	26.65 (+ 50% incidence on capital)	1.09*
Panel 4 – CIT incidence: 75% wages, 25% capital				
P51-P60	2.44	3.66	6.10	2.50
P61-P70	5.74	3.62	9.36	1.63
P71-P80	9.05	3.25	12.31	1.36
P81-P90	14.68	3.29	17.97	1.22
P91-P100	24.48	3.26 (+ 25% incidence on capital)	27.74 (+ 25% incidence on capital)	1.13*
Panel 5 – CIT incidence: 100% wages, 0% capital				
P51-P60	2.44	4.88	7.32	2.99
P61-P70	5.74	4.83	10.57	1.84
P71-P80	9.05	4.34	13.39	1.48
P81-P90	14.68	4.39	19.07	1.30
P91-P100	24.48	4.34	28.82	1.18

Appendix 10: 2015 Incidences Table with Fuest Aggregation of the Population

Appendix 10 displays the effects of five different assumptions regarding the incidence of the CIT rate in South Africa for the year 2015. The population is aggregated into three groups, between P0 and P90, P90 and P99, and P99 and P100. Under each of these assumptions, the average effective PIT, CIT, and total income tax is reported. Along with this, the ratio of the respondents' average effective total income tax rate against their average effective PIT rate is displayed. This ratio depicts the scale of the difference between the average effective income tax under the assumption of 100% of the CIT incidence falling onto capital and the particular assumption in question. The ratios denoted with asterisks have not taken account of the incidence on capital when considering the average effective total income tax rates of the respondents.

	PIT	CIT	Total	Ratio
2015 – Post IQR Outlier Removal				
Panel 1 - CIT incidence: 0% wages, 100% capital				
P0-P90	3.86	0	3.86	1
P90-P99	22.82	0	22.82	1
P99-100	31.38	(Incidence on capital)	31.38 (+ incidence on capital)	1*
Panel 2 – CIT incidence: 25% wages, 75% capital				
P0-P90	3.86	1.03	4.89	1.27
P90-P99	22.82	0.99	23.81	1.04
P99-P100	31.38	0.79 (+75% of the incidence on capital)	32.17 (+75% of the incidence on capital)	1.03*
Panel 3 – CIT incidence: 50% wages, 50% capital				
P0-P90	3.86	2.07	5.92	1.53
P90-P99	22.82	1.98	24.79	1.09
P99-P100	31.38	1.59 (+50% of the incidence on capital)	32.97 (+50% of the incidence on capital)	1.05*
Panel 4 – CIT incidence: 75% wages, 25% capital				
P0-P90	3.86	3.09	6.95	1.80
P90-P99	22.82	2.96	25.78	1.13
P99-P100	31.38	2.38 (+25% of the incidence on capital)	33.76 (+25% of the incidence on capital)	1.08*
Panel 5 – CIT incidence: 100% wages, 0% capital				
P0-P90	3.86	4.13	7.99	2.07
P90-P99	22.82	3.95	26.77	1.17
P99-P100	31.38	3.18	34.55	1.10

Appendix 11: 2015 Incidences Table for Deciles above the 50th Percentile

Appendix 11 displays the effects of five different assumptions regarding the incidence of the CIT rate in South Africa for the year 2015. The population is aggregated into the five deciles above the 50th percentile. Under each of these assumptions, the average effective PIT, CIT, and total income tax is reported. Along with this, the ratio of the respondents' average effective total income tax rate against their average effective PIT rate is displayed. This ratio depicts the scale of the difference between the average effective income tax under the assumption of 100% of the CIT incidence falling onto capital and the particular assumption in question. The ratios denoted with asterisks have not taken account of the incidence on capital when considering the average effective total income tax rates of the respondents.

	PIT	CIT	Total	Ratio
2015 – Post IQR Outlier Removal				
Panel 1 - CIT incidence: 0% wages, 100% capital				
P51-P60	2.63	0	2.63	1
P61-P70	5.91	0	5.91	1
P71-P80	9.25	0	9.25	1
P81-P90	14.75	0	14.75	1
P91-P100	24.36	(incidence on capital)	24.36 (+ incidence on capital)	1*
Panel 2 – CIT incidence: 25% wages, 75% capital				
P51-P60	2.63	1.21	3.84	1.46
P61-P70	5.91	1.15	7.06	1.20
P71-P80	9.25	1.07	10.32	1.12
P81-P90	14.75	1.03	15.78	1.07
P91-P100	24.36	0.96 (+ 75% incidence on capital)	25.31 (+ 75% incidence on capital)	1.04*
Panel 3 – CIT incidence: 50% wages, 50% capital				
P51-P60	2.63	2.42	5.05	1.92
P61-P70	5.91	2.31	8.21	1.39
P71-P80	9.25	2.14	11.39	1.23
P81-P90	14.75	2.06	16.81	1.14
P91-P100	24.36	1.92 (+ 50% incidence on capital)	26.27 (+ 50% incidence on capital)	1.08*
Panel 4 – CIT incidence: 75% wages, 25% capital				
P51-P60	2.63	3.63	6.25	2.38
P61-P70	5.91	3.46	9.37	1.59
P71-P80	9.25	3.21	12.46	1.35
P81-P90	14.75	3.08	17.83	1.21
P91-P100	24.36	2.87 (+ 25% incidence on capital)	27.23 (+ 25% incidence on capital)	1.12*
Panel 5 – CIT incidence: 100% wages, 0% capital				
P51-P60	2.63	4.83	7.46	2.84
P61-P70	5.91	4.62	10.52	1.78
P71-P80	9.25	4.28	13.53	1.46
P81-P90	14.75	4.11	18.86	1.28
P91-P100	24.36	3.83	28.19	1.16

Appendix 12: 2017 Incidences Table with Fuest Aggregation of the Population

Appendix 12 displays the effects of five different assumptions regarding the incidence of the CIT rate in South Africa for the year 2017. The population is aggregated into three groups, between P0 and P90, P90 and P99, and P99 and P100. Under each of these assumptions, the average effective PIT, CIT, and total income tax is reported. Along with this, the ratio of the respondents' average effective total income tax rate against their average effective PIT rate is displayed. This ratio depicts the scale of the difference between the average effective income tax under the assumption of 100% of the CIT incidence falling onto capital and the particular assumption in question. The ratios denoted with asterisks have not taken account of the incidence on capital when considering the average effective total income tax rates of the respondents.

	PIT	CIT	Total	Ratio
2017 – Post IQR Outlier Removal				
Panel 1 - CIT incidence: 0% wages, 100% capital				
P0-P90	4.10	0	4.10	1
P90-P99	23.84	0	23.84	1
P99-100	32.49	(Incidence on capital)	32.49 (+ incidence on capital)	1*
Panel 2 – CIT incidence: 25% wages, 75% capital				
P0-P90	4.10	1.05	5.14	1.26
P90-P99	23.84	1.04	24.88	1.04
P99-P100	32.49	0.82 (+75% of the incidence on capital)	33.31 (+75% of the incidence on capital)	1.03*
Panel 3 – CIT incidence: 50% wages, 50% capital				
P0-P90	4.10	2.09	6.19	1.51
P90-P99	23.84	2.08	25.92	1.09
P99-P100	32.49	1.64 (+50% of the incidence on capital)	34.13 (+50% of the incidence on capital)	1.05*
Panel 4 – CIT incidence: 75% wages, 25% capital				
P0-P90	4.10	3.14	7.23	1.77
P90-P99	23.84	3.12	26.96	1.13
P99-P100	32.49	2.47 (+25% of the incidence on capital)	34.96 (+25% of the incidence on capital)	1.08
Panel 5 – CIT incidence: 100% wages, 0% capital				
P0-P90	4.10	4.18	8.28	2.02
P90-P99	23.84	4.16	28.00	1.17
P99-P100	32.49	3.29	35.78	1.10

Appendix 13: 2017 Incidences Table for Deciles above the 50th Percentile

Appendix 13 displays the effects of five different assumptions regarding the incidence of the CIT rate in South Africa for the year 2017. The population is aggregated into the five deciles above the 50th percentile. Under each of these assumptions, the average effective PIT, CIT, and total income tax is reported. Along with this, the ratio of the respondents' average effective total income tax rate against their average effective PIT rate is displayed. This ratio depicts the scale of the difference between the average effective income tax under the assumption of 100% of the CIT incidence falling onto capital and the particular assumption in question. The ratios denoted with asterisks have not taken account of the incidence on capital when considering the average effective total income tax rates of the respondents.

	PIT	CIT	Total	Ratio
2017 – Post IQR Outlier Removal				
Panel 1 - CIT incidence: 0% wages, 100% capital				
P51-P60	2.87	0	2.63	1
P61-P70	6.31	0	5.91	1
P71-P80	9.64	0	9.25	1
P81-P90	15.44	0	14.75	1
P91-P100	25.40	(incidence on capital)	24.36 (+ incidence on capital)	1*
Panel 2 – CIT incidence: 25% wages, 75% capital				
P51-P60	2.87	1.18	4.04	1.41
P61-P70	6.31	1.14	7.45	1.18
P71-P80	9.64	1.06	10.69	1.11
P81-P90	15.44	1.05	16.49	1.07
P91-P100	25.40	1.01 (+ 75% incidence on capital)	26.41 (+ 75% incidence on capital)	1.04*
Panel 3 – CIT incidence: 50% wages, 50% capital				
P51-P60	2.87	2.36	5.22	1.82
P61-P70	6.31	2.28	8.59	1.36
P71-P80	9.64	2.11	11.75	1.22
P81-P90	15.44	2.11	17.54	1.14
P91-P100	25.40	2.02 (+ 50% incidence on capital)	27.42 (+ 50% incidence on capital)	1.08*
Panel 4 – CIT incidence: 75% wages, 25% capital				
P51-P60	2.87	3.54	6.40	2.23
P61-P70	6.31	3.41	9.73	1.54
P71-P80	9.64	3.17	12.81	1.33
P81-P90	15.44	3.16	18.59	1.20
P91-P100	25.40	3.03 (+ 25% incidence on capital)	28.43 (+ 25% incidence on capital)	1.12*
Panel 5 – CIT incidence: 100% wages, 0% capital				
P51-P60	2.87	4.71	7.58	2.65
P61-P70	6.31	4.55	10.86	1.72
P71-P80	9.64	4.22	13.86	1.44
P81-P90	15.44	4.21	19.65	1.27
P91-P100	25.40	4.04	29.44	1.16

Appendix 14: 2018 Incidences Table with Fuest Aggregation of the Population

Appendix 14 displays the effects of five different assumptions regarding the incidence of the CIT rate in South Africa for the year 2018. The population is aggregated into three groups, between P0 and P90, P90 and P99, and P99 and P100. Under each of these assumptions, the average effective PIT, CIT, and total income tax is reported. Along with this, the ratio of the respondents' average effective total income tax rate against their average effective PIT rate is displayed. This ratio depicts the scale of the difference between the average effective income tax under the assumption of 100% of the CIT incidence falling onto capital and the particular assumption in question. The ratios denoted with asterisks have not taken account of the incidence on capital when considering the average effective total income tax rates of the respondents.

	PIT	CIT	Total	Ratio
2018 – Post IQR Outlier Removal				
Panel 1 - CIT incidence: 0% wages, 100% capital				
P0-P90	4.39	0	4.39	1
P90-P99	24.24	0	24.24	1
P99-100	33.07	(Incidence on capital)	33.07 (+ incidence on capital)	1*
Panel 2 – CIT incidence: 25% wages, 75% capital				
P0-P90	4.39	0.92	5.31	1.21
P90-P99	24.24	0.89	25.13	1.04
P99-P100	33.07	0.66 (+75% of the incidence on capital)	33.73 (+75% of the incidence on capital)	1.02*
Panel 3 – CIT incidence: 50% wages, 50% capital				
P0-P90	4.39	1.84	6.23	1.42
P90-P99	24.24	1.78	26.02	1.07
P99-P100	33.07	1.32 (+50% of the incidence on capital)	34.39 (+50% of the incidence on capital)	1.04*
Panel 4 – CIT incidence: 75% wages, 25% capital				
P0-P90	4.39	2.76	7.15	1.63
P90-P99	24.24	2.67	26.92	1.11
P99-P100	33.07	1.98 (+25% of the incidence on capital)	35.05 (+25% of the incidence on capital)	1.06*
Panel 5 – CIT incidence: 100% wages, 0% capital				
P0-P90	4.39	3.68	8.07	1.84
P90-P99	24.24	3.56	27.81	1.15
P99-P100	33.07	2.64	35.71	1.08

Appendix 15: 2018 Incidences Table for Deciles above the 50th Percentile

Appendix 15 displays the effects of five different assumptions regarding the incidence of the CIT rate in South Africa for the year 2018. The population is aggregated into the five deciles above the 50th percentile. Under each of these assumptions, the average effective PIT, CIT, and total income tax is reported. Along with this, the ratio of the respondents' average effective total income tax rate against their average effective PIT rate is displayed. This ratio depicts the scale of the difference between the average effective income tax under the assumption of 100% of the CIT incidence falling onto capital and the particular assumption in question. The ratios denoted with asterisks have not taken account of the incidence on capital when considering the average effective total income tax rates of the respondents.

	PIT	CIT	Total	Ratio
2018 – Post IQR Outlier Removal				
Panel 1 - CIT incidence: 0% wages, 100% capital				
P51-P60	3.33	0	3.33	1
P61-P70	6.80	0	6.80	1
P71-P80	10.31	0	10.31	1
P81-P90	16.00	0	16.00	1
P91-P100	25.85	(incidence on capital)	25.85 (+ incidence on capital)	1*
Panel 2 – CIT incidence: 25% wages, 75% capital				
P51-P60	3.33	1.04	4.37	1.31
P61-P70	6.80	1.02	7.82	1.15
P71-P80	10.31	0.94	11.26	1.09
P81-P90	16.00	1.00	17.00	1.06
P91-P100	25.85	0.86 (+ 75% incidence on capital)	26.70 (+ 75% incidence on capital)	1.03*
Panel 3 – CIT incidence: 50% wages, 50% capital				
P51-P60	3.33	2.09	5.41	1.63
P61-P70	6.80	2.03	8.84	1.30
P71-P80	10.31	1.89	12.20	1.18
P81-P90	16.00	2.00	18.00	1.13
P91-P100	25.85	1.71 (+ 50% incidence on capital)	27.56 (+ 50% incidence on capital)	1.07*
Panel 4 – CIT incidence: 75% wages, 25% capital				
P51-P60	3.33	3.13	6.45	1.94
P61-P70	6.80	3.05	9.86	1.45
P71-P80	10.31	2.83	13.14	1.27
P81-P90	16.00	3.00	19.00	1.19
P91-P100	25.85	2.57 (+ 25% incidence on capital)	28.42 (+ 25% incidence on capital)	1.10*
Panel 5 – CIT incidence: 100% wages, 0% capital				
P51-P60	3.33	4.17	7.50	2.25
P61-P70	6.80	4.07	10.87	1.60
P71-P80	10.31	3.78	14.09	1.37
P81-P90	16.00	4.00	20.00	1.25
P91-P100	25.85	3.43	29.28	1.13

Appendix 16: 2019 Incidences Table with Fuest Aggregation of the Population

Appendix 16 displays the effects of five different assumptions regarding the incidence of the CIT rate in South Africa for the year 2019. The population is aggregated into three groups, between P0 and P90, P90 and P99, and P99 and P100. Under each of these assumptions, the average effective PIT, CIT, and total income tax is reported. Along with this, the ratio of the respondents' average effective total income tax rate against their average effective PIT rate is displayed. This ratio depicts the scale of the difference between the average effective income tax under the assumption of 100% of the CIT incidence falling onto capital and the particular assumption in question. The ratios denoted with asterisks have not taken account of the incidence on capital when considering the average effective total income tax rates of the respondents.

	PIT	CIT	Total	Ratio
2019 – Post IQR Outlier Removal				
Panel 1 - CIT incidence: 0% wages, 100% capital				
P0-P90	4.90	0	4.90	1
P90-P99	25.79	0	25.79	1
P99-100	34.10	(Incidence on capital)	34.10 (+ incidence on capital)	1*
Panel 2 – CIT incidence: 25% wages, 75% capital				
P0-P90	4.90	0.81	5.71	1.17
P90-P99	25.79	0.83	26.62	1.03
P99-P100	34.10	0.59 (+75% of the incidence on capital)	34.68 (+75% of the incidence on capital)	1.02*
Panel 3 – CIT incidence: 50% wages, 50% capital				
P0-P90	4.90	1.63	6.52	1.33
P90-P99	25.79	1.67	27.46	1.06
P99-P100	34.10	1.18 (+50% of the incidence on capital)	35.27 (+50% of the incidence on capital)	1.03*
Panel 4 – CIT incidence: 75% wages, 25% capital				
P0-P90	4.90	2.44	7.34	1.50
P90-P99	25.79	2.50	28.29	1.10
P99-P100	34.10	1.77 (+25% of the incidence on capital)	35.86 (+25% of the incidence on capital)	1.05*
Panel 5 – CIT incidence: 100% wages, 0% capital				
P0-P90	4.90	3.25	8.15	1.66
P90-P99	25.79	3.33	29.12	1.13
P99-P100	34.10	2.36	36.45	1.07

Appendix 17: 2019 Incidences Table for Deciles above the 50th Percentile

Appendix 17 displays the effects of five different assumptions regarding the incidence of the CIT rate in South Africa for the year 2019 The population is aggregated into the five deciles above the 50th percentile. Under each of these assumptions, the average effective PIT, CIT, and total income tax is reported. Along with this, the ratio of the respondents' average effective total income tax rate against their average effective PIT rate is displayed. This ratio depicts the scale of the difference between the average effective income tax under the assumption of 100% of the CIT incidence falling onto capital and the particular assumption in question. The ratios denoted with asterisks have not taken account of the incidence on capital when considering the average effective total income tax rates of the respondents.

	PIT	CIT	Total	Ratio
2019 – Post IQR Outlier Removal				
Panel 1 - CIT incidence: 0% wages, 100% capital				
P51-P60	3.57	0	3.33	1
P61-P70	7.44	0	6.80	1
P71-P80	11.36	0	10.31	1
P81-P90	17.31	0	16.00	1
P91-P100	27.33	(incidence on capital)	25.85 (+ incidence on capital)	1*
Panel 2 – CIT incidence: 25% wages, 75% capital				
P51-P60	3.33	0.89	4.46	1.25
P61-P70	6.80	0.88	8.32	1.12
P71-P80	10.31	0.78	12.15	1.07
P81-P90	16.00	0.87	18.17	1.05
P91-P100	25.85	0.79 (+ 75% incidence on capital)	28.12 (+ 75% incidence on capital)	1.03*
Panel 3 – CIT incidence: 50% wages, 50% capital				
P51-P60	3.33	1.78	5.35	1.50
P61-P70	6.80	1.76	9.19	1.24
P71-P80	10.31	1.56	12.93	1.14
P81-P90	16.00	1.73	19.04	1.10
P91-P100	25.85	1.58 (+ 50% incidence on capital)	28.91 (+ 50% incidence on capital)	1.06*
Panel 4 – CIT incidence: 75% wages, 25% capital				
P51-P60	3.33	2.67	6.23	1.75
P61-P70	6.80	2.63	10.07	1.35
P71-P80	10.31	2.35	13.71	1.21
P81-P90	16.00	2.60	19.90	1.15
P91-P100	25.85	2.38 (+ 25% incidence on capital)	29.70 (+ 25% incidence on capital)	1.09*
Panel 5 – CIT incidence: 100% wages, 0% capital				
P51-P60	3.33	3.56	7.13	2.00
P61-P70	6.80	3.51	10.95	1.47
P71-P80	10.31	3.13	14.49	1.28
P81-P90	16.00	3.47	20.77	1.20
P91-P100	25.85	3.17	30.49	1.12