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ESSAYS ON THE TEMPORARY EMPLOYMENT SERVICES SECTOR IN SOUTH AFRICA:

AN ANALYSIS USING ADMINISTRATIVE DATA

Thesis for Doctor of Philosophy Degree in Economics

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Abstract

In a country with high levels of inequality, the debate on the temporary employment services (TES) sector centres around whether the sector can provide productive employment opportunities or whether it perpetuates poor working conditions, reinforcing labour market segmentation. It became clear that even after revisions were made to the country's overarching labour legislation at the advent of democracy, those employed within TES and other atypical workers had limited legislative protection. It was not until 2015 that amendments were made to that part of the *Labour Relations Act No.66 of 1995* (LRA) that governs temporary employment, requiring client firms to treat TES workers no less favourably than their direct hires.

The scope of existing data and literature on the TES sector in South Africa and in the Global South is limited and the inability to identify TES workers is a common problem across household surveys. Existing surveys and case studies on the TES sector in South Africa have been limited to small samples of firms that are not nationally representative, leading to divergent estimates of the size of the sector and the nature of TES employment, and limiting the assumptions that can be made about the sector as a whole. The administrative tax data released by the South African government in 2015 provided an opportunity to examine the TES sector in more detail as it accurately identifies TES firms in the formal sector as well as their workers.

This study contributes to the body of work on the TES sector by addressing three unique aspects in three main chapters. The first builds a profile of the TES sector, describing what we currently know about the size and shape of the sector in South Africa. To do this, the chapter draws on a variety of sources, including historical accounts, legal cases, existing studies and surveys, and importantly a descriptive analysis of the newly released administrative tax data. The aim is to synthesise and critically analyse the information available on the sector and draw attention to the research gaps.

The second chapter focusses on measuring the size of the gross wage penalty for TES workers (relative to non-TES workers), and examining how the administrative data can be used to unpack the drivers of this penalty, such as differences in worker characteristics between the TES and non-TES sectors; differences in the nature of the job itself; and differences in the conditions under which workers accept a job in the TES sector. Furthermore, this chapter considers whether wages are structured differently by comparing TES and non-TES workers' contributions to certain benefits such as pensions and medical aid. A substantial TES gross wage penalty is found, which remains high, even after accounting for individual fixed effects and controlling for a set of job and

firm characteristics available in the tax data. Although the wage differential does not decline appreciably when benefits are taken into account, TES workers are much less likely to report benefit contributions than non-TES workers, and when they do, TES worker contributions are a fraction of what non-TES workers contribute.

The third chapter estimates the short-term impact of the amendments to the LRA in 2015, which aimed to strengthen the rights of TES workers, on employment, earnings and job duration between 2015 and 2016. The findings suggest that for TES workers that transition into the non-TES sector, wages improved. The amendments had mixed effects on worker wellbeing in the short run.

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Acronyms

APSO	Federation of African Professional Staffing Organisation
BCEA	Basic Conditions of Employment Act
CAPES	Confederation of Association of Professional Employment Solutions
CCMA	Commission for Conciliation, Mediation and Arbitration
CIT	Company Income Tax
COSATU	Confederation of South African Trade Unions
EPL	Employment Protection Legislation
HSRC	Human Sciences Research Council
ILO	International Labour Organisation
LFS	Labour Force Survey
LRA	Labour Relations Act No.66 of 1995
LRAA	Labour Relations Amendment Act No.6 of 2014
MEIBC	Minerals and Engineering Industry Bargaining Council
MSE	Mean Squared Error
NABC	National Association of Bargaining Councils
NEC	Not Elsewhere Classified
NUMSA	National Union of Mineworkers of South Africa
NT	National Treasury
PALMS	Post-Apartheid Labour Market Series
PAYE	Pay As You Earn
POLS	Pooled Ordinary Least Squares
QES	Quarterly Employment Survey
QLFS	Quarterly Labour Force Survey
RDD	Regression Discontinuity Design
SAPO	South African Post Office
SARS	South African Revenue Services
SER	Standard Employment Relationship
SIC	Standard Industrial Classification
SSETA	Services Skills Education and Training Authority
TES	Temporary Employment Services
SA-TIED	South Africa Towards Inclusive Economic Development
SIC	Standard Industrial Classification
UIF	Unemployment Insurance Fund
VAT	Value Added Tax

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Chapter 1

Introduction

1.1 Motivation for this thesis

In the global context of increasing inequality across and within countries, segmented labour markets and the precariousness of atypical work have received increased attention. Atypical work includes arrangements such as labour brokering through temporary employment agencies, independent contractors, outsourcing and part-time contracts. Labour market economists have grappled with the conundrum about whether atypical work can be used as a mechanism to include more people in the economy or whether it perpetuates poor working conditions and thereby labour market inequality. Despite the negative public sentiment related to atypical work, a shift towards this type of employment has been observed globally, fuelled by industries facing relatively volatile demand particularly in the manufacturing sector (Deakin, 2002; Houseman, 2014). In addition, temporary agency work is one of the few forms of employment that have withstood labour market shocks such as the Great Recession (Kontouris et al, 2016). With the growth of digital platforms and the gig economy[1], the debate on the precariousness of atypical work is having a resurgence as workers find themselves earning low wages in insecure employment, and with limited access to benefits.

A specific type of atypical or temporary employment is temporary employment through agencies, referred to as the temporary employment services (TES) sector, or more colloquially as the 'labour broker' sector. The overall objective of this thesis is to provide a greater understanding of the TES sector in South Africa, a sector that provokes substantial public debate despite relatively little being known about it. TES workers are employed by staffing agencies, where these agencies are ultimately responsible for the salary, taxes and benefits of the leased employee. When a company (referred to as the client) contracts with a staffing agency for temporary help, the company pays the staffing agency a set fee for the leased worker. TES workers can be distinguished from seasonal, temporary or part-time contingent workers, who are typically employees of the company that hired

[1] The gig economy is commonly known for hiring independent or freelance workers, or temporary, project-based or part-time hires for short-term assignments in sectors including transportation, software development, project management, material moving, freelance writing, education and accounting among others.

them, working on short-term or seasonal tasks. TES also differs from outsourcing[2] in which an entire department or function (for example, cleaning or accounting) is outsourced normally for a longer period (usually three to five years), and hired workers are put on the outsourcing service provider's payroll.

The advanced economy literature identifies a number of reasons why firms may prefer to use TES workers and pay the associated fee to the TES firm, rather than hire workers directly. First, temporary employment work experience signals to an employer that an individual was desirable for another job and has experience working under organisational rules (de Graaf-Zijl, Van den Berg, & Heyma, 2011). Second, employers use TES as a screening tool whereby firms assess candidates' qualities and suitability for the job before offering permanent positions (Houseman, 2004). Third, a temporary contract allows for flexibility which means that firms can swiftly respond to changes in the economy and labour market (Nunez & Livanos, 2015). Lastly, evidence has suggested that employers used TES firms to circumvent the provision of health insurance and retirement benefits, which means that hiring TES workers is more cost effective for client firms than direct hires (Houseman, 2014). Houseman (2014) noted that while wages and benefits are not always lower for TES workers relative to permanent workers, they often can be.

From the perspective of the worker, they may accept employment in the TES sector (even if at lower wages and benefits) because they themselves value flexibility, or because they view TES work as a stepping-stone into more permanent or regular employment (Autor 2001; Holmlund & Storrie 2002). Two theoretical reasons are provided which relate to the stepping-stone hypothesis. First, TES firms often recruit unemployed workers and put them into positions of paid work, which means TES provides a network that an unemployed individual in the labour market may not have access to and engagements in temporary jobs may then lead to other paid jobs (Holmlund & Storrie, 2002). Second, the acquisition of human capital is seen as a channel through which temporary employment offers a path into permanent employment if human capital is acquired through a variety of assignments and tasks in temporary jobs (Abraham, 1990; Autor, 2001). TES firms offer opportunities for training that may halt an unemployed individual's depreciating human capital (Kvasnicka, 2008). However, if the job is short, the positive human capital effects would tend to be lower (Segal & Sullivan, 1997).

[2] Many companies have chosen to do away with internal departments by outsourcing non-core departmental functions to companies or independent contractors that provide these services for a fee.

The reasons above resonate with why South African employers and workers may use TES firms. The difficulty of hiring and firing in South Africa (Bhorat, Naidoo, & Yu 2014), combined with political uncertainty and an economy on a low growth trajectory, have prompted employers to explore atypical work arrangements. From the employee's perspective, since at least a quarter of the labour force is unemployed according to the strict or official definition of unemployment, and the informal sector (around 18 percent of total employment[3]) is relatively small, opportunities to join the formal sector are highly competitive, and TES firms may offer a network of employers and jobs that can facilitate employment opportunities.

However, a strong and politically powerful union movement, coupled with high levels of labour market inequality across racial lines, have led to this sector being highly contested. There is a perception that wages paid to workers by TES agencies are low and that the sector is exploitative, avoiding paying fair wages and benefits while keeping workers on short rotational contracts. The question remains as to whether TES firms can be part of the solution to facilitate employment, or whether they are a persistent part of the problem in perpetuating low wages and unfair labour practices (Houseman, 2014).

As a response to the concern that TES workers were being unfairly treated in South Africa, amendments were made in 2015 to that part of the *Labour Relations Act No.66 of 1995*[4] (LRA) that governs temporary employment. The new regulations stated that TES workers should be treated no less favourably than the permanent workers of the client firm, and that temporary work be limited to contract lengths of three months. Essentially the *Labour Relations Amendment Act No.6 of 2014* (LRAA) was the government's attempt to regulate the triangular relationship between the client firm, the TES firm or labour broker, and the worker, which was subject to limited regulation prior to April 2015. However, with around a quarter of the labour force at the time unemployed (and closer to 40 percent when a non-searching definition of unemployment is used), there was also concern from certain parties[5] that the stricter employment protection legislation could disincentivise the use of TES, leading to a loss of employment. The legislative amendments were

[3] Based on data from the Quarterly Labour Force Survey (a household- level survey), Quarter 4 of 2019.

[4] The Labour Relations Act 66 of 1995 is one of South Africa's overarching pieces of labour legislation. It has been amended many times to reflect the changing dynamics of the labour market and provide protection to different types of workers.

[5] The Free Market Foundation, the Small Business Project, and the National Employment Association of South Africa raised opposition to the legislation.

enforced in April 2015, despite there being little reliable empirical evidence on the extent of a wage penalty to TES employment in South Africa or research into potential disemployment effects.

The scope of existing data and literature on the TES sector in Africa and in the Global South is limited. The inability to identify TES workers in data is not uncommon across various firm and household surveys around the world (Kontouris et al, 2016). Budlender (2013, p.3) wrote that "while there is widespread agreement that a large number of workers are employed by temporary employment agencies in South Africa, and that the number has grown over time, there is similarly widespread agreement that the available numbers are estimates based on various assumptions rather than more reliable 'counts' of the phenomenon". Prior to 2015, existing data sources in South Africa included a few surveys based on small samples of TES firms that were not nationally representative and, as a result, estimates of the size of the TES sector were not considered reliable. Given this lack of data, researchers have tried to extract information about the TES sector from South Africa's labour force surveys, but this is challenging to do due to the way in which sectors are aggregated in survey data. The standard industrial classification (SIC) category which subsumes TES workers includes various other kinds of employment that cannot be separated out. An additional concern is that self- or proxy-reporting in household surveys means that data may be compromised because people may not know how to report on the nature of their employment relationship. The individual may report the sector that they physically work in (the third party or client firm's sector) rather than the sector of their direct employer, namely the TES sector.

An opportunity to provide a more reliable analysis of the TES sector was presented when administrative data, based on company and employee income tax records, was made available by the South Africa Revenue Services (SARS) and the National Treasury (NT) for research purposes in 2015. The SARS-NT dataset is the first in South Africa to explicitly capture which firms are labour brokers, and therefore which employees are employed by TES firms. Although workers cannot also be matched to the client firms they physically work in, because they can be identified as working for a TES firm, the dataset contains valuable information on the employee's contract and wages, for which the TES firm is responsible.

While not without its limitations (which will be discussed in some detail throughout this thesis), the SARS-NT data offers the most reliable data on TES workers in South Africa to date, and the opportunity to explore this sector with some accuracy for the first time, a novel contribution of this thesis. The analysis of the TES sector using the tax data in this thesis is of value not just in

providing information about a sector on which little hard empirical evidence exists, but also because the careful analysis of the tax data, in which both its advantages and limitations are highlighted, offers a useful entry point for others wanting to use this complex dataset or other administrative datasets like it.[6]

1.2 Objectives and structure of the thesis

The body of this thesis is made up of three core 'standalone' chapters, covering the three main objectives of the thesis; namely 1) to provide a descriptive account of the size and nature of the TES sector in South Africa, drawing on existing studies, surveys and historical accounts as well as the SARS-NT tax data; 2) to examine the wage and benefits differentials between TES and non-TES workers; and 3) to explore the short-term impacts of the 2015 LRAA on employment, wages and contract length. Each of these three chapters is described in more detail below.

1.2.1 Chapter 2: A profile of the temporary employment services sector in South Africa

Chapter 2 builds a comprehensive profile of the TES sector, describing what is known about the size and shape of the sector in South Africa. To do this, the paper draws on a variety of sources, including historical accounts, legal cases, existing studies and surveys, and importantly the SARS-NT tax data. It makes an important contribution to the literature in that it is the first piece of work to collate information from these various sources and to critically analyse the information with a view to understanding the history of the sector as well its current form.

An important feature of this chapter is that it presents a detailed overview of the structure of the administrative tax data, followed by the first descriptive profile of the individual, job and firm characteristics of the TES sector using data that accurately identified the TES sector. Given the complexity of the tax data, this will be useful for other researchers who may want to use the tax data for applied research. The TES sector makes up around 5 percent of the sample of employee income tax certificates (or 400 000 jobs), which is not insignificant in the context of South Africa's exceptionally high unemployment rate and therefore warrants further investigation. This is particularly so since the data suggest that TES workers are likely to be younger, on shorter contracts, and paid less than their non-TES counterparts, indicating that TES jobs are more precarious than non-TES jobs. This chapter also highlights some of the key gaps in the literature on the TES sector that the following chapters aim to fill.

[6] Administrative data is becoming popular and developing countries such as Rwanda and Uganda have recently provided access to administrative data to researchers for economic analysis.

1.2.2 Chapter 3: Identifying the wage penalty in the labour broker sector

The wages and conditions of workers in the TES sector have featured heavily in public debates on what constitutes decent work globally. Given South Africa's politically powerful union movement, there has been a particularly heated debate on working conditions in the TES sector. Drawing on the unique features of the tax record data, Chapter 3 explores two main research questions. The first is what is the size of the gross wage penalty for TES workers (relative to non-TES workers) and how can the administrative data be used to unpack the drivers of this penalty. More specifically, the panel nature of the data is used to explore the extent to which the penalty is driven by differences in worker characteristics between the TES and non-TES sectors; differences in the nature of the job itself; and differences in the conditions under which workers accept a job in the TES sector. The second question examined here is whether the gross wages of TES and non-TES workers are structured differently. The tax data contain some information on the employee's benefit contributions such as towards pension and medical aid, which means it is possible to explore whether in South Africa, as has been found elsewhere (Houseman, 2001; Segal & Sullivan, 1997), TES workers are less likely to receive certain benefits.

A substantial TES gross wage penalty is found of around 88 percent, which remains high (at 34 percent), even after accounting for individual fixed effects and controlling for a set of job and firm characteristics available in the tax data. Although the wage differential does not decline appreciably when benefits are taken into account, TES workers are much less likely to report benefit contributions than non-TES workers, and when they do, TES worker contributions are a fraction of what non-TES workers contribute. Although there are limitations to estimating the wage penalty using the tax data (explained in detail in Chapter 3), the results add some substance to arguments that TES workers are in a more precarious position than non-TES workers, both in the short and longer term, and that this form of employment contributes to high levels of labour market inequality in South Africa.

1.2.3 Chapter 4: The impact of employment protection on the temporary employment services sector

Chapter 4 examines the impact of the LRAA that was implemented in 2015. This chapter is an important contribution to the labour market literature on employment protection as there are not many cases in which stricter legislation is imposed on temporary work (as opposed to permanent work), and empirical research in this regard is therefore lacking. Additionally, the South African case is an interesting one, as stricter employment protection legislation was imposed in an

environment where unemployment is extremely high and the prospects for economic growth are bleak. It is therefore important to examine whether the legislation made workers better off, or had unintended negative consequences for employment and job conditions.

Since the LRAA was implemented in April 2015, there has been limited empirical analysis on the impact that the amendments have had on the sector. The work that has been undertaken has used the labour force data or has been qualitative in nature. Chapter 4 uses the employee income tax data to examine the short-term impact of the amendments on labour market status, job duration[7] and wages. In the estimation strategy, a regression discontinuity design (RDD) is used as the amendments applied only to employees earning below a certain earnings threshold. In particular, an attempt is made in this chapter to try and uncover if workers employed in the TES sector were subsequently employed in the non-TES sector (possibly absorbed by the client firm, as the legislation had intended) or if instead there were disemployment effects. The findings suggest that a larger proportion of individuals moved out of the data into either informal employment, unemployment or economic inactivity after the amendments were implemented than moved into the non-TES sector. However, for those who did transition into the non-TES sector, wages improved. The amendments therefore had mixed effects on worker wellbeing in the short run.

The thesis concludes with Chapter 5. This chapter provides a summary of the key results of the three above-mentioned chapters, a discussion of some of the remaining gaps in our knowledge, and a reflection on the broader implications of the findings in the South African and developing country contexts.

[7] Job duration refers to days of the year employed since the job duration variable is truncated at one year.

Chapter 2

A Profile of the Temporary Employment Services Sector in South Africa

2.1 Introduction

Labour brokering, in various forms, has existed in South Africa over the last century at least. In the early 1900s, it was used as a tool by the state to control migrant worker movements and reserve certain jobs based on race. There are no studies on the emergence of 'temporary employment services' (TES)[8] through private employment agencies in South Africa, but it is suggested that the initial impetus for this type of employment was the loosening of influx control into urban areas from the 1970s (Benjamin, 2013). Firms turned to private employment agencies instead of relying on government-owned labour agencies to meet their employment needs. The sector was largely unregulated until amendments were made to that part of the LRA that governs temporary employment in early 2015, over twenty years after the country's democratic transition. The amended legislation attempted to better regulate the TES industry and offer greater protection to temporary workers.

As will be discussed further below, case studies of the sector suggest labour broker employees faced severe discrimination in terms of wages, benefits, unfair dismissals and workplace treatment (Dickinson, 2017; Webster & Englert, 2020). It appears that the sector had been used as a mechanism to circumvent employment protection legislation and bring down costs of employment, while maintaining output levels. In light of South Africa's history of workplace discrimination, it is important that the extent to which the TES sector in its current form perpetuates these unfair practices is considered.

[8] The terms *labour broker* and *TES* are used interchangeably throughout this thesis, as prior to 1995, private employment agencies were called labour brokers. Subsequently, the industry distanced itself from the term, suggesting it had negative connotations, and instead referred to the sector as 'temporary employment services'. The term 'TES' was also formally adopted in the revised LRA in 1995.

Part of the difficulty with studying this sector was that prior to 2015 the data available in South Africa did not accurately identify the sector. This problem has been identified in datasets across the world, leaving a dearth of information available to better understand the TES sector (Kontouris et al, 2016). Before the administrative tax data were made available by the South African government for research purposes, data on the TES sector in South Africa were based on (often small-sample) surveys that had low response rates and were not nationally representative, or government agency databases that were not updated regularly. Further, nationally representative labour force surveys were also inappropriate to examine the TES sector since, as will be explained in more detail later, the standard sectoral classifications do not allow the TES sector to be separated out from other sectoral groups. The SARS-NT administrative tax data are the first that accurately identify formal TES firms in South Africa.

The main objective of this chapter is to build a profile of the TES sector, describing what is currently known about the size and shape of the sector in South Africa, as well as identifying gaps in the data and research currently available. There are two contributions that this chapter makes. First, it presents an historical account of the South African TES sector covering the Apartheid period (before 1994) and the post-Apartheid period, based on a thorough and in-depth literature review which draws on case study work, work by legal scholars, and various pre-existing studies and surveys (where pre-existing refers to prior to the release of the SARS-NT data). As far as can be determined, this is the first attempt to synthesise and critically analyse this full body of work, with a view to summarising the legislative framework, describing the size and shape of the sector, and identifying remaining gaps. Second, this chapter provides a descriptive profile of the TES sector, including its size and characteristics, using the more recently released SARS-NT data, the first dataset to accurately capture the formal TES sector in its current form. This dataset has not been previously used by researchers in South Africa to analyse the TES sector, and as will be shown, it provides new insights that other work has been unable to, and offers new opportunities for further empirical analysis.

The paper is structured as follows: Section 2.2 presents a literature review on the foundations of the TES sector before South Africa transitioned to democracy, as well as an account of the post-Apartheid period and the legislative framework governing TES workers. This section also critically reviews pre-existing studies and data sources and tries to synthesise information on the size and nature of the TES sector based on these various sources. Having identified the limitations of this body of work, Section 2.3 introduces the SARS-NT database, describing the structure of the employee and firm-level administrative datasets, as well as their advantages and limitations in

analysing the TES sector in South Africa. Section 2.4 then uses the administrative tax data to present a descriptive profile of the TES sector, in terms of the size of the sector, and worker, job and firm characteristics. Section 2.5 concludes by summarising the insights gleaned from this examination of the various sources of information on the TES sector in South Africa, which helps motivate the analyses undertaken in the chapters that follow.

2.2 The nature of TES in South Africa based on pre-existing sources

2.2.1 The history of the TES sector pre-1994

Contract work has a long history in South Africa. The discovery of gold led to a contract labour system for migrants in 1886 (Benjamin, 2013). Under Apartheid, contract work through state-run labour agencies became an effective tool to reinforce a racial hierarchy in the workplace. Whites were placed in managerial positions while Blacks were required to do the manual labour under strict, often punitive rules. Workers in the mining industry were required to conclude contracts through a single recruitment agency controlled by mining houses, and workers looking to obtain employment in other sectors were required to do so through the *State Labour Bureaux* established in 1952 (Benjamin, 2013). The objective of the *Bureaux* was to alleviate shortages and meet labour demand, particularly for white-owned farms. Black workers had to return from areas of economic activity to their Apartheid-created homelands[9] in rural areas to renew their contracts annually. The *Bureaux* also played a critical role in ensuring that certain skilled positions were reserved for Whites while more manual tasks were reserved for Blacks.

A system of control existed through a number of castigatory labour laws. *The Masters and Servants Law* (that was in place until 1974) criminalised breaches of contract by employees and banned industrial organisation. Black workers were essentially excluded from the definition of employees in the Industrial Conciliation Act of 1956[10] such that they played no part in formal collective bargaining (Webster & Englert, 2020).

[9] Homelands were a key feature of the government's strategy to segregate ethnic groups. Black workers were not permitted to stay in the area of their workplace beyond the term of their contract and were also not allowed to bring their families to reside with them.

[10] The Industrial Conciliation Act No. 28 of 1956 was subsequently renamed the Labour Relations Act No. 28 1956. The Labour Relations Act, 66 of 1995 came into effect in October 1996.

The racialised hierarchy that was taken for granted in employment relations, however, became more and more difficult to enforce. The underground armed struggle[11] established in 1961, and above-ground organising through a series of strikes in Durban in the 1970s, began to put pressure on the state and employers. Chota Motala, a political activist in Natal, held that "the strikes forced big business to relax influx control, which consolidated an urban-based African working class and forced the government to concede to African demands for the right to unionise" (Vahed, 2018, p.115). Organisations which were referred to as advice centres evolved into trade unions that facilitated the 1973 Durban strikes (Barrett & Mullins, 1990). By 1976 there were 174 registered trade unions. The government also established the Wiehahn Commission which led to the formation of an Industrial Court that dealt with unfair labour practices and granted Black unions a degree of freedom to organise legally for the first time (Barrett & Mullins, 1990). In 1980, those that had had ten successive work contracts were permitted to take residence in an urban area, and in 1986, the legal requirement to hold a pass[12] was removed from legislation.

While progress was being made for workers in regular employment or standard employment relationships (SER), the legislation kept labour broker employees in a vulnerable position. In 1983 labour broking was added to the Labour Relations Act (No. 28 of 1956) and the amendments "deemed" labour brokers to be the legal employer of the workers supplied to clients. These amendments meant that labour brokers were permitted to be employers of those workers they placed at client firms and had to register with the Department of Labour. The problem was that the legislation absolved the client firm from responsibility related to unfair dismissal and collective bargaining in relation to labour broker workers. Benjamin (2013) suggests that the rationale for this was to protect firms that were restructuring their employment relationships to include more temporary workers, such that the temporary workers would not receive legislative protection of wages and other minimum conditions of employment (Brassey & Cheadle, 1983).

The establishment of a new regulatory labour regime in the 1980s coincided with the rapid integration of South Africa into global markets and the formal adoption of trade liberalisation policies (Theron, 2005). Because of the limited protection afforded to temporary workers and the

[11] Umkhonto weSizwe (MK) was launched as an armed wing of the African National Congress (ANC) in December 1961.

[12] A 'passbook' was an identification document that non-white South Africans had to carry around so that local authorities could maintain segregation. There was a risk of being jailed or fined if a person was found without their passbook.

extension of rights and standards to regular employees, labour broker employment grew substantially (Theron, 2014). Similar trends of casualisation of the labour market were playing out abroad. In the United Kingdom and United States, employers were reducing the number of permanent workers, first, by sub-contracting portions of their business to service providers, and second, by increasing the number of atypical workers to do their core work through labour broker firms (Brown & Sessions, 2005; Houseman, 2014; Segal and Sullivan, 1997). As such, there was little pressure to protect atypical workers when this was not the norm globally.

2.2.2 The TES sector in post-Apartheid South Africa

This section starts by providing an overview of the legislative framework related to the TES sector in the post-Apartheid era. The analysis suggests that while a complex raft of legislation was developed and proposed for workers in the wake of the new democracy, contestations around differing vested interests meant that the legislative framework in the LRA of 1995 provided security for workers in SER, while atypical workers, including those in TES, were left with very little protection. This and worker strike action were the impetus for the 2015 LRAA.

Following this discussion of the legislative framework, the section provides a critical analysis of the various sources of pre-existing data on the TES sector, and synthesises the information from these various sources on the size and characteristics of the sector in the post-apartheid era. Despite the limitations of the data, some consistent findings on the nature of TES employment post-1994 can be gleaned from the analysis below.

2.2.2.1 Legislative framework

The limitations of post-Apartheid labour legislation for the TES sector

In 1990, the Tripartite Alliance was formed between the African National Congress (the current ruling party), the South African Communist Party and the Confederation of South African Trade Unions (Cosatu). The alliance was key to negotiating the transition to a democratic government and the unions have since had a close relationship with the ruling party. As South Africa transitioned to a democracy, the government attempted to extend basic core rights and standards to more workers across a number of sectors that had in the past been excluded from the core labour regulation regime (Kenny & Webster 1998). While the revised LRA of 1995 attempted to even the playing field for employees in SER, for atypical workers, which includes those in TES, the re-drafted LRA offered limited protection. During the re-drafting of the LRA, the client firm in the TES relationship was made jointly and severally liable for breaches of the Basic Conditions

of Employment Act (BCEA) in terms of sectoral determinations and arbitration awards, but unfair dismissal and certain aspects of collective bargaining remained unprotected. Essentially, client firms were able to hire workers through labour brokers while avoiding certain aspects of labour law.

While the LRA of 1995 attempted to create some provisions to protect TES workers for the first time, they did not go far enough in terms of putting TES workers on an equal footing with non-TES workers. While the TES sector was used to support temporary assignments, which included placing administrative staff, seasonal staff and home-based care workers, for example, this was not always the case. The benefit of the former is that the agency supplied workers in shifts and then re-staffed them when they were no longer needed in a particular household or firm. The agencies then deducted unemployment insurance and taxes and paid the remuneration for the employee (Benjamin, 2013). This system made sense for employees that were actually temporary and working for many clients on short-term assignments. However, in addition to the TES sector supplying this kind of temporary staff, the legislation also made it possible for employers to hire staff on an ongoing "temporary" basis through TES. In these cases, the employee would spend a longer time at the client firm and develop a closer relationship with the client instead of the labour broker, which means the justification for the labour broker as the employer breaks down. Benjamin (2013:124) states that "It is an entirely artificial construction (and one that gives rise to immense scope for abuse) to permit an agency to be the employer of an employee working on an ongoing or indefinite basis for a 'client' merely because the employee's pay is routed through the agency." The legislation essentially allowed for labour broker workers to be employed in perpetual temporary roles without placing any obligation on employers to uplift these workers.

TES employees were also afforded little protection by the unions, partly because they were unable to organise at their physical workplace (namely, that of the client firm), which is an important part of how unions sign up members, conduct inspections, and disclose information for the purposes of collective bargaining. TES employees were unable to process a demand calling on the client firm to bargain with them because in law they were not employed by the client firm. This also meant that different wages paid to TES and permanent workers (even if they were performing the same job) did not constitute "proscribed discrimination" (Benjamin, 2013, p.124).

The types of firms that emerged as labour brokers in the late 1990s and early 2000s ranged from well-established multinational firms that provided labour of various skill levels, to informal

recruiters who supplied seasonal workers to farms. Benjamin (2013) suggested that lax regulation, high levels of unemployment in South Africa, and limited TES worker bargaining power, made labour brokering an effective tool to exploit workers according to some researchers. Examples of case law provided instances of employers dismissing placed employees for engaging in a legal strike, and client firms transferring their own employees to TES firms without notice such that employees often did not know who their primary employer was.

One such example was in 2002 when mine workers employed by a TES firm at an old East Rand mine in Johannesburg went on strike as they were paid below the industry standard and were demanding the client firm pay the workers some of what they had received from mining revenue to make up this differential (Bezuidenhout, 2008). Instead of agreeing to better pay, the mine terminated its contract with the TES firm which left four thousand workers unemployed. After much mediation, the mine employed 70 percent of the TES workers directly at wages in line with the industry standard. This is an example of how the legislation did not enhance the security of TES workers.

The legislation therefore did not regulate TES work sufficiently and instead allowed for a permanent triangular relationship between the client, the labour broker and the employee (Benjamin, 2013). Benjamin (2013) argued that the way in which labour legislation dealt with TES workers undermined the constitutional entrenchment of labour rights guaranteed in terms of Section 23 of the South African Constitution[13]. Indeed, as will be discussed further below, this was one of the main issues that the 2015 LRAA tried to correct (Theron, 2014).

In the early 2000s, through various government and other stakeholder engagements, proposals were made to make the client as well as the labour broker liable in the case of an unfair dismissal, but this proposal was removed during negotiations at the National Economic Development and Labour Council[14] (Benjamin, 2013). Whether this was an oversight or intentional is not clear, but it perpetuated the bias in protecting SER and not atypical workers, which remained in place until 2015.

[13] Section 23 says that everyone has the right to fair labour practices, to organise, to form and join a trade union, strike in certain circumstances, and take part in collective bargaining.

[14] The National Economic Development and Labour Council is the forum through which government, business, labour and community organisations co-ordinate on issues related to the economy and development.

The discussion thus far has shown that despite the many changes in the legislative framework governing the labour market in the early post-Apartheid period, little additional protection was afforded to TES workers. Kenny and Webster (1998) suggested that the combination of 'flexiwork' and a high unemployment rate under the legacy of a highly racially segregated labour market, essentially re-segmented the labour market, increasing its already dualistic nature. Webster and Holdt (2005) differentiated the post-Apartheid labour market in terms of the core, non-core and periphery. The core included formal workers in SERs, the non-core referred to atypical workers such as TES and outsourced workers, while the periphery were informal workers and the unemployed. They showed that over time, resources to the core increased but declined for those in the non-core and the periphery[15]. To reduce costs, firms tended to externalise workers (by outsourcing or through TES) instead of hiring temporary and part-time workers directly. Hiring through a TES firm was cheaper even though a mark-up was paid to the firm indicative of the very low wages that TES workers earned (Dickinson, 2017). In addition, the hiring and firing process related to a TES worker was less administratively burdensome for the employer. The growth of non-core workers pushed more workers to the edge of poverty while workers on the periphery did not enjoy a regular income and were often left with payment in kind or no income (Webster & Holdt, 2005). The growth of non-core and peripheral workers helped explain the increases in the 'working poor' during the early post-Apartheid period (Casale et al, 2004).

In summary, under the revised post-Apartheid legislation of the mid-1990s, TES workers were still subject to job insecurity, low wages and alienation at work. Furthermore, they were generally not organised through unions, which meant that they had little bargaining power in the formal institutions available to workers who were treated unfavourably.

Towards legislative inclusivity

It became clear that the legislation covering the TES sector was inadequate and so pressure mounted on the government to protect TES workers through persistent calls from the unions and strike action organised by workers themselves. One particular example was the strike undertaken by labour broker workers of the South African Post Office (SAPO) in 2011. A large number of labour broker workers were used for SAPO's key business (mail delivery) in an attempt to cut costs from the early 2000s. Dickinson (2017) presented evidence that, at its height, TES were saving the

[15] Webster and Holdt (2005) suggested that the two million jobs that government claimed to have created between 1995 and 2002 were derived from adding non-core and peripheral work to full-time work which meant that "street traders, car guards, homeworkers and casual workers in retail" were all counted as employed.

post office R380 million a year in wages, as TES wages were a quarter of non-TES wages and the mark-up, as well as the wage, only amounted to half of non-TES wages. In the Gauteng case study examined by Dickinson (2017), TES workers at SAPO often reported not being paid on time and sometimes not being paid in full while some did not have written contracts. Where they did have contracts, the terms were very different to those governing permanent workers, despite both kinds of worker doing exactly the same job. From 2009, there were numerous attempts by TES workers at SAPO to bargain for better rights and they made use of many "proper" channels such as the unions and courts, although with limited success. After one particular strike, wages increased by a mere 50 cents. The Mabarete strike (December 2011 to April 2012) was a targeted and effective strike organised by labour broker workers working at SAPO. The long strike achieved pay increases (an almost doubling of wages) for TES workers and most became permanent, with new workers becoming permanent after three months. In July 2012, the use of labour brokers in SAPO came to an end.

While workers were taking matters into their own hands through strike action, legislative amendments were being developed, albeit at a very slow pace. In 2010, the Department of Labour published draft bills that amended the legislation around TES employment. However, the draft bill was formulated such that workers such as taxi drivers, commercial-traveller vehicle drivers and truck drivers would have been excluded from legislative protection as they were not "directly supervised". Given that a large number of workers would have been excluded from protection, even the unions opposed the legislation and the bill was eventually withdrawn. Further legislation was drafted in 2012[16] that took a different approach, anticipating the LRAA of 2015 that was ultimately implemented.

There were two particular changes to how TES employees were to be treated following the 2015 amendments (Section 198 A). First, a worker would only be seen as a temporary worker if they were employed to perform a genuine "temporary service" for a client. If that were not the case, the employee would be *deemed* to be an employee of the client firm, and not the TES firm, after three months of work. Second, the "deeming" provision meant that the client would become legally liable for the well-being of the TES employee; in other words, the client would be legally obliged to treat TES employees no differently to their permanent staff even if the TES workers were not on the client firm's payroll. It is assumed that this means that the TES employee would

[16] The Labour Relations Amendment Bill of 2012, Notice 281 preceded the LRAA with the objective of further protecting TES workers.

be entitled to similar remuneration and benefits as the client's other employees doing the same or similar work. However, this is not stated explicitly in the legislation. The legislation did not apply to workers earning below the annual BCEA threshold (R205 433.30 since 2015), TES firms with fewer than 10 employees, or TES firms with fewer than 50 employees that had been in existence for less than two years.

The case of *Assign Services (Pty) Limited v National Union of Metalworkers of South Africa and Others [2018] CCT 194/17 ("Assign Services")* was pivotal in clarifying the role of the TES firm and the client firm after three months. The matter was first heard at the CCMA in 2015, then taken to the Labour Court and the Labour Appeal Court. Eventually, in 2018, the case was heard in the Constitutional Court, which upheld the Labour Appeal Court decision that, after three months, the role of the TES firm would be to pay and manage the administrative component of employment, while the day-to-day management including working conditions, work allocation and performance assessment would be conducted by the client (Milo, 2018). This also meant that if the employee sought relief in terms of features of the LRA such as unfair dismissal, they would seek relief against the client firm who became the statutory employer.

Despite the legislative amendments and the case precedent, it should not be taken for granted that client firms would comply. Webster and Englert (2020) provide the example of how workers at the Heineken plant in Sedibeng organised themselves to demand better working conditions after the implementation of the LRAA. The brewery is one of many examples of the proliferation of outsourced and TES labour in production lines. The plant employed 300 permanent workers and another 450-600 workers from five different TES and outsourcing companies involved in production and distribution services. There were essentially three groups of workers. The first group consisted of permanent workers employed by Heineken that were highly skilled. The second group also included skilled workers in senior and supervisory roles on the production line, but they were not directly hired by Heineken. In line with evidence from Dickinson (2017), permanent workers employed by Heineken earned around 50 percent more than the senior and supervisory workers on the production line that were not directly hired by Heineken. The latter also did not have access to benefits, however, they were permanently employed by the outsourcing companies involved in production and logistics (for example Imperial Managed Logistics). The third group included medium-skilled and unskilled workers that were employed by workforce outsourcing companies that also offered TES, such as *LSC Masakhe* or *CJK*. These workers received low wages with minimal or no benefits and few had contracts in place. Distribution was also highly

competitive and firms tended to go with the company with the lowest cost, putting downward pressure on worker wages.

Workers at the Sedibeng plant also dealt with different bargaining councils. The permanent workers were aligned to the Food and Allied Workers Union, whereas the lower-skilled workers involved in distribution were involved in the National Bargaining Council for the Road Freight and Logistics Industry. The different bargaining councils as well as employers proved somewhat divisive in creating a unified workforce that was able to organise itself (Webster and Englert, 2020).

With some procedural difficulties, the workers at Sedibeng filed a case at the CCMA regarding precarious workers becoming permanent as per the LRAA. After weeks of confrontation and some strike action, the outcome reached was partially successful in that only certain precarious workers saw conditions improve while others were retrenched. TES workers that were retained moved from task-based pay to hourly pay. In addition, workers at the plant organised themselves under the *Heineken Workers Council* which engaged directly with the management at Heineken going forward.

This case highlighted that despite the LRAA, labour markets continue to be segmented with TES workers having to organise themselves to push for better working conditions. The proliferation of TES and outsourced labour in production was a key component in keeping costs down while maintaining output levels, which meant that employers were resistant to changing their practices. The plight of TES workers as a whole has not been entirely clear though, as limited data have been available to examine this group of workers and where data were available, samples were often not nationally representative so broad generalisations could not be made on the extent of workplace discrimination. These sources of data and the way they shaped the narrative of the TES sector are discussed in the section that follows.

2.2.2.2 The size and characteristics of the TES sector based on pre-existing sources

Having summarised the legislative framework governing TES workers in the post-apartheid period and highlighted some of the contestations inherent in the triangular employment relationship, this section draws on pre-existing surveys and studies (and here pre-existing means prior to the release of the SARS-NT data) to try and synthesise what is known about the size and shape of the sector and where gaps remain.

What becomes immediately clear from a thorough review of the existing body of work is that the data available and methodologies used to analyse the TES sector have been limited. The data available are often based on small samples of firms with low response rates (and unclear weighting strategies), the sampling of TES firms specifically (as opposed to other recruitment agencies) is often not robust, and the definition of what constitutes a TES worker is problematic. As such, available data do not provide a reliable basis on which to make broad generalisations about the TES sector or to conduct robust empirical analysis. As will be discussed further below, it is particularly difficult to track the absolute size of the sector over time as the available data, based on very different samples and methodologies, produce divergent estimates. It is therefore not surprising that in her review of the available information on the sector in 2013, Budlender wrote that "while there is widespread agreement that a large number of workers are employed by temporary employment agencies in South Africa, and that the number has grown over time, there is similarly widespread agreement that the available numbers are estimates based on various assumptions rather than more reliable 'counts' of the phenomenon" (2013, p.3).

The discussion below is accompanied by Table 2.1 which summarises information on the various databases available which have been used to analyse the TES sector, including the research papers that have analysed the data, the year of collection, the methods of data collection, the unit of analysis, any definitional issues that arise, and the estimates of the size of the TES sector that have been produced based on the data. The databases are ordered by year of data collection.

The size of the TES sector

Producing an estimate of the number of firms in the industry is very difficult. Where researchers have tried to do this, the number of firms in the TES sector has generally been estimated using national government and government agency databases that required firms involved in recruitment activities to register with them. Despite these requirements from the Services Skills Education and Training Authority (SSETA)[17], the National Association of Bargaining Councils (NABC) and the Department of Labour[18], their databases were not up-to-date, and often contained inactive firms and firms that were involved in a broader set of recruitment activities other than TES. The SSETA

[17] Private employment agencies that paid more than R500 000 in salaries a year were required to pay the skills development levy and register with the SSETA in terms of the Skills Development Act 99 of 1999.

[18] Private Employment Agencies and TES firms were only required by law to register with the Department of Labour based on the 2019 amendments to the LRA. Prior to that, it was not a legislative requirement. Labour brokers were also mandated to register with the bargaining council in the industry where they placed workers.

database in particular included firms involved in 'Labour Recruitment Services' which was made up of permanent employment agencies, labour recruiters (including executive job placement), personnel service agencies as well as TES firms. Therefore, the number of firms in the database is likely to over-estimate the number of firms in the TES sector specifically. Estimates of TES firms in the SSETA database were 1076 in 2000, 3140 in 2006 (Benjamin, Bhorat, & van der Westhuizen, 2010), 2777 in 2013 (including inactive firms) (Budlender, 2013), and 611 in 2014 (Bhorat, Cassim, & Yu, 2016). The Department of Labour database suggested there were 976 firms registered as employment agencies in 2009 (Budlender, 2013) and 548 TES firms in 2014 (Singer 2014). Theron, Godfrey, and Lewis (2005) found that only 10 percent of their sample of firms (based on the SSETA database, the Minerals and Engineering Industry Bargaining Council (MEIBC) database, as well as an ad hoc sample) undertook temporary placement, while 75 percent placed both permanent and temporary employees. Given these divergent estimates of the number of firms in the TES sector, it is difficult to get a sense of the overall size of the sector or its growth over time.

Trying to identify the number of employees in the TES sector is equally problematic. Estimates have been based on surveys conducted on small samples of firms and it is not always clear whether appropriate weights were used to extrapolate the size of the TES population. The *Topline Research Solutions* report commissioned by the SSETA in 2010 estimated that there were 902 833 TES employees in 2010 based on an 8.4 percent response rate among firms, while the Confederation of Association of Professional Employment Solutions (CAPES)[19] suggested that there were more than a million TES workers in 2012 based on a 14 percent response rate to their online survey among TES firms (Budlender, 2013). The Adcorp Employment Index, Adcorp being one of the largest TES firms in South Africa, used information from 14 of 51 Bargaining Councils to extrapolate estimates of the size of the TES population, although it is not known whether the estimates account for the prevalence of labour broking in different sectors. They found that TES employment amounted to 872 076 workers in March 2010, but this was revised up to 976 418 TES workers in November 2010, and in 2013, the index reported more than a million TES workers. The Adcorp Employment Index has come under criticism more generally for its aggregate or national-level employment numbers because the little that has been provided about the methodology has been disputed (Kerr & Wittenberg, 2012)[20]. Adcorp (through its employment index) positioned the TES sector as being an exceptional one in which employment grew, while

[19] CAPES is an umbrella body that was formed in 2002 to represent four of the largest TES staffing associations.

[20] For example, Adcorp used the currency demand method, that has been criticised widely, to generate an estimate of the size of informal employment (Kerr and Wittenberg 2012).

employment in other sectors dwindled in comparison. However, its vested interest in lobbying against the amendments to the LRA that made hiring through a TES firm less attractive, raises some doubts about the very large numbers observed in the Adcorp Employment Index.

A significant challenge in evaluating the methods used to estimate the size of the TES sector (and therefore the reliability of the estimates themselves) is that the reports and raw data used are not always available publicly. The *Topline Research Solutions* report commissioned by the SSETA, as well as the Adcorp reports, are not available publicly. In addition, the databases from the Department of Labour, NABC and SSETA are not available online.[21] This makes it difficult to evaluate how reliable the estimates are.

Given the limitations of the firm and sector level data available, some researchers opted to use labour force surveys from Statistics South Africa to examine the TES sector. The Labour Force Surveys (LFS) for the years 2000 to 2007 asked employees (or their proxy-reporters) directly whether they were paid by a labour broker[22]. The final LFS survey conducted in September 2007 provided an estimate of 11 million employees in the country, of whom only 37 000 (0.3 percent) were reported as being paid by a "labour broker", and 274 000 (2.5 percent) by a "contractor or agency". However, these estimates are considered too low for South Africa (Budlender, 2013). Misreporting on the type of employment or the nature of the employment contract is a well-known problem in household surveys (Segal & Sullivan, 1998), and particularly when there is proxy-reporting as in the LFSs. In the context of growing atypical employment, respondents may not be able to distinguish between work through a "labour broker" or a "contractor or agency" (or even some other types of more regular permanent employment relationships) for their own employment, let alone for another member of their household.

The Quarterly Labour Force Survey (QLFS), which replaced the LFS in 2008, did not include a similar question. However, to try and identify TES workers, Benjamin, Bhorat, and van der Westhuizen (2010) and Bhorat, Cassim, and Yu (2016) used the SIC code 889, *Business Activities Not Elsewhere Classified (NEC)*, which falls under the broader category *Finance and Business Services*,

[21] A paper by Naidoo (1995), for example, with the earliest estimates of the sector of 100 000 TES workers (discussed by Benjamin (2013)), based on bargaining council data, is no longer available in the archives of the South African Labour Bulletin.

[22] The survey asked whether an individual was paid by "the establishment/enterprise/individual for which he/she works", by a "labour broker", or by a "contractor or agency".

and which includes, among a number of other activities, '*labour recruitment and provision of staff; activities of employment agencies and recruiting organisations; hiring out of workers (labour broking activities)*'. Although it is not possible to separate out the TES sector from the other activities listed under the general code 889[23], Benjamin, Bhorat, and van der Westhuizen (2010) attempted to estimate the size of the TES sector using this classification and arrived at a figure of just over 600 000 TES workers in 2008. Budlender (2013) undertook a similar exercise and found that between 2008 and 2012 the number tended to increase year on year, reaching over 865 000 workers in 2012. The only exception to the steady increase was for 2009, where the number recorded was closer to 883 000, suggesting that the global financial crisis may have encouraged the use of TES employment. Also cognisant of the limitations of the QLFS data, Bhorat, Cassim, and Yu (2016) estimated that there were just under 1 million TES jobs in 2014.

Given the broad list of categories within the classification, Budlender (2013) suggests that the 889 code is not a good proxy for TES workers. According to her analysis for 2012, 44 percent of the workers recorded in this sector were likely to be security guards and 15 percent were likely to be cleaners in offices, hotels and the like. These workers are outsourced, not temporary agency workers. Of the rest, the bulk is likely to be employed internally by the company (rather than the TES firm). Budlender (2013) further noted that 59 per cent of the employees are recorded in another question in the survey as having permanent contracts, 22 percent have contracts of limited duration, and 19 percent have contracts of unspecified duration. In addition, given that sector of employment is proxy-/self-reported in these surveys, the size of TES employment in the QLFS may be an under- or over-estimate of the true number of jobs in the labour broker sub-sector due to general misreporting on occupation/industry in household/labour force surveys (Bhorat, Cassim, & Yu, 2016). For example, one might expect that a respondent employed through an employment agency to work on a construction site, or in a mine, would note his or her sector of employment to the fieldworker as *Construction* or *Mining*, rather than the *Financial & Business Services* sector. Or, indeed, the fieldworker/coder might have noted it as such.

[23] The category also includes '*disinfecting and exterminating activities in buildings; investigation and security activities; building and industrial plant activities; photographic activities; packaging activities; other business activities; credit rating agency activities; debt collecting; agency activities; stenographic, duplicating, addressing, mailing list or similar activities; other business activities*'.

Table 2.1: Summary of existing sources of data on TES firms and workers

Source of data	Analysed by	Year of data collection	Sampling method	Unit of analysis	Definitional issues	Size of TES sector
Services Seta database of 'recruitment services'.	Benjamin, Bhorat & Van Der Westhuizen (2010); Budlender (2013); Bhorat, Cassim, & Yu (2016)	2000, 2006, 2013, 2014	Estimates of the number of firms in TES are based on the database of 'recruitment service' firms in the SSETA database. It is not clear if researchers used a sample of the database or the entire database. In 2013, Budlender noted that only 60 percent of the SSETA database contacts were up to date.	Firm	Firms in the database included Permanent Employment Agencies, Labour Recruiters (including executive job placement), Personnel Service Agencies and TES firms. Bhorat, Cassim, and Yu (2016) report a lower number of TES firms in 2014 than other studies using the SSETA database which may indicate a subset of specifically TES firms.	Number of firms estimated was 1 076 in 2000; 3 140 in 2006; 2777 firms in 2013 (including inactive firms); and 611 firms in 2014.
SSETA, MEIBC as well as other TES firms	Theron, Godfrey, and Lewis (2005)	2004-2005	First attempt at a nationally representative survey using the SSETA, MEIBC databases as well as additional firms from the internet and telephone directory. The SSETA database was weighted by province while a random sample was chosen of the MEIBC database. Structured telephonic interviews were conducted. A sample of 389 firms was identified for interviews but only 238 were contactable and 204 agreed to take part (from total database of 2739 firms).	Firm	The sample of firms surveyed included firms that supply temporary employees, as well as those that supply both temporary and permanent employees.	Authors do not provide an estimate of the size of the sector but note that of their sample (389 firms), 10 percent were strictly TES firms and 75 percent performed both temporary and permanent employment placement. However, they were made aware of firms that they had left out later in their project from The Federation of African Professional Staffing Organisations (APSO) and CAPES. The database excludes the informal sector that would not be registered with SSETA or MEIBC. The authors suggest that over 3000 firms would be involved in recruitment activities.

Source of data	Analysed by	Year of data collection	Sampling method	Unit of analysis	Definitional issues	Size of TES sector
Labour Force Survey (LFS), conducted by Statistics South Africa	Budlender (2013)	2007	Nationally representative household survey using a rotating panel methodology. Detailed information was collected about the labour market for approximately 67 000 adults of working age (15–65 years) living in over 30 000 households across the country. The households living in sampled dwelling units in each of the nine provinces were visited by Stats SA field staff, and an LFS questionnaire was completed through face-to-face interviews for each household visited. The survey asked whether an individual was paid by "the establishment/enterprise/individual for which he/she works", a "labour broker" or a "contractor or agency".	Individual	Misreporting on the sector of employment is likely as the individual or proxy-respondent may not be able to distinguish different types of non-regular employment, namely whether they were employed by a "labour broker" or "contractor or agency".	37 000 individuals reported as being paid by a "labour broker", and 274 000 by a "contractor or agency".
Quarterly Labour Force Survey (QLFS), conducted by Statistics South Africa	Benjamin, Borat, and van der Westhuizen (2010); Budlender (2013); Bhorat, Cassim & Yu (2016)	2008, 2012 and 2014	Nationally representative household survey using a rotating panel methodology on a quarterly basis. Detailed information was collected about the labour market situation of approximately 60 000 working age individuals (15–65 years) living in over 30 000 households across the country. The questionnaire did not include the question on whether the subject was paid by a labour broker (as in the LFS).	Individual	TES workers are subsumed into SIC code 889 (Business Services N.E.C) which includes many types of workers other than TES. Misreporting on the sector of employment is likely as the respondents may report the sector of the client firm instead the sector of the TES firm.	Using the SIC code 889, estimates range from 600 000 workers in 2008; 865 000 workers in 2012 to 1 million workers (of which 847 294 are in the formal sector) in 2014.
Department of Labour database of private employment agencies	Budlender (2013); Singer (2014)	2009; 2014	Based on private employment agencies that have registered with the department.	Firm	Referred to as "employment agencies" so it is unclear if this only includes TES firms.	976 firms registered as employment agencies in 2009; 548 firms in 2014.

Source of data	Analysed by	Year of data collection	Sampling method	Unit of analysis	Definitional issues	Size of TES sector
Topline Research Solutions report commissioned by the SSETA	Budlender (2013)	2010	Findings were based on 110 interviews with members of three of the four CAPES affiliate associations. Full methodology was not made available and results are reported in Budlender (2013) from a presentation she received. Of the 1252 email questionnaires sent out, 106 responses were received and some were incomplete. A concern raised was whether averages reported by individual companies were weighted by firm size when reporting mean results.	Firm	No information provided on respondent firms, so this is unclear.	Size of industry estimated to be 902 833 workers on the basis that they interviewed firms that make up 30 percent of industry employment representing 268 777 TES workers.
National Association of Bargaining Councils (NABC)	Benjamin and Cooper (2016)	2010	Benjamin and Cooper (2016) noted that estimates were based on a sample of data from NABC but the method used and size of sample were not available.	Firm	TES firms providing labour to industry were expected to register with bargaining councils so there should be limited definitional issues.	Estimated at 780 000 TES workers, although extent of labour broker coverage across sectors is likely to differ and it is unclear if appropriate weights were used.
Adcorp Employment Index (generated by Loane Sharp)	Budlender (2013)	2010	Exact method not published but it is indicated that estimates of the TES sector were based on Stats SA's estimates of the number of people not in permanent employment; extrapolation of data from 14 of 51 Bargaining Councils and the profile and trends found in Adcorp's (one of SA's largest TES firms) own work. A key limitation was that the extrapolation did not take into account the prevalence of TES in different sectors.	Firm	Inconsistent use of terms for TES workers and not always clear if estimates were for temporary employees as a whole or specifically TES workers.	872 076 TES workers in March 2010 but this was revised up to 976 418 TES workers in November 2010 due to data from NABC. In 2013, the index reported more than a million TES workers but the methodology underlying these estimates is not provided.

Source of data	Analysed by	Year of data collection	Sampling method	Unit of analysis	Definitional issues	Size of TES sector
Cosatu Workers' Survey	Budlender (2013)	2012	To identify TES workers, the survey asked "Are you *paid by the employer or enterprise where you actually work or by someone else, such as a labour broker or another company, that is not at your place of work?"* The response options were *"labour broker/TES; cleaning, security or other outsourced service company; and subcontractor."* The unweighted sample sizes were 2293 union members and 737 non-union members respectively. The survey was conducted mainly among urban respondents in formal enterprises.	Worker	Survey separated out respondents in terms of employment by a labour broker, other third-party employment as well as other temporary employment so definitional issues are less likely to occur.	The survey is not intended to provide a sense of the size of the TES sector. Overall, 2 percent of union members and 9 percent of non-union members in the sample were employed by TES. Characteristics of each are explored further in the survey.
CAPES Online Survey	Budlender (2013)	2013	A short online survey was conducted by CAPES but only 211 responses were received of 1500 surveys sent out (14% response rate). For some of the large companies, multiple responses were received through various branches which affects the calculation of mean and maximum numbers placed.	Firm	Only 8 percent of companies reported providing TES services; 62 percent reported providing both recruitment and TES and 30 percent provided recruitment only.	From the survey, the number of workers placed in the past 12 months came to 97 895 with a mean of 515 workers per firm, suggesting that responses were clustered among smaller firms with a few larger firms pulling up the mean. Extrapolating these numbers to the population of TES workers based on a 14 percent response rate, Budlender estimated 1 379 214 workers placed by the industry in the previous 12 months.

The characteristics of the TES sector

While there are a number of problems with the available data on the TES sector as described above, there are some consistencies in the data with respect to the characteristics of TES workers. Nonetheless, the estimates of worker, job and firm characteristics discussed below still need to be examined with caution, given that the findings are not based on reliable nationally representative surveys.

Worker and Job Characteristics

A consistent finding across the data is that TES workers were on average younger than non-TES workers (Bhorat, Cassim, & Yu 2016; Budlender, 2013). The average age of a TES worker in the Cosatu Workers' Survey[24] for instance was 35.9 years old, lower than the average unionised worker at 40.6 years (Budlender, 2013). In terms of the gender composition of TES workers, the Cosatu survey found that women were less likely to be employed by labour brokers than men (and women employed by labour brokers were also less likely to be unionised). The QLFS similarly found that workers in the *Business Services N.E.C* sub-sector were less likely to be women. On the contrary, *Topline Research Solutions* suggested that at least half of TES workers were women (Budlender, 2013).

According to the available data, TES workers operated in a broad range of client sectors including chemicals, clothing and textiles, communications, construction, health, local government, metal and engineering, mining, motor vehicles, printing and packaging, retail, road freight, and transport (Budlender, 2013). Theron, Godfrey, and Lewis (2005) found that although workers were spread across various sectors, activities that were dominated by the services sector included accounting, administration, business management, day-care, domestic work, finance, healthcare, nursing, insurance, information technology, beauty, medical and call centres. The CAPES survey data on occupations are based on very small samples but seemed to suggest that TES workers ranged from entry level seasonal staff to more experienced, skilled hires (Budlender, 2013). This is contrary to the perception that TES workers are largely low-skilled workers. The QLFS recorded that just under half of *Business Services N.E.C* workers were in services and sales and another quarter in elementary occupations (Bhorat, Cassim, & Yu, 2016). Females in this sub-sector were disproportionately represented in the elementary occupations while males were more likely to be

[24] The 2012 Cosatu Workers' Survey provides some indication of the characteristics of unionised TES workers relative to non-unionised TES workers, although based on a relatively small sample of workers in urban areas (see Table 1).

employed in services and sales, consistent with occupational segregation identified more broadly in the South African labour market.

The data on earnings, however, indicate that TES worker earnings are commensurate with low-skilled jobs. The Cosatu Workers' Survey suggested that the bulk of TES workers in their sample earned less than R5000 per month in 2012 with a higher proportion of non-unionised workers represented in this category. However, the survey was very small and respondents were largely from urban areas working in the formal sector. In his case study on TES workers at the SAPO, Dickinson (2017) noted that in 2011, a permanent postal worker's salary was R8 000 a month and a labour broker firm would be paid R4 000 a month to supply a worker, who him/herself would only be paid R2 000. He also noted that compared to permanent workers they had no pension contributions, fewer leave and sick days, no housing subsidy; they were not issued with Post Office uniforms, and were provided with inadequate wet-weather clothing. In addition, they were not entitled to an annual profit-linked bonus paid to permanent workers (Dickinson, 2017). The *Topline Research Solutions* report commissioned by the SSETA indicated that under 15 percent of workers in their sample were covered by bargaining council agreements and wages were instead negotiated with clients and/or set in line with the market (Budlender, 2013).

In terms of the length of placements, Theron, Godfrey, and Lewis (2005) found that, on average, 40 percent of placements ended in less than three months (25 percent at median). The *Topline* research corroborates this contract length information, suggesting TES workers were employed on very short contracts (Budlender, 2013).

Characteristics of TES firms

There is a dearth of information available on TES firms. The public discourse puts forward that the TES sector is dominated by large firms but the firm-survey data available suggest that the sector is primarily made up of smaller firms (Bhorat, Cassim, & Yu, 2016). The SSETA database of 2014 indicated that 70 percent of firms had below 50 employees and the 2014 APSO survey data suggested that 90 percent of firms had below 50 employees (Bhorat, Cassim, & Yu, 2016). Theron, Godfrey, and Lewis (2005) found that the mean number of clients per TES firm was 35, with a median of ten. Lastly, less than half of their sample of TES firms (56 out of 120 companies) said that they provided training to workers (Budlender, 2013).

The discussion in this section provides some useful insight into the nature of employment in the TES sector in the post-Apartheid period in South Africa. Although the findings are generally based on small sample surveys that are not nationally representative, some consistent points emerge. TES workers work across a range of client sectors; they work on short contracts, are younger and more likely to be male (compared to the general worker population); they earn less than non-TES workers, and they are less likely to have access to benefits. However, although there is a strong suggestion (especially from the case study research) that there are large wage and benefits differentials between TES and non-TES workers, given the paucity of data, very little is known about how pervasive this discrepancy is in the sector or about the magnitude of the wage and benefits differentials between TES and non-TES workers.

Furthermore, the total size of the sector remains very unclear. As was shown above, the estimates vary substantially depending on the survey used, the definitions applied, and the year of analysis, highlighting that there are still large gaps in our knowledge with respect to the importance of this sector and its growth over time. This means that it has not been possible to get a sense of whether the LRAA of 2015 affected employment in the sector. Similarly, it is not possible to gauge whether working conditions or earnings changed over time and whether these were impacted by the LRAA. The next section provides an in-depth discussion of the administrative tax data and explains how they allow for a more robust examination of these important issues.

2.3 The South African administrative tax data

Over the last decade, administrative data, such as tax records, have become a useful source to support public policy evaluation through empirical research. Although these types of data are not without its challenges, including that extraordinary computing power is often required to work with it, sensitive information has to be anonymised[25], tax records are sometimes under dispute or incomplete, and the fields generated are not designed to support academic research as they are in survey data, it has many benefits. Unlike survey data, administrative tax data offer large sample sizes and fewer problems with attrition given reporting requirements related to tax submissions (Card et al, 2010).

Through a unique partnership between the South African government and United Nations University World Institute for Economic Development Research (UNU-WIDER), administrative

[25] There are also additional practical issues that arise when working with the SARS-NT data as the data can only be accessed and analysed at a secure computer lab at the National Treasury building in Pretoria.

tax data were made available for research purposes for the first time in 2015 in South Africa. The initial partnership was called *Regional Growth and Development in Southern Africa* which ran between 2015 and 2017. The scope of the project and the data that were made available expanded in 2018 under the programme *Southern Africa Towards Inclusive Economic Development (SA-TIED)* which runs until June 2021. The SA-TIED project includes a host of government departments and research institutions involved in both creating the data bases and analysing them. The objective of the programme is to produce empirical research that can be used to support policy-making in South Africa. The South African tax data offer opportunities to better understand worker flows and firm behaviour, to create a more accurate representation of wealth and income, and to analyse specific policy interventions such as the employment tax incentive (Ebrahim, Leibbrandt, & Ranchhod, 2017; Ebrahim & Axelson, 2019).

Using tax records from the Company Income Tax (CIT) certificates, employee income tax certificates from firm payroll data (IRP5 certificates), Value Added Tax (VAT) certificates and customs certificates, six panel datasets have been made available to researchers. These are listed below:

1. CIT-IRP5 panel (2008-16)
2. Employment Panel made up of Pay-As-Your-Earn (PAYE), payroll or IRP5, and ITR3(a) certificates (2008-2018)
3. Individual Panel (IRP5, ITR3(a) and ITR12) (2011-18)
4. CIT (2008-16)
5. VAT (2009-2017)
6. Customs data (2009-2017)

The CIT and CIT-IRP5 datasets are firm-level panel datasets while the Employment Panel and Individual Panel are at worker or job level. In the descriptive analysis in this chapter, only the Employment Panel and the CIT-IRP5[26] are used because these datasets allow for an examination of TES workers and TES firms respectively (in subsequent chapters, only the Employment Panel is used for reasons which will be explained further in those chapters). The Employment Panel is

[26] The CIT panel is not used as it does not provide an indication of how many employees there are in a firm which is an important variable in terms of assessing the coverage of the TES sector. The CIT-IRP5 panel covers the same firms as the CIT panel but includes more variables on employment, VAT and customs transactions.

different from the Individual Panel as the latter includes income earned other than labour income.[27] While it is useful to conduct an analysis of broader income inequality, for example, since it includes comprehensive data on the earnings *and* wealth for those that are formally employed, it is not necessary for the purposes of this research.

2.3.1 Description and structure of the Employment Panel/IRP5 dataset

The Employment Panel, or the IRP5 panel dataset as it is referred to by SARS, is an unbalanced panel available from 2011 to 2018. This thesis uses the tax years 2011 (commencing 1 March 2010 and running to end February 2011) to 2016 (1 March 2015 to end February 2016)[28], because these are the years for which the labour broker information is also available.[29] The IRP5 panel is made up of IRP5 or employee income tax certificates that are submitted to SARS by employers who are registered for PAYE tax, essentially covering all formal sector employment in South Africa. All employers must register with SARS within 21 business days after becoming an employer, unless none of the employees are liable for normal tax. Where no employee tax was deducted from remuneration (for example, when employees fall below the tax threshold or work in organisations not liable for tax in South Africa) and the employee receives R2000[30] or more per year, an IT3(a) form is provided to an employee and these forms are also included in the Employment Panel. If an employee earns less than R2000 in a given tax year and no employee tax is deducted, the employee is not issued with an IRP5 or an IT3(a) form. IRP5 certificates for all employees in a company must be submitted within 60 days of the end of the tax year.

The IRP5 and IT3(a) forms issued by employers are reconciliation forms that include information on the periods worked by the employee in the year of assessment, the total amount paid by that

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[27] The Individual Panel matches payroll (IRP5) and self-assessed (ITR12) taxpayer information which means it includes information on labour income earned as well as other sources of income. All employees are issued with an IRP5 certificate but not all employees are required to submit an ITR12 certificate. Specifically, they do not need to submit the latter if they "only have employment income from one source, do not have investment income above the exempt thresholds, do not utilize additional deductions, and have an income below the compulsory submission threshold" (Ebrahim and Axelson 2019:3). In the 2014/15 tax year, the threshold was R350 000.

[28] The years in the IRP5 panel refer to the period from 1 March of the previous year to the end of February of that year regardless of a firm's financial year. Pieterse, Kreuser, and Gavin (2016) showed that 85 percent of firms have their financial year end at the end of February.

[29] Numerous attempts were made to get the labour broker indicator for later years from SARS but it had not been received at the time of submission of this thesis.

[30] This is the equivalent of US$ 156.50 using an exchange rate of R12.78/$ for 2015.

employer to the employee, as well as the amounts paid for taxes, the skills development levy[31], the unemployment insurance fund (UIF), pension and medical aid, and various other deductions, allowances and benefit categories. In addition to providing comprehensive information on labour earnings, data from these forms can be used to identify a limited set of employee characteristics, namely gender and age, and a limited set of job or firm characteristics, namely the length of the contract within the tax year, the firm size, and the industry the firm operates in.

Importantly for the purposes of this thesis, a separate dataset exists that has a binary indicator variable which specifically identifies TES or labour broker firms according to their PAYE reference number. This means that TES firms with a PAYE reference number, and their employees that are registered for tax, can be identified in the data. The reason labour brokers are identifiable in the administrative data is because they are expected to submit an IRP30A form to SARS. This form absolves the client firms from having to deduct tax from any payments made to a labour broker, as the labour broker is responsible for paying tax on behalf of their employees. The binary indicator can be matched to both the CIT-IRP5 Panel and the Employment Panel using the PAYE reference number. SARS describes a labour broker as follows:
"A labour broker is any natural person who conducts or carries on any business whereby such person for reward provides a client of such business with other persons to render a service or perform work for such client, or procures such other persons for the client, for which services or work such other persons are remunerated by such person."

In the Employment Panel, the unit of analysis is essentially at the *job contract* (IRP5 certificate) level, as it includes records of employment for tax-paying firms over the period. The raw IRP5 dataset over the period 2011 to 2016 is made up of 106 million observations at the job contract level. However, the data can be collapsed to the individual or employee level, as the records also contain a person ID number. The data can also be collapsed to the firm level. Firms can be identified in terms of their payroll as each IRP5- or IT3(a)-submitting entity is identified through a PAYE reference. Certain PAYE reference numbers can be matched to CIT reference numbers which means firms can also be identified through their CIT number[32]. Not all firms with a payroll are expected to be matched to a CIT number as government departments and other entities that do

[31] The levy is paid as a portion of an employer's salary bill to the revenue service. The levy is then distributed to encourage skills training and development.

[32] A conjunction table matches PAYE reference numbers and CIT reference numbers. In a subsequent version of the Employment Panel, CIT numbers were merged into the Employment Panel to allow researchers to easily merge variables between datasets if they choose to.

not pay company tax in South Africa would not have CIT numbers. Only around 69 percent of firms in the Employment Panel can be matched with a CIT number.

The structure of the Employment Panel data is contextualised in Table 2.2. It shows that in 2011, *Person A* had two IRP5 certificates from *Firm 1*, capturing job contracts for two different time periods for example, March to June and July to December. In 2012, *Person A* had only one IRP5 certificate from *Firm 1*. *Firm 1* has PAYE reference number *1* and CIT reference number *X*. *Person B* was employed by *Firm 1* in 2011, and by both *Firm 1* and *Firm 2* in 2012. The 'second job' may be capturing *Person B* moving firms in 2012, or taking on ad hoc work done simultaneously to his/her main job. *Person C* was employed in *Firm 2* in 2011 and 2012. Note that *Firm 2* does not have a CIT reference number, because it may have been a government entity (such as a university) and therefore not registered to pay company tax. *Person D* was employed in *Firm 2* in 2011 but did not appear in the data in 2012. This means that *Person D* was informally employed, unemployed, or not economically active in 2012. If an individual had multiple IRP5s or contracts in a year (such as *Person A* in 2011 or *Person B* in 2012), a judgement call needs to be made on how to treat this in the analysis, and this will depend on the research question being answered (the way in which this is handled is detailed in the methodologies of the individual chapters that follow).

Table 2.2: Structure of Employment Panel data

Tax year	IRP5 Certificate filed by employer	ID Number	Payroll ID (PAYE reference number)	CIT reference number
2011	IRP5 certificate 1	Person A	1	X
2011	IRP5 certificate 2	Person A	1	X
2011	IRP5 certificate 1	Person B	1	X
2011	IRP5 certificate 1	Person C	2	
2011	IRP5 certificate 1	Person D	2	
2012	IRP5 certificate 1	Person A	1	X
2012	IRP5 certificate 1	Person B	2	
2012	IRP5 certificate 1	Person B	1	X
2012	IRP5 certificate 1	Person C	2	

Source: Author's representation **Note:** The CIT reference number was merged into the Employment Panel by the SA-TIED team at NT based on a conjunction table that matches PAYE reference numbers and CIT reference numbers.

Pieterse, Kreuser, and Gavin (2016) provide different ways to think of a firm and its employees using the IRP5 panel, also highlighting the complexity of the data:

i. A CIT-registered firm may have multiple PAYE numbers because they have different branches where each branch has its own payroll. The CIT form would then be submitted by the head office.

ii. Certain PAYE reference numbers cannot be linked to a CIT number as certain entities, including government, do not submit CIT forms.
iii. An individual can appear in two different PAYE-registered entities but work at a single firm only, as they may have an employee record for the head office and the branch.
iv. An individual may also have more than one IRP5 form because there are revisions to IRP5 forms associated with the same firm (PAYE number). The Appendix to this chapter discusses how these are dealt with in the IRP5 data.
v. An individual may have more than one IRP5 form in the same year because they either are performing two jobs simultaneously or have sequential jobs in the same year.

The IRP5 data have not been used as extensively as the CIT-IRP5 panel (which is described below) and so there is very little documented with regard to cleaning the dataset such that it can be used for research purposes. The judgement calls made around the cleaning process are outlined in the Appendix at the end of this chapter, which will be useful for researchers who want to replicate some of the findings in this thesis or who plan to use the data themselves for other purposes.

2.3.1.1 Advantages and disadvantages of the Employment Panel

There are a number of advantages offered by using the employment data from the tax records for an analysis of the TES sector. First, and importantly for this work, because labour brokers have to fill in an IRP30A form for tax purposes, the tax data offer the ability to accurately identify firms, and therefore employees, in the TES sector, which is not possible with other national data in South Africa (as discussed earlier). Second, the sample of around 8 million employed individuals per year is much larger than in the labour force survey data for South Africa (which covers around 60 000 individuals in total in each survey). Third, there is much more reliable reporting of income in tax record data than in household or labour force surveys where income is self/proxy-reported, which is particularly important when examining the wage differentials between TES and non-TES workers (as is done in Chapter 3). Additionally, the income data is not measured in brackets as it is in survey data which means is not possible to identify the earnings threshold used in Chapter 4 more precisely. Fourth, unlike with the national-level surveys, the tax records also include information on the structure or components of the wage, allowing an investigation into the differences in the benefit contributions between TES and non-TES workers (also explored in Chapter 3). Finally, the panel nature of the data can be used to track individuals over time, allowing us to control for individual fixed effects (as is done in Chapter 3), or identify transitions between employment episodes (as is done in Chapter 4, when the effects of the LRAA amendments are examined).

However, there are also a number of potential limitations to the study of the TES sector. First, the tax data only cover the formal sector of the economy. Because the dataset contains information from tax registered firms that completed a tax return in the relevant period, employees of unregistered, small, very young or informal TES firms are not captured (Pieterse, Kreuser, & Gavin, 2016). While the same applies to employees working in these firms in the non-TES sector, workers in informal or unregistered TES firms may operate under particularly exploitative conditions which cannot be explored further. Second, TES workers are not differentiated from administrative staffing personnel working in the TES firm. This is unlikely to be a significant problem, however, given that staffing personnel tend to constitute a very small proportion of total employment in the firm (Kvasnicka, 2008). Third, it is not possible to identify the client firm in which a TES employee works (in fact no dataset in South Africa captures this three-way relationship). This means it is not possible to tell if TES workers move to become permanent employees of client firms in the event that they leave the TES sector, or what the split between permanent and TES workers is in a client firm, and whether these two sets of workers are remunerated differently. Lastly, but probably most importantly for the econometric analysis in the upcoming chapters, only a limited set of worker and job characteristics is available in tax record data compared to household or labour force surveys. The ways in which these limitations are dealt with are detailed in each of the chapters that follow.

2.3.2 Description and structure of the CIT-IRP5 panel dataset

The CIT-IRP5 dataset, which is used for the descriptive analysis in this chapter at the firm level, is an unbalanced matched firm-level panel that is constructed by merging firm-level information from four administrative datasets: the CIT panel, the IRP5 panel, the VAT panel and the customs data. CIT records are based on IT14 and ITR14[33] forms that are submitted by tax-registered entities[34] and must be completed within 12 months of the firm's financial year end (Pieterse, Kreuser, & Gavin, 2016). The panel generates variables from the fields in the IT14 and ITR14 certificate such as sales, capital stock, expenses and taxes paid. By merging in aggregated IRP5

[33] The ITR14 form replaced the IT14 form in May 2013.

[34] The following firms are required to submit CIT forms: Listed public companies; Unlisted public companies; Private Companies; Close Corporations; Co-operatives; Collective Investment Schemes; Small Business Corporations; Body Corporates; Share Block Companies; Dormant Companies and Public Benefit Companies.

data, the CIT-IRP5 dataset also includes information on the number of people employed in a firm (based on the number of IRP5 certificates submitted by the firm)[35].

The customs records contain activities of entities that trade and are available at the transaction level. The VAT data include information from VAT-registered entities on VAT collected from goods and services that are subject to VAT[36]. The VAT and customs data are also aggregated to the firm-level and merged into the CIT-IRP5 panel using the CIT reference number. Pieterse, Kreuser, and Gavin (2016) discuss the detailed construction of this panel in their paper.

Table 2.3 contextualises the structure of the CIT-IRP5 data. Each row represents a firm in a particular year. Variables such as sales and fixed capital are generated from the CIT forms while the number of employees is merged into the data based on aggregated information from the Employment/IRP5 Panel. In Table 2.3, *Firm X* and *Firm Y* appear in both 2011 and 2012 while *Firm Z* only appears in 2011 and *Firm W* enters the dataset in 2012. Only *Firm X* and *Firm Y* have employees and therefore a corresponding PAYE reference number.

Table 2.3: Structure of the CIT-IRP5 panel

Year	CIT reference number	Sales	Fixed Capital (plant and equipment)	Employees (in terms of IRP5 certificates)	PAYE reference number
2011	X	500	300	100	1
2011	Y	7000	5000	1000	2
2011	Z	20	15	-	-
2012	X	600	500	120	1
2012	Y	8000	3000	1300	2
2012	W	300	-	-	-

Source: Author's representation

Notably, only 21–23 percent of firms in the CIT data can be matched to IRP5 data (Pieterse, Kreuser, & Gavin, 2016) which means that a very small portion of firms in the CIT-IRP5 panel have employment information. However, it has been shown that the firms that do have employment information in the CIT-IRP5 data together produce higher estimates of employment relative to the Quarterly Employment Survey (QES)[37] (Pieterse, Kreuser, & Gavin, 2016),

[35] In construction of the CIT-IRP5 panel, IRP5 data are aggregated for each PAYE reference number to arrive at employee totals and the conjunction table that links PAYE reference numbers to CIT numbers is used to match the employee totals to firms.

[36] VAT registration is mandatory for companies that have taxable supplies in excess of R1 million in a year.

[37] The QES is a national firm-level survey based on payroll data of VAT-registered firms.

suggesting that the CIT-IRP5 panel is still a robust indicator of the formal sector of the economy. It is important to note that one would not expect all firms (CIT-registered entities) to be linked to a PAYE reference number. This could include firms that do not have any workers, such as a company that earns rental income to benefit from lower company tax rates, or a bank nominee company that holds significant assets on behalf of investment companies or pension funds, or dormant companies. In cleaning the CIT-IRP5 data (detailed in the Appendix) to only include firms that are operating (report positive sales) and are non-dormant (based on a variable indicating dormancy in the data), only about 15 percent of firms were maintained (see Appendix Table 2A.3), although employment in these firms amounts to 52 percent of employment in the Employment Panel. The other 48 percent of employment is in firms that do not have corresponding CIT numbers.

2.4 A descriptive profile of the TES sector using the tax data

Given the scope and features of the tax data described in Section 2.3, for the first time there is the opportunity to present a relatively comprehensive profile of TES workers in the formal sector (namely in tax-registered firms). The firm level dataset (CIT-IRP5) is less comprehensive in terms of coverage of employment in the TES sector[38], although on its own, it offers some interesting insights into the profile of TES firms. In this section, first the size of the sector over time based on the Employment Panel or IRP5 data is discussed (noting the differences between these figures and those produced by earlier datasets discussed in Section 2.2). Second, using the IRP5 data, the individual and job characteristics of TES and non-TES workers are compared; this gives some indication of whether TES jobs are more precarious than non-TES jobs as suggested in the existing literature. Lastly, using the CIT-IRP5 panel, some of the firm characteristics of TES and non-TES firms are compared.[39]

[38] The estimates for the number of firms in the Employment Panel are slightly different to the estimates of the number of firms from the CIT-IRP5 Panel (see Table 2.9) because there may be one headquarter that submits a CIT form with a number of payroll-registered (branch) entities that submit IRP5 forms (discussed in Section 2.3). This means that the CIT-IRP5 dataset is likely to under-represent employment as it may only include the employment at the headquarter of a TES firm rather than all the branches. The CIT-IRP5 data represent around 52 percent of overall employment and 70 percent of TES employment captured in the Employment Panel.

[39] Differences in characteristics between the TES and non-TES sectors as well the comparisons made between 2011 and 2016 that are discussed in this section are significant at the 1 percent level due to the large sample size available, but are not indicated in the tables that follow for the sake of brevity.

2.4.1 Size of the TES sector relative to other datasets

The structure of the IRP5 data allows us to examine the TES sector in terms of the number of job contracts, individuals and firms in the formal sector. Each unit of analysis is summarised in Table 2.4 for both the TES and non-TES sectors for the tax years 2011 to 2016. While TES firms only make up 0.3 percent of all firms (in terms of payroll-registered entities in the Employment Panel), TES employment constituted between 4 and 6 percent of the total sample of job contracts and the total sample of individuals/workers between 2011 and 2016. This amounts to around 400 000 workers in 600 firms each year. [40]

Table 2.4: Employment and firm estimates in the TES and non-TES sectors

Tax year	Contracts			Individuals			Firms		
	TES	Non-TES	Share	TES	Non-TES	Share	TES	Non-TES	Share
2011	384 640	8 723 324	4.41%	371 373	7 225 232	5.14%	625	237572	0.26%
2012	423 370	9 044 433	4.68%	407 127	7 463 006	5.46%	642	242014	0.27%
2013	447 661	9 300 240	4.81%	429 723	7 696 905	5.58%	665	244405	0.27%
2014	449 814	9 294 140	4.84%	431 851	7 773 136	5.56%	683	247896	0.28%
2015	427 415	9 605 207	4.45%	411 958	8 001 316	5.15%	642	252519	0.25%
2016	396 316	9 658 185	4.10%	382 854	8 021 955	4.77%	591	255188	0.23%

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Note:** The table uses the cleaned data sample as defined in the appendix.

Table 2.4 indicates that there are more contracts than individuals which means an individual may have more than one contract or job in a single tax year. Individuals may have had simultaneous jobs at different firms, consecutive jobs at different firms, or rolling contracts at the same firm[41]. Table 2.5 shows that having multiple contracts per year is more pervasive among TES workers. While over the period between 70 and 72 percent of non-TES workers had one contract per year,

[40] Relative to other developing countries, the proportion of people employed by TES firms in South Africa may seem fairly low. In China, 20 percent of all urban workers were "dispatched workers" (2011), in India's manufacturing sector, 33.9 percent of all employment was "contract labour" (2010-11), and in the Philippines, 16 percent of all non-agricultural employment was contract or project based labour (2012) (ILO 2015). However, it should be noted that data on TES work specifically is hard to come by, and these numbers may reflect a slightly different temporary employment relationship to what is captured in the South African tax data, namely workers employed through TES agencies or labour brokers.

[41] Rolling contracts are of interest to this study as this was what legislation was trying to prevent although, trying to probe the data further suggested that less than 1 percent of the sample of TES workers had more than one contract at the same TES firm in a given year. It is not clear however, if the dataset would pick up all rolling contracts as this would depend on how TES firms submit IRP5 forms of their employees. In addition, the 'number of contracts' only gives the number of contracts within a year which would only give a partial indication of rolling contracts that may extend over a few years.

between 58 and 64 percent of TES workers had just one contract. The rest of the workers had between two and three contracts a year, with very few having four or more contracts a year.

Table 2.5: Number of jobs per individual by sector

No. of contracts	2011	2012	2013	2014	2015	2016
			non-TES			
1	70.04%	69.71%	70.36%	71.88%	71.17%	70.84%
2-3	27.09%	28.47%	28.59%	27.35%	28.95%	29.46%
4-5	2.54%	2.55%	2.60%	2.20%	2.35%	2.38%
6+	0.32%	0.35%	0.35%	0.31%	0.34%	0.34%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
N	8723324	9044433	9300240	9294140	9605207	9658185
			TES			
1	63.96%	62.47%	62.08%	62.75%	61.97%	58.05%
2-3	32.80%	37.67%	40.05%	39.70%	38.88%	39.68%
4-5	2.92%	3.31%	3.72%	3.54%	3.12%	3.39%
6+	0.31%	0.31%	0.37%	0.33%	0.26%	0.27%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
N	384640	423370	447661	449814	427415	396316

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a).
Notes: Table 2.5 uses the cleaned data sample as defined in the Appendix at the job contract level (a contract is defined as an IRP5 certificate). The TES data indicate the number of contracts for individuals that were in the TES sector at any point in the year.

2.4.1.1 Comparing the Employment Panel to pre-existing data sources

Relative to the data described in Table 2.1 that suggested there were close to 1 million TES workers between 2013 and 2015 (Adcorp Employment Index, CAPES Online Survey, QLFS, *Topline Research Solutions*), the Employment Panel indicates that the total number of workers was between 371 373 and 431 851 over the period, amounting to around 40 percent of this value. There are a number of possible reasons why the sample of employees in the Employment Panel data is different to estimates discussed in Table 2.1. First, the estimates from the Adcorp Employment Index, the CAPES Online Survey and *Topline Research Solutions* are extrapolated from small samples of firms and it is unclear whether the appropriate weights were used to arrive at firm totals which may bias the overall estimates. Second, in terms of the QLFS, the *Business Services N.E.C* category is used as a proxy for the TES sector, but it is likely to provide an over-estimate of the TES sector,

because, as described earlier, it includes not just jobs in the TES sector but also jobs in a range of other sub-sectors.

The Employment Panel also indicates that there were around 591 and 683 firms (payroll-registered entities) between 2011 and 2016. While these estimates are around a quarter of the 2777 firms in the SSETA database in 2013 (Budlender, 2013), the Employment Panel estimates are in line with the estimates of Bhorat, Cassim, and Yu (2016) of 611 firms in 2014 which also uses the SSETA database. It is likely that the 2013 estimate from the SSETA database includes a number of other recruitment and personnel service firms in their database that are not strictly TES firms, while Bhorat, Cassim, and Yu (2016) used a subset of the database including only TES firms. The estimates in the Employment Panel are also in line with the estimate of 548 firms from the Department of Labour database based on work by Singer (2014).

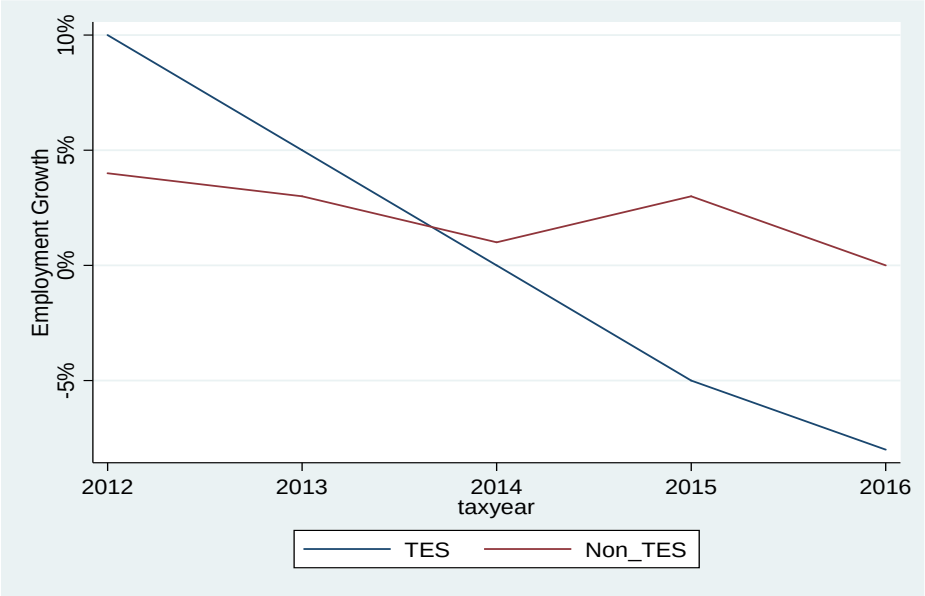
The tax data are also limited to the formal sector (namely firms registered for tax), although one would assume that firms registered with the Department of Labour and SSETA would also be limited to formal sector firms. Perhaps unsurprisingly, there is no robust evidence on the size of the informal TES sector but reference has been made to "fly-by-night" labour brokers or those who "frequently absconded without full payment" (Benjamin, 2013, p. 123). Budlender (2013) referred to a survey done by CAPES that suggested that at any point there were 100 000 workers in informal/unregistered TES firms but the methodology behind this estimate was not provided. Despite the limitations of the administrative tax data, it remains the most robust data available to examine the characteristics of the formal TES sector.

2.4.1.2 Growth of the TES sector over time

The LRAA was implemented in April 2015 (in other words the 2016 tax year which runs from 1 March 2015 to end February 2016) so the data provide an initial indication of whether the legislation had a disemployment effect given that it made the conditions around temporary hire more stringent. While TES employment as a percentage of the total sample increased between 2011 and 2014, the share of individuals employed in TES jobs as well as the share of total contracts in the TES sector declined in 2015 and again in 2016 (the years always refer to the tax years, not calendar years, as is convention in the tax data). In absolute terms, the number of TES employees grew between 2011 and 2014 and then fell, while non-TES employment continued to grow. Figure 2.1 clearly shows how the growth rates of employment diverged in the final year, which may be

related to employers pre-empting the LRAA which, although only implemented in April 2015 (the 2016 tax year), was introduced in January 2015 (the 2015 tax year).

Figure 2.1: Growth rates in TES and non-TES employment



Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Note:** The figure uses the cleaned data sample as defined in the Appendix at the individual worker level.

The number of TES firms also increased up until 2014 but declined in 2015 and 2016 which means some firms may have exited the market due to the impending introduction of the LRAA. Given the indication of a loss of employment in the short-term following the introduction of the LRAA, a more formal and detailed examination of the impacts of the LRAA is certainly warranted, as is undertaken in Chapter 4. Notably, the LRAA also applied to part-time and fixed-term workers in the non-TES sector but there is no discernible impact on employment in the non-TES data when examined descriptively. A longer panel would be required to assess the full impact of the amendments in the medium and longer-term.

2.4.2 Individual and job characteristics of TES employees

The IRP5 data include information on a limited set of individual and job characteristics which are described for the 2011 to 2016 tax years in the section below. In terms of individual characteristics, only *age* (calculated from date of birth) and *gender* are available. In terms of job characteristics *job duration* and *earnings* are described. Additionally, the panel nature of the data facilitates consideration of the extent to which TES workers transition between various employment states.

2.4.2.1 Individual characteristics

The tax data indicate that TES employees are younger than non-TES employees with around half of all TES job contracts filled by individuals aged between 16 and 29 years relative to only a third of non-TES contracts (Table 2.6). The rest of the TES job contracts are filled by those in their prime working age (30 to 49), with only between 6-7 percent of TES job contracts filled by those aged 50 to 65. Notwithstanding the data limitations, the Cosatu Workers' Survey (Budlender, 2013) and the QLFS also found that TES workers were younger than the overall working population. The substantial cohort of young people in the data prompts the need for a better understanding of this sector, as it may play a key role in absorbing young people into employment, especially in the context of a youth unemployment rate of around 39 percent in South Africa.[42]

Table 2.6: Age distribution by sector

Age (years)	2011	2012	2013	2014	2015	2016
			non-TES			
16-29	30.76%	31.19%	31.41%	31.50%	31.05%	30.52%
30-39	28.39%	29.00%	29.61%	30.42%	30.65%	31.02%
40-49	20.94%	21.02%	21.06%	21.21%	21.21%	21.34%
50-65	19.91%	18.79%	17.91%	16.87%	17.10%	17.12%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
N	8100159	8392564	8565977	8558972	8843485	8892539
			TES			
16-29	52.30%	51.82%	51.46%	49.69%	48.41%	47.30%
30-39	27.85%	28.41%	29.02%	30.01%	30.92%	31.72%
40-49	12.90%	12.83%	12.63%	13.08%	13.30%	13.61%
50-65	6.96%	6.93%	6.89%	7.22%	7.36%	7.36%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
N	357974	393653	414195	416084	394661	367018

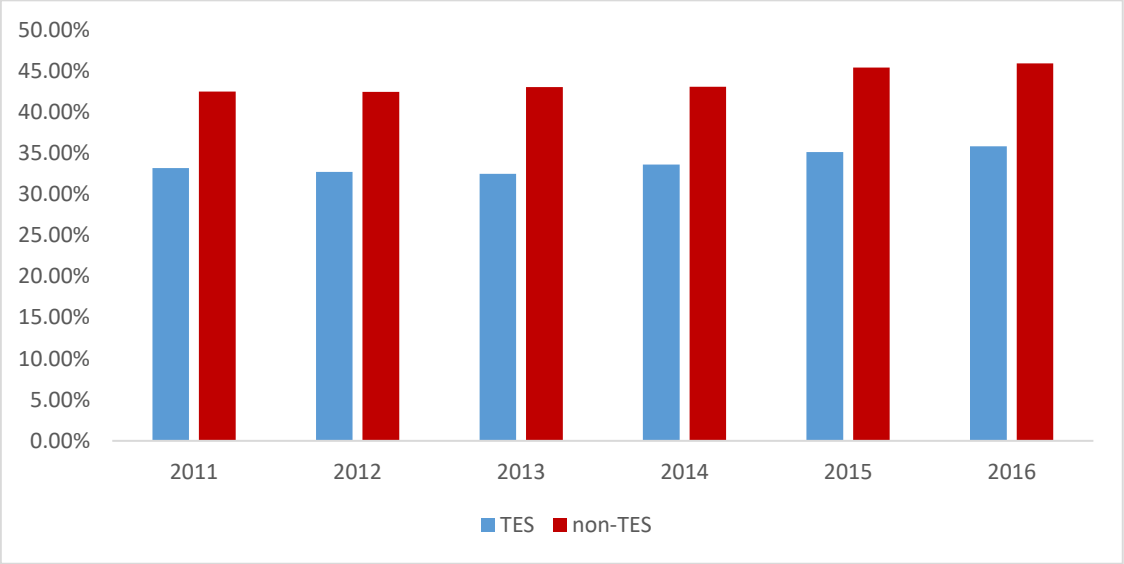
Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Note:** The table uses the cleaned data sample as defined in the Appendix at the job-contract level.

Figure 2.2 presents the share of women in the TES sector. Only a third of TES workers are women relative to 43-46 percent of workers in the non-TES sector. Budlender (2013) planned to include an assessment of gender in her study on the TES sector, however, at the time of conducting the research, there was not enough robust evidence to conclude whether there was a gender bias in

[42] This estimate is based on data from the QLFS, Quarter 1, 2017, and uses the narrow or 'searching' definition of unemployment.

the sector. The 2012 Cosatu Workers' Survey also suggested that labour brokers were less likely to employ women. The share of women in the QLFS sub-sector *Business Services N.E.C* was also lower than the average share of women in the workforce. Where women were employed in the *Business Services N.E.C* sub-sector, they were more likely to take up elementary occupations, while men were more likely to be in services and sales, reflecting occupational segregation by gender evident in the rest of the labour force. The few case studies on the contemporary TES sector indicate that TES workers operate in mining and manufacturing production lines as well as logistics (Bezuidenhout, 2008; Webster & Englert, 2020) which are dominated by male workers and may explain the gender bias observed in Figure 2.2, although these case studies cannot be used to generalise to the full sector.

Figure 2.2: Proportion of TES and non-TES workers that are women



Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Note:** The table uses the cleaned data sample as defined in the Appendix at the job-contract level.

2.4.2.2 Job Characteristics

Job duration is estimated as the days between the start date and the end date of the term of employment reported in either the IRP5 or IT3(a) forms. The variable is truncated at one year, however, as it pertains to the IRP5 certificate for a particular tax year. This means that for permanent employees employed for longer than a year, the job contract length would still be recorded as the maximum length of one tax year[43]. Table 2.7 shows that TES job contracts are on

[43] A few employers recorded the actual tenure of employment in this field for employees employed for over a year and this is also included in the 'A year or over' category.

average shorter than non-TES job contracts; around 63 percent of TES jobs are less than a year relative to 47 percent of non-TES jobs. This is consistent with the finding of Theron, Godfrey and Peter (2005) who also suggested that TES contracts were shorter. Examining contract duration over time, the proportion of TES contracts that were *more than six months but less than a year* increased by six percentage points between 2011 and 2016 while those that were *a year or over* declined by six percentage points over the same period. This indicates that in the run up to the implementation of the LRAA there was a trend towards shorter TES contracts rather than contracts that were at least a year long. In the non-TES sector, contracts that were *a year or over* declined by less than two percentage points between 2011 and 2016.

Table 2.7: Job contract duration by sector

	2011	2012	2013	2014	2015	2016
				non-TES		
Under 30 days	5.52%	6.00%	5.55%	4.62%	5.15%	4.65%
Between 1 and 3 months	6.89%	7.08%	7.29%	7.68%	7.59%	8.16%
Between 3 and 6 months	10.45%	11.20%	10.93%	11.13%	11.29%	11.74%
More than 6 months but less than a year	24.48%	24.63%	24.49%	24.63%	24.47%	24.48%
A year or over	52.66%	51.09%	51.74%	51.94%	51.49%	50.97%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
N	8723324	9044433	9300240	9294140	9605207	9658185
				TES		
Under 30 days	3.48%	3.57%	3.29%	3.69%	3.79%	3.78%
Between 1 and 3 months	11.87%	10.84%	10.49%	10.67%	10.80%	12.38%
Between 3 and 6 months	14.19%	15.09%	14.82%	14.66%	15.14%	14.71%
More than 6 months but less than a year	33.60%	38.84%	38.79%	40.54%	39.53%	38.51%
A year or over	36.86%	31.66%	32.61%	30.43%	30.74%	30.62%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
N	384640	423370	447661	449814	427415	396316

Source: Author's estimates based on IRP5 data. **Note:** The table uses the cleaned data sample as defined in the Appendix at the job-contract level.

To describe earnings, the 'source of income' dataset is used which lists types of income (by source code) and amounts in Rand value. The data contain source codes for income, taxable allowances and benefits and deductions for medical aid and retirement schemes (the components of total earnings are discussed in more detail in Chapter 3). Table 2.8 shows that, on average, TES workers earned half that of non-TES workers at the mean and around 58 percent at the median between

2011 and 2016. The differential is lower at the bottom of the earnings distribution with wages around 68 percent at the 25th percentile, but increasing to 43 percent at the 75th percentile. The ratio of TES to non-TES earnings remains much the same over the years. Of course, there are a number of factors that could be driving the stark raw wage differentials observed in the table below, and these factors are explored in detail in Chapter 3.

Table 2.8: Monthly total earnings for TES and non-TES jobs (real)

	Mean monthly values		Ratio TES/Non-TES			
	TES (ZAR)	Non-TES (ZAR)	Mean	p25	p50	p75
2011	5710.67	11194.17	0.51	0.67	0.55	0.42
2012	6692.75	12700.64	0.53	0.68	0.59	0.44
2013	7230.80	13759.12	0.53	0.68	0.60	0.44
2014	7612.83	14665.26	0.52	0.71	0.61	0.44
2015	7523.94	14748.58	0.51	0.67	0.55	0.42
2016	7682.231	15113.05	0.51	0.67	0.56	0.42

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a).
Notes: The table uses the cleaned data sample as defined in the Appendix at the job-contract level. Real monthly income is at 2016 values. The average US$-ZAR exchange rate for 2016 was R14.70/US$.

Job duration and earnings can be used to measure precarity of TES work relative to non-TES work and, at face value, both the job duration and earnings data suggest that TES workers are worse off than non-TES workers and that this has not changed much over the period examined. This is in line with the case studies described earlier in this chapter which presented evidence of inferior working conditions for TES workers (Dickinson, 2017; Webster & Englert 2020), as well as public perceptions of the exploitative nature of the sector. The LRAA of 2015 aimed to a) prevent TES workers being placed on short rolling contracts with the same client firm and 2) level the playing field such that TES workers were not treated differently to employees in SER hired directly by client firms. Without controlling for additional factors, the descriptive data in Table 2.7 does not suggest a substantial change in job duration and Table 2.4 does not indicate a substantial change in the number of job contracts per TES workers between 2015 and 2016 but, in real terms, earnings increased slightly for TES workers (by 2 percent) in the year the LRAA was implemented (2016 tax year). The impact on these variables as a result of the LRAA is considered in more detail in Chapter 4.

2.4.2.3 Transitions

Another useful feature of the IRP5 dataset is that it allows us to track individuals over time as they move into and out of the TES sector. There is significant debate in developed countries on whether TES is a stepping-stone into more permanent employment in the non-TES sector. The stepping-stone effect is measured by the rate of finding regular employment after the acceptance of a temporary job (de Graaf-Zijl, Van den Berg, & Heyma, 2011). While most authors find that TES employment has a positive stepping-stone effect into the non-TES labour market (Booth, Francesconi, & Frank 2002; de Graaf-Zijl, Van den Berg, & Heyma 2011; Hagen 2002; Ichino, Mealli, and Nannicini, 2008), there is work which finds that joining a temporary agency reduces the probability of finding regular employment (Hveem, 2013).

Given the large proportion of young people in the South African TES sector, a better understanding of the stepping-stone effect would be useful, but without full labour market data including unemployment and informal employment, this kind of analysis is not easily performed with the tax data. The available data do, however, facilitate the examination of the transitions of TES and non-TES workers between three labour market states - employed in the TES sector; employed in the non-TES sector[44], and 'out of the data'. If a TES worker is no longer observed in the dataset, this implies they either became unemployed, not economically active, or were possibly working but for unregistered/informal firms.

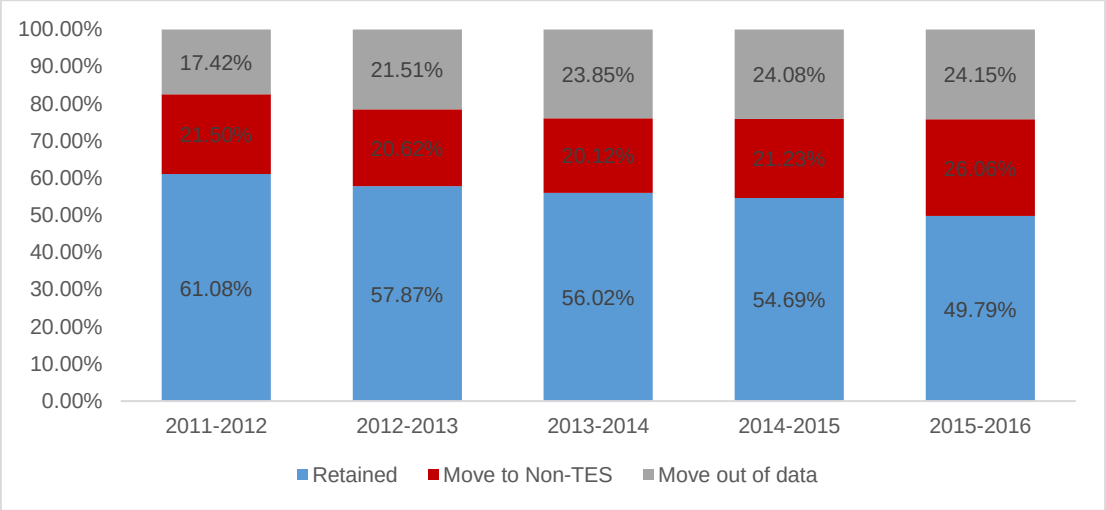
Figure 2.3 presents the year-on-year transitions for TES employees between 2011 and 2016, and Figure 2.4 presents the data for non-TES workers.[45] Across the years, around half of TES workers remained in TES the following year, although the proportion that was retained declined each year. Of those that were not retained by the TES sector in the following year, between 2013 and 2015, there was a higher probability of moving out of the data than moving to the non-TES sector. This changed between 2015 and 2016, where there was a higher probability of TES workers moving into the non-TES sector than moving out of the data (for those not retained in TES). The LRAA amendments that were implemented in the 2016 tax year may have encouraged the movement of

[44] It should be noted that moving to the non-TES sector does not necessarily mean a move to permanent employment as the non-TES sector does employ individuals on short-term contracts or on a temporary basis. Since the job duration variable is truncated at a year, distinguishing between temporary and permanent employment is not easily done in the tax data.

[45] To facilitate the year-on-year analysis, only individuals with one job contract per year are included, around 70 percent of the workers in the cleaned dataset. A more detailed examination by job contract within each year is difficult to manage in the dataset and is beyond the scope of this chapter.

TES workers to the non-TES sector as there was a limit placed on how long a worker could remain temporary. This may indicate some level of compliance with the LRAA and is explored in further detail in Chapter 4.

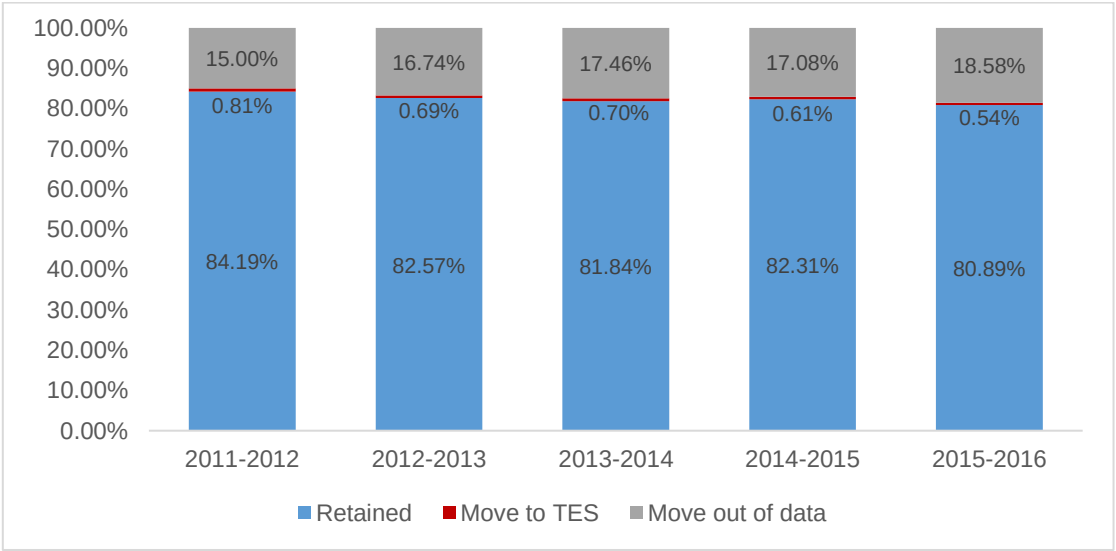
Figure 2.3: Transitions between employment states for TES workers



Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Note:** The figure uses the cleaned data sample as defined in the Appendix but only includes an individual's 'main job' per year, namely the job with the highest earnings.

Relative to TES workers, Figure 2.4 indicates that for non-TES workers, retention is much higher (at over 80 percent in each year), movements out of the data are much lower (although, they also increase over the years), and only a very small proportion of non-TES workers move into the TES sector (below 1 percent and decreasing over time).

Figure 2.4: Transitions between employment states for non-TES workers



Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Note:** The figure uses the clean data sample as defined in the Appendix but only includes an individual's 'main job' per year namely the job with the highest earnings.

Thus far the data presented suggest TES workers are younger, more likely to be male, have shorter job contracts (although are more likely to have more than one job contract in a year), and earn substantially less than non-TES workers. In addition, retention rates are lower in the TES sector relative to the non-TES sector and up until the implementation of the LRAA in the 2016 tax year, TES workers were more likely to move out of the data than move into the non-TES sector if they were not retained. The descriptive analysis paints a vivid picture of a sector in which workers seem to be in an unfavourable position. In the chapters that follow, the drivers of the TES wage penalty as well as the impact of the LRAA are examined more closely using econometric techniques, to generate a fuller understanding of whether these descriptive findings are robust.

2.4.3 Firm Characteristics

In this section, both the CIT-IRP5 panel[46] and the Employment/IRP5 panel are used to present a brief descriptive profile of TES firms. A limited number of firm characteristics are considered, namely the number of firms by firm size category, employment by firm size category, the industry in which TES firms are classified, and in terms of financial performance, the gross profit margin. When examining the CIT-IRP5 data, it is important to note that the records are more likely to represent the headquarters than the branch, so the sample of firms represented is smaller than that captured in the Employment Panel (shown in Table 2.4). Further, the CIT-IRP5 dataset only represents around 52 percent of employment in the Employment Panel as, in addition to excluding certain branches, it also includes only entities that submit CIT forms. As described in the Appendix in more detail, these are among the reasons the CIT-IRP5 is not used further in the chapters that follow.

As shown in Table 2.9, the non-TES sector, representative of the broader economy, is dominated by small firms (around 90 percent) with *large* and *very large* firms making up under 2 percent of firms. In contrast, in the TES sector a lower proportion of firms are *small* (38 to 50 percent over the years) and a greater proportion are *large* or *very large* (29 to 37 percent), compared to the non-TES sector. Notably, the number of firms in the TES sector declined over time (in line with the IPR5 data in Table 2.4), while the number of firms in the non-TES sector increased.

[46] Steps taken to clean the CIT-IRP5 data are detailed in the Appendix (Section 2A.3).

Table 2.9: Distribution of firms by size in CIT-IRP5 panel

Firm size	2011	2012	2013	2014	2015	2016
non-TES						
Small (0-50)	90.38%	90.17%	89.81%	89.61%	89.55%	89.56%
Medium (51-200)	7.95%	8.14%	8.49%	8.61%	8.67%	8.68%
Large (201-1000)	1.32%	1.34%	1.33%	1.41%	1.42%	1.41%
Very large (1001+)	0.34%	0.36%	0.37%	0.37%	0.36%	0.35%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
N	119385	122218	123633	126392	130518	133544
TES						
Small (0-50)	37.29%	42.15%	39.67%	44.35%	46.49%	50.44%
Medium (51-200)	24.66%	20.50%	22.30%	18.20%	18.60%	19.60%
Large (201-1000)	26.92%	23.95%	21.57%	20.29%	17.36%	12.33%
Very large (1001+)	11.13%	13.41%	16.45%	17.15%	17.56%	17.62%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
N	614	522	547	478	484	454

Source: Author's estimates based on CIT-IRP5v4 (National Treasury and UNU-WIDER 2019). **Note:** The data in the table above are at the firm level.

Table 2.10: Distribution of contracts by firm size in the IRP5 panel

Firm size	2011	2012	2013	2014	2015	2016
non-TES						
Small (0-50)	27.20%	26.47%	27.23%	27.09%	26.35%	26.27%
Medium (51-200)	17.65%	18.19%	18.69%	19.38%	19.22%	19.52%
Large(201-1000)	14.49%	14.52%	14.86%	15.18%	15.85%	15.00%
Very large (1001+)	40.67%	40.82%	39.22%	38.35%	38.58%	39.22%
Total	100%	100%	100%	100%	100%	100%
N	8772970	9085239	9335202	9315887	9630890	9681650
TES						
Small (0-50)	1.95%	1.93%	1.93%	1.92%	1.74%	1.78%
Medium (51-201)	7.79%	7.10%	7.29%	6.45%	7.49%	6.76%
Large(201-1000)	22.51%	20.95%	19.87%	17.89%	17.39%	20.49%
Very large (1001+)	69.70%	71.94%	72.84%	75.66%	75.12%	72.75%
Total	100%	100%	100%	100%	100%	100%
N	377588	415608	439563	441735	420450	390768

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019). **Note:** The table uses the cleaned data sample as defined in the Appendix at the job-contract level.

While South Africa is dominated by small and medium enterprises, Table 2.10 shows that large firms still employ the majority of workers in the formal economy in both the TES and non-TES

sectors (based on the IRP5 data which provide employment totals[47]). Non-TES contracts are distributed more evenly between firm size categories than TES contracts, of which the large majority are in *large* and *very large* firms (around 93 percent). In contrast, *large* and *very large* firms account for around 54 percent of the contracts in the non-TES sector.

Industry is self-reported by TES and non-TES firms when they submit their CIT tax returns. Using the one-digit level SIC codes, Table 2.11 shows TES firms are concentrated in the *Finance and Business Services* sector (39-51 percent) followed by the *Government and Community Services* sector (34-45 percent), whereas non-TES firms are more evenly spread across the various sectoral categories[48].

These category labels are somewhat misleading though, as when the data are disaggregated further into the 3-digit level (as in Table 2.12), it is evident that TES firms are not involved in financial intermediation or insurance and real estate services (categorised as *Financial Services*), but fall mostly within the *Business Activities N.E.C* (SIC code 889) in line with the QLFS. The decline in the share of *Finance and Business Services firms* (for TES and non-TES) is largely as a result of the fall in the number of firms in the 889 sub-sector. Notably, from Table 2.12, the number of non-TES firms in the SIC code 889 is much larger than the number of TES firms in the subsector (around 3 percent of firms in the entire subsector are TES firms) which confirms that the sub-sector is not a reliable proxy for the TES sector, and using this approach, as has been the case in analyses using the labour force surveys, would result in a substantial over-estimate of the size of the sector. Table 2.12 also shows that TES firms in *Government and Community Services* are mostly classified as *Other Service Activities* (SIC code 990)[49] when the data are further disaggregated. While the number of TES firms in this sub-sector fell marginally over time, non-TES firms in this sub-sector increased.

[47] While the Employment Panel and the CIT-IRP5 data represent slightly different samples of firms, there is a broad overlap between the two as the Employment Panel is a reflection of the job contracts (and workers) in the firms submitting income tax forms. The Employment Panel is here used to discuss the distribution of contracts as it contains more complete employment information compared to the CIT-IRP5 panel.

[48] The Employment Panel also includes a variable on industry and the bulk of TES firms are self-classified in the Finance and Business Services sub-sector in that dataset. The reason this differs could be because different industry codes classification systems are used when the IRP5 and CIT forms are submitted.

[49] Other Service Activities (SIC code 990) include laundering, cleaning and repairing of textiles; hairdressing and other beauty treatments; funeral activities; and other activities related to care and social activities.

Table 2.11: Distribution of firms by industry in the CIT-IRP5 panel

Industry	2011	2012	2013	2014	2015	2016
			non-TES			
Agriculture	3.49%	3.76%	4.11%	4.13%	4.34%	4.40%
Mining	0.70%	0.77%	0.89%	0.94%	0.92%	0.94%
Manufacturing	26.15%	26.50%	28.42%	27.74%	27.10%	26.59%
Utilities	0.67%	0.74%	0.91%	0.92%	0.96%	1.01%
Construction	9.77%	9.78%	10.09%	10.33%	10.60%	10.62%
Trade	30.65%	30.01%	28.61%	28.21%	27.87%	27.43%
Transport & Communication	3.48%	3.59%	3.80%	3.88%	3.87%	3.86%
Financial and Business Services	15.50%	14.54%	11.17%	11.35%	11.40%	11.69%
Government and Community Services	9.59%	10.32%	12.00%	12.50%	12.94%	13.46%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
N	119385	122218	123633	126391	130517	133543
			TES			
Agriculture	0.15%	0.38%	0.55%	2.51%	0.41%	0.22%
Mining	0.15%	0.19%	0.73%	0.42%	0.62%	0.44%
Manufacturing	2.86%	2.49%	3.84%	5.65%	3.10%	2.20%
Utilities	4.81%	4.41%	5.48%	4.60%	5.58%	4.41%
Construction	4.66%	5.36%	4.02%	3.35%	2.69%	1.98%
Trade	1.50%	0.38%	1.10%	0.63%	0.62%	0.88%
Finance and Business Services	51.73%	48.47%	39.31%	41.42%	41.94%	46.04%
Government and Community Services	34.14%	38.31%	44.97%	41.42%	45.04%	43.83%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
N	614	522	547	478	484	454

Source: Author's estimates based on CIT-IRP5v4 (National Treasury and UNU-WIDER 2019). **Notes:** The table uses the cleaned data sample as defined in the Appendix at the firm level. The data is at the one-digit SIC code.

Table 2.12: TES and non-TES firms in the Finance and Business Services and Community Services sector by 3-digit SIC code

	2011	2012	2013	2014	2015	2016
Non-TES						
Financial services (811-883)	5797	6008	5981	6324	6800	7172
Business services NEC (889)	11460	10492	6396	6486	6446	6686
Education, health, sewage, library and sporting activities (920-964)	4545	5033	5690	6126	6610	7149
Other Service Activities (990)	6184	6864	8362	8860	9438	9927
Total	27986	28397	26429	27796	29294	30934
TES						
Financial services (811-883)	13	20	18	22	29	15
Business Services NEC (889)	311	227	184	170	168	189
Education, health (920-931)	23	15	25	16	21	15
Other Service Activities (990)	204	184	216	182	197	184
Total	551	446	443	390	415	403

Source: Author's estimates based on CIT-IRP5v4 (National Treasury and UNU-WIDER 2019). **Notes:** The table uses the cleaned data sample as defined in the Appendix at the firm level. The non-TES sector includes additional categories, such as 'sewage, library and sporting activities', that are not populated for the TES sector.

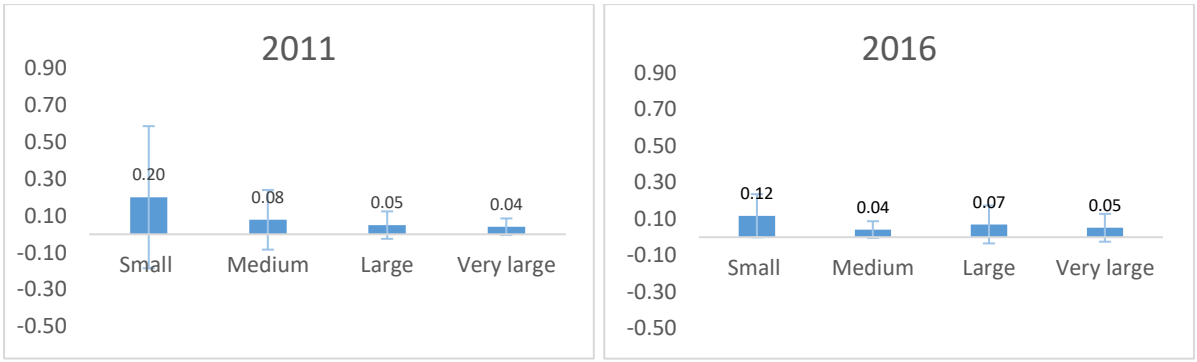
Figure 2.5 presents the gross profit margin for TES and non-TES firms in two selected years, 2011 and 2016, using data from the CIT-IRP5 panel. The gross profit margin is calculated as gross profit over total revenue[50]. The gross profit margin is a very simplistic way to look at the mark-up on a good and essentially shows whether sales cover costs. On average, *small* TES firms appear to yield a higher gross profit margin than larger TES firms[51]. For both TES and non-TES firms, gross profit margins were generally lower in 2016 than in 2011 (with a larger decline among smaller firms), which may be indicative of a more subdued business environment in 2016. Interestingly, non-TES firms generally have larger gross profit margins than TES firms, which is contrary to the perception that TES firms earn above average profits through exploitative practices, although this is a very blunt comparison without any controls (and only firms that have survived remain in the data).

[50] Gross profit is the sum of sales, with rebates and adjustments made to include inventory of the present year less inventory of the previous year. Total revenue includes the sum of sales and all other income such as royalties, fees, dividends, insurance proceeds and interest.

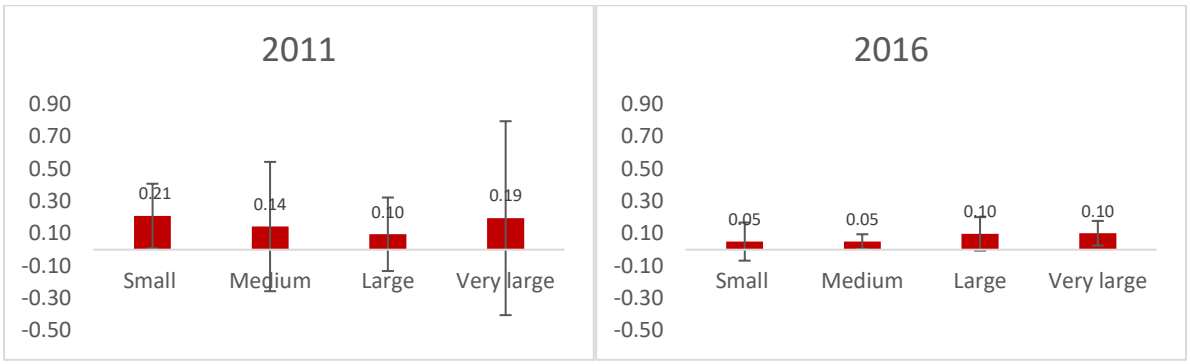
[51] In the United States, the gross profit margins for business services are around 0.5 so the margins noted in Figure 2.5 of between 0.05 and 0.2 are substantially lower (Ready Ratios 2019). The reason this may be the case is that firms that yielded a gross loss (around 6 percent of firms) are also included in these estimates.

Figure 2.5: Gross profit margins for 2011 and 2016

TES



Non-TES



Source: Author's estimates based on CIT-IRP5v4 (National Treasury and UNU-WIDER 2019). **Note:** The bands in the figures represent the margins of error for the mean gross profit margin.

In summary, the TES sector comprises mostly small- and medium-sized firms (roughly 70% of the sector in 2016), although, the few large firms in the sector employ the bulk of TES workers. The gross profit margin of the smaller TES firms that remained open seems to have declined over time. There was very little difference between 2011 and 2016 in gross profit margins for *large* and *very large* firms in the TES sector, which could suggest that larger firms were better able to withstand the changes to legislation than small and medium firms. More in-depth balance sheet information including expenses, assets, capital stock, and tax liabilities is available in the CIT-IRP5 panel which would allow a deeper examination of the corporate performance of TES firms, although this analysis is beyond the scope of this chapter.

2.5 Conclusion

The objective of this chapter was to build a profile of the TES sector based on a variety of sources, including historical accounts, legal cases, pre-existing studies and surveys, and importantly the new SARS-NT tax data. This chapter makes an important contribution to the literature in that it is the

first piece of work to collate information from these various sources and to critically analyse the information with a view to understanding the history of the sector as well its current form.

One of the most striking features of the TES sector is that almost twenty years after the country transitioned to democracy, TES workers remained largely unprotected by labour legislation. The key issue was that up until 2015, the TES firm or the labour broker was the statutory employer which meant that the client firm was not obligated to the TES worker in the same way they were obligated to workers hired directly. In particular, even after the 1995 revisions to the LRA, TES workers still had very little recourse in terms of unfair dismissals and application of collective bargaining agreements. This left room for workplace discrimination between core workers in SER and peripheral workers employed through TES.

Although a review of the various pre-existing surveys and studies, conducted prior to the release of the SARS-NT data, showed a paucity of reliable information on the sector, and particularly with respect to the size of the sector, some consistent findings did emerge with respect to worker characteristics. In particular, the evidence pointed to TES workers being in a more precarious position than non-TES workers. The administrative tax data, which as described in detail in this chapter, provide a far more accurate representation of the formal TES sector, corroborated this. In this chapter the descriptive analysis of the tax data showed that TES workers earned substantially less than non-TES workers, had shorter contracts, and lower rates of retention (both within the sector and in formal employment more generally). It is interesting that even examining only formal sector data (in other words, excluding those workers employed by unregistered or informal firms), considerable wage differentials are identified. The potential reasons for this are explored in much more depth, and in a more robust econometric analysis, in the following chapter.

The LRAA of 2015 was an important step towards regulating the TES sector. It required that TES workers were treated no differently to non-TES workers, by making the client firm the statutory employer for TES employees. This would have raised the cost of hiring workers through TES firms, potentially discouraging use of these service agencies. The descriptive data suggest that between 2015 and 2016 the number of TES firms and the number of workers employed by TES firms fell, but that TES workers that were *not* retained in the TES sector, were more likely to move to the non-TES sector than move out of the data (into informal employment, unemployment or inactivity). This may signal that while the amendments were detrimental to the TES sector itself, they were effective in getting the non-TES sector to absorb TES workers. The short-term

outcomes of the LRAA need to be analysed in a more detailed and empirically sound manner, however, which will be the subject of Chapter 4.

In conclusion, what this chapter has shown, through a thorough examination of the available sources, is that although the TES sector has provoked quite heated public sentiment, very little reliable information has been available on the sector. The release of the SARS-NT data has opened up the opportunity to explore various features of the TES sector and, as discussed in this chapter, despite its complexity and various limitations, it is by far the most reliable source of information on the sector to date. The descriptive analysis showed that the sector is sizeable, employing in the region of 400 000 employees each year and accounting for around 5 percent of the total sample of workers. The size of the sector is therefore not insignificant, and in the context of South Africa's high level of unemployment, a sector that has the potential to match workers without a network to jobs that they otherwise might not have had access to, is potentially a useful contributor to the economy and warrants further attention in the South African literature. This is particularly the case seeing as workers in this sector appear to be younger, on shorter contracts, and are paid less than their non-TES counterparts. The data also suggest that employment in the sector has been on the decline since around 2015 when the LRAA was introduced, warranting further analysis of the effects of these amendments both on employment and on employee working conditions.

2.6 Chapter Appendix: Data cleaning process and variable definitions

This appendix outlines the process involved in cleaning the Employment and CIT-IRP5 panel datasets such that they could be used for analysis. This appendix summarises the methods and decision-making processes used to deal with multiple job records, overlapping job contracts, inactive firms and coding errors. It also defines a set of variables that were used across the thesis and explains how they were estimated.

2A.1. Cleaning of Employment Panel and challenges encountered

The raw IRP5 dataset (also referred to as the Employment Panel) is an unbalanced panel at the job contract level for the tax years 2011 to 2016. A number of steps were taken to arrive at the sample that was used for the descriptive analysis in Chapter 2 (Section 2.4) which are outlined below. The 'cleaned' data sample from Chapter 2 is then used in Chapter 3 and Chapter 4, but additional steps were often necessary depending on the econometric analysis undertaken in those chapters. These additional steps are detailed in the relevant chapter rather than here.

The raw data contains around 106 million observations but in addition to IRP5 certificates for working individuals, it also contains IRP5 certificates for legal entities other than individuals, as well as many duplicate IRP5 certificates due to revisions from SARS. In other words, without the appropriate cleaning, it would not have been suitable to undertake an analysis at the job contract, individual or firm level. The rest of this section details the steps that were taken to clean the IRP5 data.

Nature of persons

The raw IRP5 data include annual IRP5 certificates that employers file for their employees as well as certificates from retirement funds, partnerships, clubs and estates. Since the focus is on employees that are currently working, it was necessary to exclude retirement funds and other certificates. In order to do this, the "Nature of Persons" variable was used to differentiate between salary and retirement pay-outs. Only salary IRP5 forms were included for the "Individual" category which excluded around 13 percent of observations from the original panel (see row 2 of Table 2A.1).

Multiple IRP5 Certificates

There are a number of cases in which multiple IRP5 entries existed for an individual in the same year at the same firm. These were dealt with in the following way:

i. **Actual duplicates.** In some cases, the IRP5 certificates look like duplicate entries such that they have the same start date, end date and earnings. This is not unlikely as the raw data contain IRP5 forms that were revised due to disputes at SARS. Duplicates amounted to around 28 percent of the dataset (26 million observations) after entities that were not individuals had been excluded (row 3 of Table 2A.1).

ii. **Multiple overlapping IRP5 entries at the same firm.** Where contracts at the same firm overlapped (in terms of start and end dates), this was considered one job and the average earnings and average days of the contracts were taken. While some of the overlapping contracts have different start and end dates, a large proportion appeared to be duplicates with the same start and end dates but different earnings. Overall, these observations made up around 2 percent of the sample of individual IRP5 certificates (2 million observations).[52] Where an individual had multiple contracts at the same firm that did not overlap, these were kept as separate contracts.

Additional cleaning

iii. **Missing ID numbers.** Around 271 000 observations with no ID numbers or passport numbers were dropped, as this would prevent us from tracking individuals over time.

iv. **Age cut-off.** There is no age limit in the tax records but for the analysis, the sample was limited to those of working age, defined as those between 16 and 65 years. This also excludes, to some extent, the possibility of including IRP5 forms that were issued to pay out retirement annuity or pension income (around 3 million observations were dropped).

v. **Excluding IRP5 forms issued for less than R2000.** Those earning less than R2000 per year were dropped because they should not have been included in the tax database. They were likely to be reporting errors, or it could be the case that a human resources employee unnecessarily included IRP5 forms for all workers despite the legal requirement to only

[52] It is not entirely clear why contracts would overlap at the firm. While each contract could refer to an actual job contract, multiple overlapping contracts were most likely to be IRP5 revisions. Revisions to the IRP5 might have been submitted in the event of a mistake or a change to the employment duration. Unfortunately, it is impossible to tell which version of the contract was revised and thus which is the most recent version, hence the averaging approach adopted (Chatterjee & Macleod, 2016).

include workers earning more than R2000 per year on a firm payroll (around 4 million observations were dropped, of which 435 353 involved TES jobs).

Table 2A.1: IRP5 sample cleaning

	2011	2012	2013	2014	2015	2016
Original sample	16304399	17085353	17229170	17791556	19773141	18316156
Only individuals	15710781	15494127	15240500	14754992	16383029	15181721
Percentage kept	96%	91%	88%	83%	83%	83%
Duplicate IRP5 certificates removed	10515318	10781922	10935538	10587074	10920081	10809979
Percentage kept	67%	70%	72%	72%	67%	71%
Additional cleaning (final sample)	9107964	9467803	9747901	9743954	10032622	10054501
Percentage kept	87%	88%	89%	92%	92%	93%

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Note:** The "percentage kept" refers to the row above rather than the original sample.

Table 2A.2 presents the number of individuals and job contracts in the final sample of working-age individuals in the IRP5 data used for analysis in Section 2.4 of Chapter 2. Over the six-year panel, there are around 58.2 million job contract observations, around 48.6 million individual observations and 14 million firm observations.

Table 2A.2: Description of Employee Panel, 2011 to 2016

Tax year	Job contracts	Individuals	Firms
2011	9107964	7596605	238197
2012	9467803	7870133	242656
2013	9747901	8126628	245070
2014	9743954	8204987	248579
2015	10032622	8413274	253161
2016	10054501	8404809	255779
Total	58154745	48616436	14483442

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a).

2A.2. Variable creation from the Employment Panel

The methods used to generate variables are consistent across the entire thesis and therefore this appendix sets the foundation for how variables are defined across the chapters. Variables specific to certain analyses are discussed in the individual chapters. In this section the firm-level variables that were created are not included as they are explained in the text to Chapter 2 and are also not used in the chapters that follow.

Age

An age variable was created such that it is the beginning of the tax year minus the date of birth divided by 365.25. This generated an age for each individual in every year. Around 4 percent of the sample (excluding duplicates) were not of working age (between 16 and 65 years old) and were excluded from the sample.

Job duration

Job duration is estimated as the days between the start date and the end date of the term of employment reported in the IRP5 or IT3(a) form. The start date and end date correspond to the variables "period employed from" and "period employed to". The variable is truncated at one year, however. So, for permanent employees, for example, the job contract length would be recorded as the maximum length of one tax year. As such, a '365-day contract' may refer to someone who was actually employed in a one-year contract or to someone employed for a duration of longer than a year in a particular job. The end date and start date were also used to calculate a worker weight (used below) which provides the proportion of the year worked:

Firm size

The IRP5 data do not include a variable indicating firm size and therefore this variable is generated, taking into account that not all workers on a firm's payroll were employed for the entire year. Firm size is the total number of employees at the firm, weighted by the number of days an employee worked in a given year (the *weight* is calculated as above). Similar methods were employed in other studies using the IRP5 data (Bhorat et al, 2017; Ebrahim, Leibbrandt, & Ranchhod, 2017; Pieterse, Kreuser, & Gavin, 2016).

Industry

An industry variable, which is self-reported by the firm, is also included in the IRP5 data. It is coded in the data using the one-digit SIC classification.

Gender

The Employment Panel includes gender, derived from the IRP5 form.

2A.3. Cleaning the CIT-IRP5 data

The CIT-IRP5 panel is used in Section 2.4.3 of Chapter 2 for the analysis of firm characteristics. The CIT-IRP5 is an unbalanced firm-level panel dataset for the years 2011 to 2016. For the descriptive analysis, the sample of firms used is limited to firms that are not dormant (based on a variable indicating dormancy in the data), and that report employees as well as sales. The sample is limited to those that report sales as this indicates that they are active firms. This is common practice in other studies using the CIT-IRP5 panel (Kreuser & Newman, 2018; Pieterse, Kreuser, & Gavin 2016). This, however, means that only around 15 percent of all firms remained in the CIT-IRP5 sample used.

In terms of the criteria, the following observations were dropped for the whole period 2011 to 2016:

- 1 701 806 firm observations (34 percent) that were dormant;
- 2 317 245 of remaining firm observations that had no employment information (69 percent of remaining firms); and
- 196 193 firm observations that did not report positive sales (18 percent of remaining firms).

The table below shows the number of firms that were kept by year. While the proportion of firms kept is small, the firms that remain make up around 52 percent of employment in the Employment Panel. The remaining 48 percent did not meet information criteria; they did not have employment and sales information.

Table 2A.3: CIT-IRP5 sample

	2011	2012	2013	2014	2015	2016
All firms	757773	813641	833263	856105	873535	918183
Non-dormant firms with employment and sales	120050	122740	124180	126870	131002	133998
Percentage of firms kept	16%	15%	15%	15%	15%	15%

Source: Author's estimates based on CIT-IRP5v4 (National Treasury and UNU-WIDER 2019).

2A.4. Merging firm-level data into the Employment Panel

Since the CIT-IRP5 Panel can only be examined at the firm-level, in order to include firm-level information such as profits into an analysis of workers or job contracts, variables from the CIT-IRP5 (or CIT) panel would have to be merged into the Employment Panel [53]. As noted before, around 69 percent of firms/entities with a PAYE reference number can be matched to a CIT number because some employers are not tax-registered entities with a CIT number. However, even among firms that are matched, there are considerable missing data on firm-level variables. In terms of the variables of interest from the CIT-IRP5, only 41 percent of non-TES firms had complete information and 60 percent of TES firms. Reasons for the incomplete firm-level information include that reporting is costly for small firms, certain amounts may be under dispute with SARS and may not show up in the data until the dispute has been settled, and firms have a longer lead time after their financial year to file their CIT return.

Given that firm-level information was patchy for both TES and non-TES firms, only the Employment Panel is used for the analyses in Chapters 3 and 4. No attempt was made to incorporate the firm-level variables from the CIT-IRP5 (or CIT) panel into the Employment Panel. An additional reason not to use the CIT-IRP5 data in the chapters that follow is that TES firms in the CIT-IRP5 data are more likely to be representative of the headquarters rather than the TES branch, which means that the CIT-IRP5 panel might under-represent TES employment. However, in the descriptive analysis in Section 2.4.3, both the Employment/IRP5 and the CIT-IRP5 panel are used separately (without merging the two) to analyse TES worker and TES firm-level characteristics.

[53] Merging data from the CIT-IRP5 panel into the Employment Panel is based on those entities with a PAYE reference number that have a corresponding CIT reference number.

Chapter 3

Identifying the Wage Penalty in the Labour Broker Sector

3.1 Introduction

The growth of atypical employment over the last few decades has been well documented for both developed and developing countries. This growth has been ascribed to firms requiring lower adjustment costs under certain economic conditions or needing to become more competitive in a rapidly-globalising environment (Holmlund & Storrie, 2002; Matsuura, Sato, & Wakasugi, 2011; Saha, Sen, & Maiti, 2013). For example, Holmlund and Storrie (2002) find that poor macroeconomic conditions in Sweden in the 1990s resulted in employers offering more temporary contracts (both fixed term and TES), and employees being more willing to accept this form of employment. In Japan, global competition in tradable goods led to a rapid increase in temporary employment more generally, and specifically in those sectors where the bulk of sales was to foreign markets (Matsuura, Sato, & Wakasugi, 2011). Similarly in India, both pro-worker labour institutions and increased import penetration led to greater use of TES in the manufacturing sector (Saha, Sen, & Maiti, 2013). In South Africa, when labour legislation was revised in 1995 to protect more workers, the TES sector expanded as discussed in Chapter 2. This expansion of the sector in South Africa took place in the context of trade liberalisation which led to firms externalising employment because of the drive to lower wages in sectors where there was increased competition (Theron, 2005).

Given the context in which TES and other forms of atypical employment grow including under uncertain macroeconomic conditions, increased competition and more pro-worker policies, it is widely expected that there would be a wage differential between atypical workers and non-temporary workers (Lass & Wooden, 2017). Indeed, a wage penalty for TES workers has been found in a number of countries including Portugal (Boeheim & Cardoso, 2007), Germany (Pfeifer, 2012), Britain (Brown & Sessions, 2005) and the U.S. (Houseman, 2001; Segal & Sullivan,1998). After adjusting for demographic and job factors and in some cases controlling for individual fixed effects, wage penalties are estimated to range from 6 percent in the UK (Booth, Francesconi, & Frank, 2002) to around 20 percent in France and the U.S. (Blanchard & Landier, 2002; Segal & Sullivan, 1998). While the wage gap tends to decline after controlling for certain characteristics, where the gap persists for TES is in terms of benefits, such as pension, medical aid and

unemployment insurance. TES workers have been found to have far lower access to benefits than permanent workers, even after controlling for factors such as race, education and location (Houseman, 2001). This suggests that employers use TES as a way to lower costs both in terms of the base wage and benefits.

Almost all of the international evidence on the size of the wage penalty for TES workers is for developed countries, despite the fact that TES forms a substantial component of the labour force in many developing countries and is on the rise (Benjamin, Bhorat, & van der Westhuizen, 2010). Survey data based on small samples of firms from the TES sector (Budlender, 2013) and case study evidence (Dickinson, 2017; Webster and Englert, 2020) discussed in Chapter 2 have suggested that there is a large wage differential between TES and non-TES workers in South Africa. However, no empirical evidence exists on the magnitude of the wage penalty for the TES sector as a whole. This chapter contributes to the literature by exploring the wage penalty in the TES sector in South Africa, using the administrative data from tax records discussed in Chapter 2.

A key reason for the limited information on wage penalties in this sector is the prior lack of suitable data to engage in rigorous analysis or to make broad generalisations about the TES sector as a whole. In Chapter 2, the limitations of labour force surveys as well as other pre-existing data sources (that existed prior to release of the administrative tax data) were discussed in detail. Labour force surveys rely on self- or proxy-reporting on income, sector, and the nature of the employment contract, leading to well-documented concerns around high rates of missing data and reporting errors (Juster & Smith, 1997; Segal & Sullivan, 1998; Riphahn & Serfling 2005; Wittenberg, 2017)[54]. Further, standard questions on the industry or nature of employment in these surveys do not allow TES or labour broker employment to be distinguished from other kinds of work. In contrast, the administrative tax data released by SARS-NT contain information on which employees work in the TES sector because TES firms are required to submit additional forms to the revenues services to avoid double-taxing of employees through the client firms. Also, unlike most of the available household survey data, the administrative tax records contain reliable information provided by firms on various components of employees' gross wages, such as the taxes paid, medical aid benefits, and certain contributions to retirement schemes.

[54] For example for South Africa, Wittenberg (2017) finds that the QLFS under-reports income by around 40 percent on average compared to data from the tax records, likely related to the fact that respondents do not include tax and deductions when reporting earnings. Wittenberg (2017) goes on to suggest that this may be because income is normally reported by a proxy respondent and not the person earning the income themselves although, even for direct respondents, adding tax and deductions back may be too cognitively demanding and take-home pay is more likely to come to mind.

Drawing on the unique features of the tax record data, this chapter explores two main research questions. The first is what is the size of the gross wage penalty for TES workers (relative to non-TES workers) and how can we use the administrative data to unpack the drivers of this penalty. More specifically, in this first part of the paper, we take advantage of the panel nature of the data to explore the extent to which the penalty is driven by a) differences in worker characteristics between the TES and non-TES sectors, b) differences in the nature of the job itself, and c) the conditions under which workers accept a job in the TES sector. Particular features of the South African labour market such as an over-supply of low-skilled labour, high levels of employee churn (Kerr, 2018), a high level of unemployment and a small informal sector mean that displaced workers may be more likely to accept poorly remunerated jobs in the formal sector and particularly, in TES firms. Examining the wage differentials for the periods before and after employee transitions into and out of TES jobs could provide more insight into the role TES employment plays in a loose and volatile labour market.[55]

The second question examined in this chapter is whether the gross wages of TES and non-TES workers are structured differently. Because there is some information on the employee's benefit contributions in the tax data, we are able to explore whether in South Africa, as has been found elsewhere (Houseman 2001; Segal & Sullivan 1997), TES workers are less likely to receive certain benefits such as pension and medical aid. Providing empirical evidence on the earnings differential and its drivers as well as differences in benefit contributions between TES and non-TES workers is an important first step to help inform debates on the precariousness of jobs in the TES sector.

The chapter is structured as follows. In the following section, the tax data and the main variables used in the analysis are described. Section 3.3 presents the analysis of the size of the TES gross wage penalty and its potential drivers. Section 3.4 examines the structure of the gross wage and differences in benefit contributions between TES and non-TES workers. Section 3.5 concludes with a discussion of the main results and the significance of the findings.

[55] A first draft of this chapter has been published as a UNU-WIDER working paper (Cassim & Casale, 2018) available at https://www.wider.unu.edu/publication/how-large-wage-penalty-labour-broker-sector.

3.2 Data and Definitions

3.2.1 Structure of the data and sample

For the analysis in this chapter, the Employment Panel dataset for the five tax years from 2011 (namely 1 March 2010 to end February 2011) to 2015 (1 March 2014 to end February 2015) is used. The 2016 tax year is not included in this analysis given that TES worker earnings may have been affected by the 2015 amendments to the LRA. The decision was taken to rather focus in this chapter on the pre-amendment wage penalty, with the impact of the amendments on earnings analysed further in Chapter 4.

As described in Chapter 2, the Employment Panel is created from employee income tax certificates submitted by employers (IRP5 and IT3(a)) to SARS. The unit of analysis is essentially the job contract level as the dataset includes records of employment for tax-paying firms in the relevant tax year. However, the data can also be collapsed to the person level, as unique individual identifiers are available.

The starting point for the analysis in this chapter is the 'cleaned' Employment Panel (discussed in the Appendix to Chapter 2), although some amendments had to be made to support the econometric analysis that follows. About 70 percent of individuals in the data have just one job contract per year. However, for the rest, multiple entries per year can exist because individuals are either performing two jobs simultaneously (in other words, they have overlapping contracts at different firms) or they have sequential job contracts in the same year. In cases where individuals have sequential job contracts, all contracts are included in the data. In cases where individuals have job contracts that are overlapping (for instance, when someone undertakes ad hoc or contract work simultaneously with their main job), the individual's primary job was identified as that with the highest earnings for that period.[56] Thus, a sample of individuals with information at the job contract level was derived, where each person may have a number of sequential job contracts per year, and where contracts are overlapping, data on what is assumed to be the main job contract were used.

[56] This affects 5 per cent of the sample amounting to around 2.9 million non-TES job contracts and 190 000 TES job contracts (out of a total of approximately 58 million job contract observations). It should be noted that overlapping contracts at the same firm are dealt with in the 'cleaned' Employment Panel. The appendix to Chapter 2 discusses that where contracts at the same firm overlapped, this was considered one job and the average earnings and average days of the contracts were taken.

The earnings data were trimmed to remove observations where individuals earned more than R10 million per year as these are likely to be CEOs and directors of companies who are not comparable to TES sector workers.[57] Table 3.1 shows the number of individuals and job contracts in the final constructed *main job sample* for each year, disaggregated into TES and non-TES employment. Over the five-year panel, there are, in total, around 39.3 million individual observations and around 43.9 million job contract observations for the working age sample (16 to 65 years). TES employment constitutes between 4 and 5 percent of the full sample between 2011 and 2015, whether we consider individuals employed in the TES sector as a percentage of all employed individuals, or TES job contracts as a percentage of total job contracts.

Table 3.1: Employment estimates in the TES and non-TES sectors

Tax year	Job Contracts				Individuals			
	TES	**Non-TES**	**Total**	**%TES**	**TES**	**Non-TES**	**Total**	**%TES**
2011	350 536	7 872 324	8 222 860	4.26%	341 257	7 043 693	7 384 950	4.62%
2012	388 080	8 254 521	8 642 601	4.49%	376 394	7 314 664	7 691 058	4.89%
2013	409 683	8 509 804	8 919 487	4.59%	396 958	7 550 729	7 947 687	4.99%
2014	409 072	8 534 516	8 943 588	4.57%	397 357	7 627 203	8 024 560	4.95%
2015	389 122	8 824 750	9 213 872	4.22%	378 256	7 846 428	8 224 684	4.60%
Total	1 946 493	41 995 915	43 942 408	4.43%	1 890 222	37 382 717	39 272 939	4.81%

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Note:** This chapter uses the 'main job sample' which is smaller than the 'cleaned' sample used in Chapter 2 as, where there are overlapping job contracts, only the 'main job' is included.

3.2.2 Description of the main variables used

3.2.2.1 Earnings

To estimate earnings, the 'source of income' dataset was used, which lists types of income (by source code) and amounts in Rand value, and can be merged with the Employment Panel (Ebrahim & Axelson, 2019). The data contain source codes for income, taxable allowances and benefits and deductions for medical aid and retirement schemes. The source codes related to labour income (namely, income earned from a job) fall under "Normal Income", "Fringe benefits" and "Allowances" (see Appendix Table 3A.1). *Normal income* is the base salary or wage that the firm pays to an individual for services rendered as well as overtime. *Fringe benefits* include employer-paid premiums for the benefit of an employee (including lower interest rates, accommodation, free

[57] Removing observations where individuals earn in excess of R10 million per annum excludes only around 10 contracts.

or cheaper services) and *Allowances* include travel, office and other allowances which attract a tax benefit. *Gross earnings* are estimated as the sum of these three sets of source codes. In addition, the source code data include what are called *Deductions* which are the employee contributions to medical aid and retirement schemes. These contributions as well as the tax paid are deducted from *gross earnings* by the employer before net earnings are paid over to the individual. More detail will be provided on the medical aid and pension/retirement contributions in Section 3.4, where the difference in the structure of the gross wage between TES and non-TES workers is analysed.[58]

Monthly earnings are used for the analysis (as is done in Chatterjee & Macleod 2016 and Ebrahim, Leibbrandt, & Ranchhod 2017). First, daily earnings are calculated using *gross earnings* for a specific contract divided by the length of that contract in days (*job duration*). From this, monthly earnings are estimated by multiplying daily earnings by a standard number of working days (22.5) in a month.

3.2.2.2 Explanatory variables

The IRP5 dataset includes information on a limited set of characteristics which can be used in the analysis below. In terms of individual characteristics only *age* and *gender* are available. In terms of job/firm characteristics *job duration*, *firm size*, and the (self-reported) *industry* the firm operates in are available.[59] The characteristics of TES workers and their jobs were discussed in Chapter 2, therefore only a snapshot of the *main job sample* for 2015 is provided here for illustration (Table 3.2). Overall, the descriptive characteristics indicate that, relative to non-TES employment, TES employment is more likely to be held by young, male employees, employed on short contracts (of less than a year) and in firms with more than a thousand employees. While non-TES firms are more widely spread across the different industrial categories, TES firms self-report as being predominantly in the Finance and Business Services sector (84 percent) followed by a much smaller percentage in the Construction sector (4 percent).[60] It is important to remember that except

[58] A number of researchers have used the sum of three aggregate source codes in the IRP5 data to calculate *total earnings* for a specific job contract (Bhorat et al. 2017; Cassim & Casale 2018; Bassier, 2019). Kerr (2020) makes an argument that the sum of these three variables overestimates income earned from a job (labour income) as it may include income earned from annuities and other investments, although this is driven by the upper end of the earnings distribution. The difference in income using the aggregate codes in the IRP5 data relative to using the disaggregated source codes is around 6 percent for the non-TES population and 1 percent for the TES population. If the sample is limited to those earning less than R1 000 000, the differences are negligible. The source of income panel is preferred for this analysis as it facilitates the examination of how salaries are structured for TES relative to non-TES workers.

[59] The definitions of these variables are detailed in the Appendix to Chapter 2.

[60] The CIT-IRP5 firm panel data discussed in Section 2.4.3 (Chapter 2) suggest that TES firms are split between the Finance and Business Services and the Community Services sector. This difference in sectoral distribution is likely due

perhaps for those working in TES firms that focus on supplying workers to the construction industry, this distribution does not reflect the sector the TES employee is physically working in, as TES firms cannot be matched to the client firms that they serve in the tax data.

Table 3.2: Characteristics of TES and non-TES employment (2015)

	TES		Non-TES	
	Proportion	***N***	***Proportion***	***N***
Age				
16-29	49.36%	176392	31.14%	2501776
30-39	30.81%	110 122	30.72%	2 468 148
40-49	12.84%	45 877	21.21%	1 703 598
50-65	6.99%	24 987	16.93%	1 359 992
Total	*100%*	*357 378*	*100.00%*	*8 033 514*
Gender				
Female	33.50%	129661	45.23%	3957330
Male	66.50%	257443	54.77%	4792372
Total	*100.00%*	*387104*	*100.00%*	*8749702*
Contract duration				
Under 30 days	3.85%	14 817	2.26%	190 814
1 to 3 months	11.32%	43 636	7.64%	645 385
3 to 6 months	15.81%	60 915	11.38%	961 516
6 months to under 1 year	39.98%	154 072	24.46%	2 067 467
A year or more	29.04%	111 911	54.26%	4 585 850
Total	*100.00%*	*385 351*	*100.00%*	*8 451 032*
Firm Size				
Small (1-50)	1.71%	6 615	26.31%	2 302 338
Medium (51–250)	7.62%	29 498	19.38%	1 695 581
Large (251-1000)	17.41%	67 378	15.84%	1 386 055
Very large (1000+)	73.27%	283 613	38.47%	3 365 728
Total	*100.00%*	*387 104*	*100.00%*	*8 749 702*
Industry				
Agriculture	2.19%	8475	8.56%	744799
Mining	1.10%	4257	4.26%	370834
Manufacturing	3.64%	14082	16.74%	1450257
Utilities	0.08%	268	1.26%	112866
Construction	4.34%	18630	3.57%	317262
Trade	2.23%	9275	12.09%	1081303
Transport	0.76%	1382	4.22%	365378
Tourism	0.06%	159	2.77%	269259
Financial	83.73%	316277	25.65%	2180904
Government	0.00%	0	13.35%	1139975
Non-Government	3.08%	14263	7.22%	625432
Total	*100.00%*	*387 068*	*100.00%*	*8 658 269*

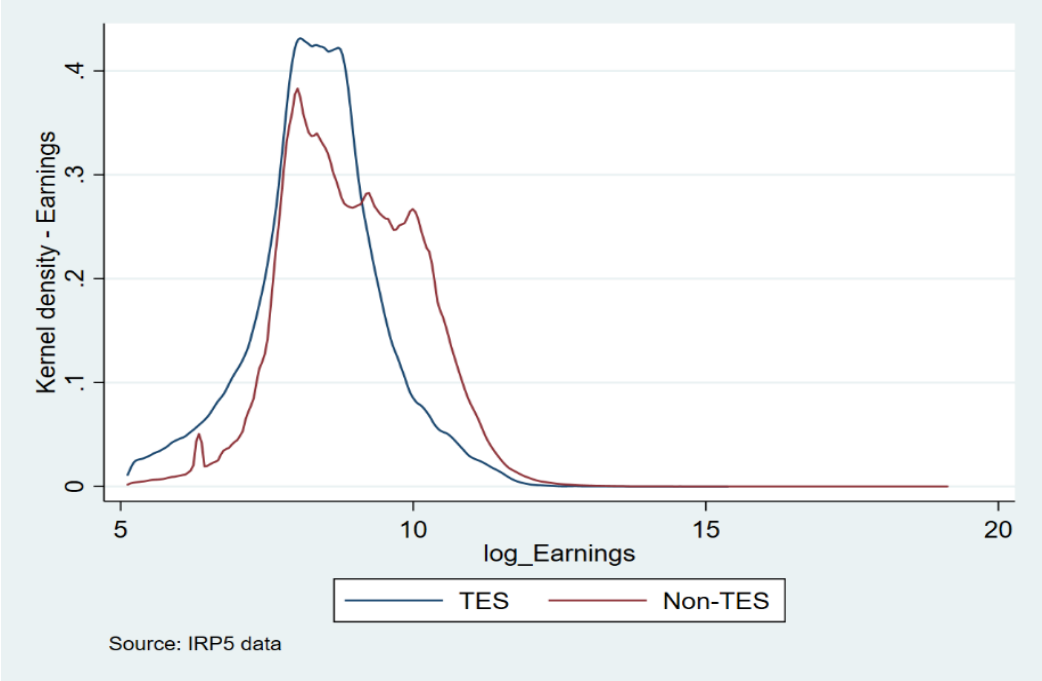
to the fact that the IRP5 dataset has a different sectoral classification system (aligned to SARS activity codes) whereby TES firms would best fit into Financial Services rather than the Community Services sector. These IRP5 classification is not completely aligned to the SIC classification used in the CIT forms and offer much less detail.

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a).
Note: This is the 'main job sample' as defined in Section 3.2.1 and is at the job contract level.

3.3 The gross wage penalty in the TES sector and its drivers

A first look at the descriptive data on earnings suggests that there is a large wage differential between TES and non-TES workers. Kernel densities of the log of *monthly gross earnings* for TES and non-TES jobs in 2015 (Figure 3.1) show that the non-TES earnings distribution sits to the right of the TES earnings distribution and has a much longer upper tail. Examining *monthly gross earnings* in Table 3.3, TES wages are found to be 53 percent of non-TES wages at the mean and 61 percent at the median in 2015. The wage differential is lower at the bottom of the earnings distribution, with TES wages around 74 percent of non-TES wages at the 25th percentile, but 44 percent at the 75th percentile. Similar ratios are observed in each of the other tax years.

Figure 3.1: Earnings kernel density (2015)



Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Note:** This is the 'main job sample' as defined in Section 3.2.1 and is at the job contract level.

Table 3.3: Monthly total earnings for TES and non-TES jobs (2015)

	Mean monthly values[a]		Ratio TES/Non-TES			
Tax year	**TES (ZAR)**	**Non-TES (ZAR)**	**Mean**	**p25**	**p50**	**p75**
2011	5895.454	11602.33	0.51	0.67	0.54	0.41
2012	6394.116	12469.86	0.51	0.69	0.56	0.42
2013	6950.135	13082.21	0.53	0.69	0.59	0.44
2014	7529.047	14091.47	0.53	0.71	0.60	0.44
2015	7900.193	14981.21	0.53	0.74	0.61	0.44
Average	6933.79	13245.42	0.52	0.70	0.58	0.43

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a).
Notes: This is the 'main job sample' as defined in Section 3.2 and is at the job contract level.
[a] The average US$-ZAR exchange rate for 2015 was R12.78/US$.

3.3.1 Econometric strategy

In this section, the extent to which the tax data can be used to better understand the drivers of the gross wage penalty is examined. Specifically, the analysis explores a) differences in worker characteristics between the TES and non-TES sectors, b) differences in the nature of the job itself, and c) the conditions under which workers accept a job in the TES sector.

For comparative purposes, the first equation estimates the raw wage penalty using a simple pooled ordinary least squares (POLS) specification that treats the data as if they were cross-sectional (rather than a panel of individuals). Y_{ij} is the log of real monthly gross earnings for individual *i* in job *j*; TES_{ij} is an indicator for whether or not the individual is in a TES job, is the TES earnings penalty, β_t are year fixed effects which controls for wage growth and is the error term.

$$Y_{ij} = \lambda TES_{ij} + \beta_t + \varepsilon_{ij} \quad (1)$$

As a first step towards understanding the drivers of the gross wage penalty, the extent to which differences in characteristics between TES and non-TES workers account for the penalty is examined. While the data contain a limited set of individual characteristics, because of the panel nature of the data, an individual fixed effects strategy can be used. This means we can control for time-invariant individual-specific effects at the employee level, by exploiting the variation in the earnings of individuals that switch into and out of TES employment over time. This strategy requires sufficient switching between TES and non-TES, and in our sample roughly 16 to 18 percent of TES employees (24 000- 30 000) switch into the non-TES sector and around 0.05

percent of non-TES employees (25 000 -27 000) switch into the TES sector between any two years (see the transition matrix in Appendix Table 3A.2). There are likely to be more switches if we were to consider switches within years. A fixed effects strategy accounts for typically observable time-invariant characteristics of employees, such as their race, gender and education, for example, as well as unobservable factors such as drive, motivation, work ethic and other innate abilities considered time-invariant[61]. For simplicity, it is assumed that education is largely time-invariant here as survey data shows that only 4 percent of the employed are enrolled in education at the same time as being in employment (Kerr, Lam and Wittenberg 2016). The specification follows below:

$$Y_{ij} = \alpha_i + \beta_t + \lambda TES_{ij} + AGE_i^k + \varepsilon_{ij} \qquad (2)$$

where α_i are the individual-specific fixed effects. In addition, as a proxy for time-varying experience, employee age is included in the form of three dummies representing 16 to 29 years, 30 to 39 years and 40 to 49 years (where 50-65 years is the omitted age category)[62].

Next, whether part of the TES wage penalty can be accounted for by the nature of the TES job or the type of firm in which it is located is considered. This is done in Equation 3 by including a vector of job/firm characteristics (X_{ij}) that are available in the data, namely, job contract duration, size of the firm, and industry. However, because the data do not contain important information such as skill-level or occupation, which has been found to be a significant determinant of earnings in South Africa (Bhorat, Goga, & Stanwix, 2013), the observed differential may still be larger than if a fuller set of controls for job characteristics were available.

$$Y_{ij} = \alpha_i + \beta_t + \lambda TES_{ij} + AGE_i^k + +X_{ij} + \varepsilon_{ij} \qquad (3)$$

Lastly, an examination of the circumstances around which individuals accept potentially less desirable TES jobs is attempted. Developed country literature has shown that unemployed

[61] Booth, Francesconi and Frank (2002) find a wage gap of between 13 and 15 percent when using POLS and a wage gap of between 6 and 10 percent when using fixed effects, suggesting that not accounting for the impact of time-invariant factors results in a substantial overestimation of wage penalties.

[62] Age is included as a categorical variable to better understand the relationship between different age cohorts and the wage penalty. As a robustness check, when age is included as a continuous variable, the regression outcomes are the same.

individuals may take up low-paying TES jobs as they are stepping-stones into the non-TES sector, particularly for young and marginalised workers (Booth, Francesconi, & Frank, 2002; de Graaf-Zijl, Van den Berg, & Heyma, 2011; Hagen, 2002; Ichino, Mealli, & Nannicini, 2008). Employed individuals, in contrast, may take up low-paying TES jobs in the case of displacement (Farber, 1999). In South Africa, high levels of employee churn (Kerr, 2018) mean that worker displacement is a common feature of the labour market.

Segal and Sullivan (1998) analyse this issue for the US using similar administrative data to the Employment Panel. They argue that temporary workers might accept a temporary job because of some setback such as a factory closure or after being laid off, and thus wage differentials may reflect the circumstances in which workers accept the job rather than the job itself. If this is the case, the earnings received in periods far removed from the temporary employment spell may not be a good comparison but those immediately prior to the temporary spell will be. One would expect that a displaced individual's wages start to decline in jobs prior to the temporary spell if the worker's bargaining power is reduced. To examine this in the data, the approach in Segal and Sullivan (1998) is followed such that a series of dummy variables is added to the specification above indicating the jobs held before and after the temporary employment spell. As in their study, for the sake of simplicity, individuals that had more than one temporary employment spell over the period are excluded. In other words, the sample is limited to individuals who were employed in non-TES jobs before and after the TES spell. This is specified in Equation 4 as follows:

$$Y_{ij} = \alpha_i + \beta_t + \lambda TES_{ij} + AGE_i^k + \delta_1 1Before_{ij} + \delta_2 2Before_{ij} + \delta_3 1After_{ij} + \delta_4 2After_{ij} + X_{ij} + \varepsilon_{ij} \quad (4)$$

Where $1Before_{ij}$ is a dummy indicating the (non-TES) *job prior* to the TES spell $2Before_{ij}$ and indicates the job *two jobs prior* to the TES spell. The set of dummies $1After_{ij}$ and $2After_{ij}$ is similarly included to represent the first and second jobs after the TES spell.[63] δ is the earnings penalty for the specified job spell. The coefficients on the before and after dummies measure the earnings penalty/premium in the jobs just before and after the TES spell, relative to those jobs outside of the five job spells denoted in the model.[64] Segal and Sullivan (1998) argue that if the non-TES wage differentials are found to be negative even before the TES spell, this suggests the

[63] These dummies also take on a value of zero for the TES spell.

[64] Around 17 percent of the sample had more than 5 jobs per year.

TES wage penalty could also be associated with the weaker circumstances under which workers enter the TES job.

3.3.2 Results

Table 3.4 presents the results for equations 1 to 3, where the log of monthly *gross earnings* is the dependent variable. The coefficient on the TES variable in the POLS specification is −0.632, indicating that there is a raw wage penalty of around 88 percent[65] for TES employment. When individual fixed effects and age are controlled for (in Equation 2), the coefficient on TES declines substantially to −0.402, equivalent to a wage penalty of 47 percent. This is unsurprising, as one would expect a large difference in the time-invariant characteristics between TES and non-TES workers (Dickinson, 2017; Webster & Englert, 2020). It is also well known that individual characteristics such as race and education are particularly strong drivers of wage inequality in South Africa (Leibbrandt, Finn, & Woolard, 2012; Mosomi, 2019). The coefficients on the age dummies show that in line with expectations, earnings increase with experience (but at a decreasing rate).

In specification 3, when controls for job/firm characteristics are added, the coefficient on the TES variable declines further to −0.292, equivalent to a wage penalty of 34 percent. The coefficients on the medium and very large firm size dummies in the last specification are negative and significant indicating that, compared to small firms, wages in medium and very large firms are on average lower.[66] The coefficient on large firms is positive and significant however, indicating that wages in large firms are higher in relation to small firms. With the exception of very short-term contracts of less than a month, contracts of less than one year are associated with lower earnings than contracts of a year or longer. Except for the tourism and non-government community services sectors, the coefficients on the industry categories are all positive and significant, indicating higher wages in most sectors relative to the agricultural sector.[67]

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[65] The transformation of the TES coefficient is based on the estimation method used in Halvorsen and Palmquist (1980) to interpret dummy variables in semilogarithmic equations.

[66] This is consistent with the findings in Aterido et al. (2019) who, also using the SARS-NT data, showed that larger firms are found to be less productive, less dynamic and pay lower wages relative to smaller firms.

[67] In addition, the regressions were run with a panel including only individuals with one job contract per year (38 058 863 observations compared with 41 389 932 in Table 3.5), to see if those who switched frequently within years were driving the results. However, the coefficient in specification 3 was −0.295, only marginally lower than -0.292 observed in Table 16.

Table 3.4: Estimating the TES wage penalty

(dependent variable: log of real monthly gross earnings)

	1	2	3
TES	-0.632***	-0.382***	-0.292***
	(0.001)	(0.001)	(0.001)
Age: 16-29		-0.290***	-0.250***
		(0.000)	(0.000)
Age: 30-39		-0.027***	-0.020***
		(0.000)	(0.000)
Age: 40-49		0.063***	0.054***
		(0.000)	(0.000)
Medium (50–250)			-0.005***
			(0.000)
Large (250-1000)			0.007***
			(0.000)
Very large (1000+)			-0.025***
			(0.000)
Under 30 days			0.327***
			(0.001)
1 to 3 months			-0.044***
			(0.000)
3 and 6 months			-0.134***
			(0.000)
6 months to less than a year			-0.126***
			(0.000)
Mining			0.652***
			(0.001)
Manufacturing			0.260***
			(0.001)
Utilities			0.426***
			(0.002)
Construction			0.154***
			(0.001)
Trade			0.048***
			(0.001)
Transport			0.413***
			(0.001)
Tourism			-0.026***
			(0.001)
Financial			0.064***
			(0.001)
Government			0.630***
			(0.001)
Non-govt community services			-0.004***
			(0.001)
Constant	9.010***	8.993***	8.838***
	(0.000)	(0.000)	(0.001)
Individual effects	No	Yes	Yes
Year effects	Yes	Yes	Yes
No. of observations	41389932	41389932	41389932

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a).
Notes: The dependent variable is the log of real monthly gross earnings, deflated such that 2015 is the base year. The 2011 financial year, age 50 to 65, agriculture, small firms, and contracts of a year or more are the omitted categories. The total number of observations here is different to Table 3.1 as there were approximately 2 million observations in which job duration was missing, which means monthly earnings cannot be calculated.
* p<=0.1, ** p<=0.05, *** p<=0.01.

The analysis thus far suggests that both differences in worker characteristics and differences in the nature of the job itself drive the large earnings differential between TES and non-TES employment, however, the former accounts for a larger share. Controlling for differences in worker characteristics resulted in a 41 percentage point decline in the penalty, while controlling for differences in job characteristics resulted in a further decline of 13 percentage points. There are limitations to using the administrative data to estimate the wage penalty though. The limited information on job characteristics in particular means that part of the remaining differential could likely be attributed to factors such as skill level, occupation and possibly unionisation. Further, because there is no information on hours worked per day in the tax data, it is not possible to measure how much of the wage differential is due to TES workers potentially working fewer hours in their contracts compared to non-TES workers.

Due to the limited number of job characteristics available in the data, it is not entirely clear if workers doing similar work are being compared. To help mitigate this concern, the regressions also also estimated on narrower sub-samples of workers, who are more likely to have common characteristics and more likely to be doing similar kinds of work (especially considering that the labour market remains highly segmented in South Africa (Webster & Von Holdt 2005)). More specifically, the sample is disaggregated by various combinations of gender, age group, industry and earnings quintile. The latter is the closest one can get to a proxy for skill (and has been used as such in other research using the tax data). The coefficients on the TES variable for this series of regressions are shown in Tables 3A.3 and 3A.4 in the appendix.

Some interesting patterns emerge from this analysis. For example, the differential remains largely consistent across the age cohorts (with coefficients ranging from -0.257 to -0.326), except for the oldest age cohort of 50-65, among whom the differential is much smaller (a coefficient of -0.103). The differential is largest for the lowest earnings quintile at -0.277, and declines with each successive quintile to -0.017 for the highest quintile. Across all the age cohorts and quintiles, the differential is much larger among women then among men, with an overall differential of -0.461 for the full female sample and -0.203 for the full male sample. There is only one sub-sample in Table 3A.3 for whom a positive coefficient (of 0.112) was obtained, namely men aged 50-65, likely representing a group of TES workers filling higher-skill contracts in the client sector.

Finally, when the sample is split by age cohort and gender across the eight main industrial categories as shown in Table 3A.4, a negative coefficient is found for 59 of the 64 sub-sample combinations, and in the few cases where a positive coefficient is obtained, the size of the coefficient is generally very small and insignificant (or only weakly significant). The one exception is among those aged 50-65 working in the Finance sector, where a coefficient of 0.091 is obtained, again likely representing a more select group of specialised contract workers.The last set of estimations in Table 3.5 shows that in addition to differences in worker and job characteristics, the precarious conditions under which TES jobs are taken up might also account for the lower wages. As per Equation 4, dummies associated with the two jobs before and two jobs after entering the TES sector are included. As explained above, those who had more than one TES job spell in the panel are excluded for simplicity (following Segal & Sullivan, 1998).[68] For comparison, Equation 3, namely, the specification with time dummies, individual fixed effects, and a full set of controls, is run using this reduced sample (shown in Column 1 of Table 3.5). The penalty on TES employment for this reduced sample is only slightly larger than for the full sample used in Table 3.4 (−0.308 vs −0.292). However, of interest are the coefficients on the dummy variables representing the jobs before and after the temporary employment spell shown in Column 2.

The coefficients on the dummies representing non-TES jobs before the temporary employment spell are negative, indicating that periods prior to entering into a TES contract are associated with events leading to workers having lower wages even before they joined a TES firm (as per Segal & Sullivan, 1998). The negative coefficient on the dummy '2 jobs prior' of -0.086 (a 9 percent penalty) is smaller than the coefficient on the dummy '1 job prior' of -0.200 (a 22 percent penalty). The coefficient on the dummy '1 job post' is also negative but much smaller at -0.028, while the coefficient on the dummy '2 jobs post' is marginally positive at 0.009. The negative coefficient on the TES dummy itself remains largest at -0.372.[69] These results are displayed in Figure 3.2.

The results suggest that a TES job might be a job of last resort, in that workers accept a TES job in circumstances that had already led to their wages declining. This might have been precipitated

[68] Around 3.7 million observations were dropped, or 9 per cent of the sample from Table 3.4. Half of all TES workers had one TES spell between 2011 and 2015 as opposed to having many consecutive TES contracts over the period of assessment.

[69] The coefficient on the TES dummy in Column 2 (−0.372) is larger than that in Column 1 (−0.308) because the jobs just before and just after the TES spell, during which wages tend to be lower, are removed from the non-TES comparison group and accounted for by the dummies. In other words, the estimate in Column 1 reflects the wage penalty for the TES job relative to all non-TES jobs, while in Column 2 it reflects the penalty for the TES job relative to only the non-TES jobs outside of the 'prior/post' period.

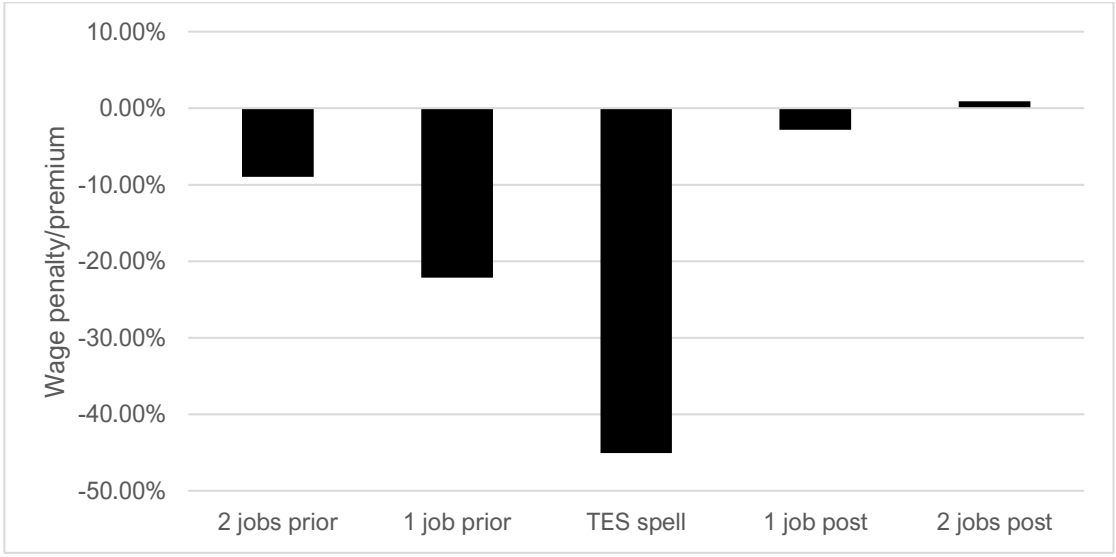
by a job displacement or a series of displacements, as displaced workers have been found to experience a substantial decline in earnings relative to workers who remain employed at a firm (Kletzer, 1998). In other words, workers may move into TES firms when they are already in a precarious position with little bargaining power and maybe few networks of their own to find suitable employment. Further, over the period of analysis, TES workers in South Africa had little recourse in terms of wage discrimination as they had limited legislative protection. Amendments to the labour laws which strengthened the rights of temporary employees were only introduced after the 2015 tax year. Additionally, the analysis points to a much lower penalty followed by a wage premium for those that switch out of the TES sector which to some extent, indicates a 'stepping stone' effect for those in TES.

Table 3.5: Econometric results including before and after effects

	1	2
TES	-0.308***	-0.372***
	(0.001)	(0.001)
2 jobs prior		-0.086***
		(0.001)
1 job prior		-0.200***
		(0.001)
1 job post		-0.028***
		(0.001)
2 jobs post		0.009***
		(0.001)
Constant	8.832***	8.841***
	(0.001)	(0.001)
Individual and Year Effects	Yes	Yes
Controls	Yes	Yes
No. of observations	37630974	37630974

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a).
Notes: The dependent variable is the log of real monthly gross earnings, deflated such that 2015 is the base year. The 2011 financial year, age 50 to 65, agriculture, small firms, and contracts of a year or more are the omitted categories. The sample is restricted to those who had only one TES employment spell over the period.
* p<=0.1, ** p<=0.05, *** p<=0.01.

Figure 3.2: Wage penalty/premium on jobs prior to and post the TES spell



Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Note:** The penalties denoted on the y-axis are based on the coefficients in Table 3.5.

3.4 The structure of TES and non-TES worker wages

Although TES and non-TES workers have different personal characteristics and the nature of the job performed might be different, TES and non-TES workers are often found on the same "shop floor" but are hired in contractually different ways such that the salary structure and benefits provided to TES workers are different. Empirical evidence from administrative data in the US supports this, showing that TES workers receive far fewer benefits than non-TES workers (Houseman, 2001; Segal & Sullivan, 1997). The lack of benefits afforded to TES workers is one of the main reasons TES work is seen as more precarious than non-TES work (ILO, 2011), as firm contributions to pension schemes and medical aid signal that the employer considers the wellbeing of the worker in both the short and the long term. The lack of benefits for TES workers has also been one of the primary contentions around temporary work in South Africa. In this section the extent to which the salary structure perpetuates inequities between workers is considered through an examination of the benefits data in the South African tax records.

3.4.1 Measuring benefits in the administrative data

The South African tax records include information on employer and employee contributions to benefits as separate items in the data *where there is a tax benefit attached*. For the years under assessment (2011-2015), this includes the employer's contribution to medical aid (source code 3810 in Appendix Table 3A.1), the employee's contribution to medical aid (4005), medical aid service costs (4024) and the employee's contributions to pension (4001), provident funds (4003) and retirement annuities (4006). The sum of these source codes is referred to as "reported benefits" in this chapter.

One substantial gap in the data is that the tax records do not contain *employer* (as opposed to employee) contributions to a pension or provident fund as a separate category. This is because only those contributions that attract a tax benefit are captured as separate income items in the tax records, and The Taxation Laws Amendment Act No 31 (2013) which made employer contributions to pensions and provident funds taxable fringe benefits, only came into effect in the 2016 tax year. For our period of assessment (2011 – 2015), therefore, it is not possible to disentangle the employer's contribution to pensions from *Normal Income*.

To get around this problem, a simple rule of thumb is used to estimate employer pension contributions. It is reasonable to assume that where employees contribute to retirement schemes through the payroll in South Africa, employers also contribute. Based on retirement industry

standards[70], employer benefit contributions are therefore estimated to be double those of employee contributions, while not exceeding 15 percent of gross earnings. While this is an imperfect estimate, it provides some indication of the upper bound of the benefits likely received by workers. Going forward, this measure is referred to as "estimated benefits".

As expected, the data indicate that far fewer TES workers receive benefits as part of their gross earnings compared to non-TES workers. Only 31 percent of TES workers report benefit contributions compared to 54 percent of non-TES workers. Table 3.6 summarises the mean values of the two measures of benefit contributions, namely *reported benefits* and *estimated benefits*. Because 69 percent of TES workers and 46 percent of non-TES workers do not report any contributions, these means are shown for the full sample (including the non-contributors) as well as for the sample of positive contributors only (conditional on reporting some benefits). The data show that reported benefit contributions among TES workers are only a very small fraction of those reported by non-TES workers (0.13 for the full sample and 0.25 for the sample of positive contributors). These values rise to 0.18 and 0.33 respectively if the measure of estimated benefits is used (namely, including estimates of employer pension contributions). The data in Table 3.6 also show that the TES/non-TES gap in mean benefits is much larger than the gap in 'base earnings' (or earnings net of benefits). The ratio of TES to non-TES base earnings ranges from 0.57 to 0.58 (depending on which sample or measure of benefits is used).

What Table 3.6 also shows is that the benefit contributions as a percentage of the total wage are relatively small. This is illustrated in Figure 3.3, which shows the percentage of the gross wage accounted for by the benefits (for both reported and estimated benefits, and for the full sample and the sample of positive contributors). For example, for the full sample, estimated benefits make up on average 5 percent of the total wage for TES workers and 13 percent for non-TES workers. For the sample of positive contributors, the values are 12 percent and 19 percent respectively.

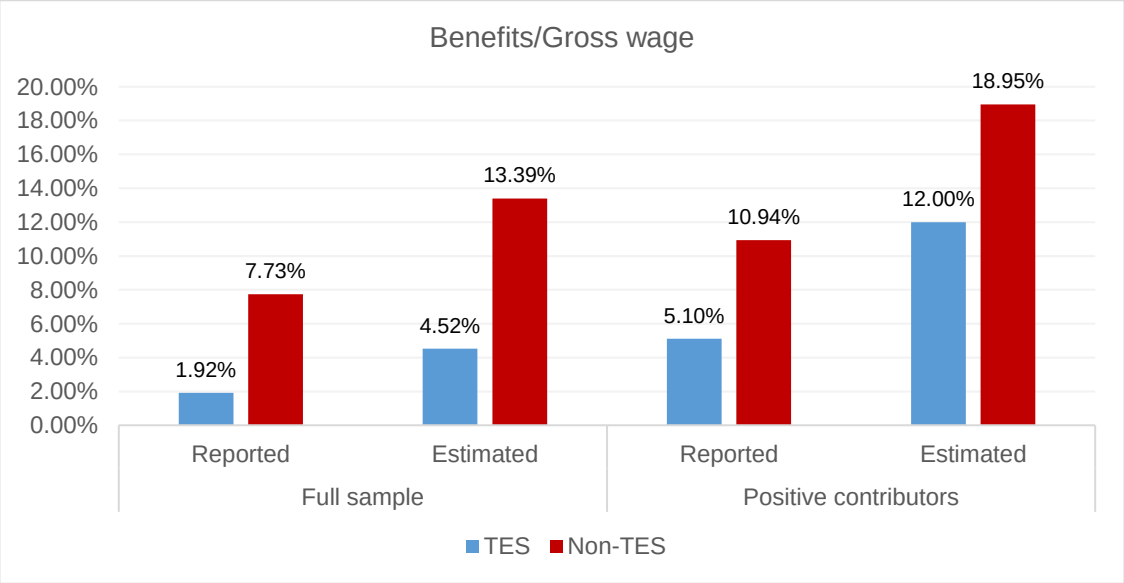
[70] The 2009 Sanlam Survey suggests that on average, employee contributions were 5.9 percent of gross earnings while the employer contributions were 9.9 percent of gross earnings. Further, in a note on retirement fund contributions, Momentum (2016) consistently uses the example of employers contributing double that of employees to retirement schemes with an upward limit of 15 percent of gross earnings.

Table 3.6: Monthly benefit contributions and earnings net of benefits for TES and non-TES jobs (2015)

	Full sample[a]			Positive benefit contributors		
	TES (ZAR)	Non-TES (ZAR)	Ratio of TES/non-TES	TES	Non-TES	Ratio of TES/non-TES
Reported benefits	151.85	1 158.68	0.13	574.49	2336.64	0.25
Total earnings net of reported benefits	7 748.35	13 822.53	0.56	10 683.73	19 017.44	0.56
Estimated benefits	357.18	2 006.25	0.18	1351.361	4045.873	0.33
Total earnings net of estimated benefits	7 543.01	12 974.96	0.58	9 906.86	17 308.21	0.57

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Notes:** The full sample is 'main job' sample as defined in Section 3.2.1 and is at the job contract level. [a] The average US$-ZAR exchange rate for 2015 was R12.78/US$.

Figure 3.3: Percentage of estimated benefit contributions relative to gross earnings (2015)



Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a).

3.4.2 The impact of benefits on wage differentials

To show the extent to which the benefits component contributes to the overall TES gross earnings penalty, Table 3.7 reports the results of a series of regressions similar to those estimated in Table 3.4 earlier. The TES penalty is shown for gross earnings, for the benefit contributions (both reported and estimated), and for earnings net of (reported/estimated) contributions. The overall

message is that while the TES benefits penalty is substantial, the benefits component of the wage is not driving the gross wage penalty. There is only a small difference in the TES penalty when you compare gross earnings to earnings net of benefit contributions. This is because, as shown above, many workers do not report any benefit contributions, and when they do, the contributions as a percentage of the total wage are not large enough to drive the TES/non-TES gross wage differential observed.

For example, in the upper frame of Table 3.7 which shows the estimates for the full sample (including non-contributors), the TES penalty is 250 percent (a coefficient of -1.252) for reported benefits and 250 percent (a coefficient of -1.252) for estimated benefits. However, the TES gross earnings penalty of 34 percent (a coefficient of -0.292 as in Table 16 earlier) only declines to 30 percent (a coefficient of −0.265) when you use earnings net of reported benefits as the dependent variable, and to 28 percent (a coefficient of −0.248) when you use earnings net of estimated benefits.

Even if you condition on positive contributions and remove the non-contributors from the sample (as in the lower frame of Table 3.7), the same conclusion is drawn. The TES penalty is 42 percent (a coefficient of -0.352) for reported benefits and 31 percent (a coefficient of -0.270) for estimated benefits, conditional on positive contributions. The TES gross earnings penalty for this group of positive contributors of 16 percent (a coefficient of -0.146)[71] only declines to 12 percent (a coefficient of -0.117) when you use earnings net of reported benefits as the dependent variable, and to 13 percent (a coefficient of -0.125) when you use earnings net of estimated benefits.

[71] Note that the gross TES penalty for this group of positive-contributors is lower than for the full sample because they would include a less precarious group of TES workers if they were reporting some benefits.

Table 3.7: Estimating the TES wage and benefits penalty

Sample: Positive and zero benefit contributors	**1: Gross earnings**	**2: Reported Benefits**	**3: Earnings net of reported benefits**	**4: Estimated benefits**	**5: Earnings net of estimated benefits**
TES	-0.292***	-1.144***	-0.265***	-1.252***	-0.248***
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)
Individual and year effects	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes
No. of observations	41389932	41389932	41387997	41389932	41381280
Sample: Positive benefit contributors only	**Gross earnings**	**Reported Benefits**	**Earnings net of reported benefits**	**Estimated benefits**	**Earnings net of estimated benefits**
TES	-0.146***	-0.352***	-0.117***	-0.270***	-0.125***
	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
Individual and year effects	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes
No. of observations	20579852	20579852	20579852	20579 852	20579852

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Notes:** The dependent variables are deflated such that 2015 is the base year. The 2011 financial year, age 50 to 65, agriculture, small firms, and contracts of a year or more are the omitted categories. * p<=0.1, ** p<=0.05, *** p<=0.01.

The results above highlight two main points. First, a larger proportion of non-TES workers than TES workers report benefit contributions, and where they do, non-TES benefits are substantially higher than those afforded to TES workers. The differential observed in benefit contributions means that non-TES workers have a better social safety net in the case of illness or retirement, which means that TES workers will have poorer welfare outcomes in the long term. Second, despite the large TES benefits penalty, the overall gross wage penalty is not being driven by the structure of the salary and the benefits afforded to non-TES workers. Even when the benefit contribution is deducted from gross earnings, a very large TES penalty remains. [72]

3.5 Conclusion

In this chapter, the novel administrative panel dataset based on tax records from 2011 to 2015 was used to examine the wage differential between TES and non-TES workers in the formal sector of the economy. A substantial TES gross wage penalty of 88 percent was found, which was unpacked further by exploring the drivers of the wage penalty. Controlling for differences in experience and accounting for time-invariant worker characteristics (using individual fixed effects) resulted in the

[72] As a final exercise and since taxes paid are also one of the main deductions from the gross salary, the TES penalty using *earnings net of taxes paid* as the dependent variable is estimated. The earnings differential of −0.290 (a wage penalty of 34 percent) is found to be the same as when *gross earnings* is used as the dependent variable (i.e. −0.292 or a wage penalty of 34 percent). This suggests that, on average, taxes are not responsible in any meaningful way for the TES wage penalty observed.

penalty declining to 47 percent. The penalty fell further, to 34 percent, when the job and firm characteristics available in the dataset were included. This suggests that the kinds of workers in these two sectors are different, as is the nature of the job. However, the tax record data is limited in the information available; specifically, if information on the occupation or skills level of workers was included, the penalty might be expected to decline even further.

Still, it is interesting to note that the penalty of around 34 percent for South Africa is on the upper end of the spectrum compared to other countries for which estimates exist. Although not directly comparable, as most of the work uses household, labour or firm surveys in which the data and thus the controls available are substantially different to those available in administrative tax records, the penalties range between 6 and 23 percent. The paper which uses administrative data and methods most similar to this chapter by Segal & Sullivan (1998) found an hourly wage differential of between 15 and 20 percent for the US.

In addition, the possibility that part of the wage penalty might be due to factors associated with the circumstances of the worker rather than the job itself was explored. In other studies, it has been suggested that displaced workers or those in an already precarious position in the labour market might accept TES work (and the associated penalty) as a matter of last resort. There is some evidence of this in the South African data, which show that workers in TES jobs already saw declining wages in non-TES work prior to accepting the TES job. This is perhaps not surprising in South Africa, where volatile labour markets, a high unemployment rate and a small informal sector, mean that many workers will have little option but to take on a lower-paying TES job. Further, during the years of assessment, TES workers in South Africa had little legislative recourse in terms of wage and other workplace discrimination, as legislation strengthening TES worker rights was only introduced after the 2015 tax year ended.

Finally, the tax data was used to investigate whether the gross wage is structured differently for TES and non-TES workers, and specifically whether TES workers receive fewer benefits relative to non-TES workers. It was found that only one third of TES workers compared to just over a half of non-TES workers report benefit contributions. Of those that do contribute to benefits, TES worker contributions are a fraction of what non-TES workers contribute, resulting in a large TES benefits penalty. However, despite the substantial benefits differential between TES and non-TES workers, only a very small part of the TES gross wage penalty can be attributed to differences in the benefit contributions. This is because the percentage of workers contributing and the size of the contributions relative to the gross wage, are too small to markedly affect the overall wage

differential. Estimating the TES wage penalty using earnings net of benefits still produces a TES penalty of between 28 and 30 percent.

Overall, the results suggest that TES workers earn substantially less than non-TES workers in South Africa, and they are also less likely to report benefits. This places them in a more precarious position both in the short term and in the long term. Given the limitations of the tax data in estimating the wage penalty for workers of the same skill level or occupation, the magnitude of the penalty found probably represents an upper bound estimate. Nonetheless, the findings also add some substance to the long-standing contention in South Africa that TES, or labour broker, workers are unfairly treated and potentially subject to exploitative behaviour relative to their non-TES counterparts. Further, they encourage us to view the 2015 amendments to the LRA in a new light. A number of employer associations and other stakeholders opposed the move to introduce legislation that would strengthen the rights of TES workers and level the conditions of work for TES and non-TES workers after decades of unequal treatment. The next chapter presents an analysis of the short-term impact of the LRAA, and specifically whether it resulted in an improvement in working conditions relative to non-TES workers.

3.6 Chapter Appendix

Table 3A.1: Source Codes

Description	Source code	Category
Income	3601	Normal Income
Annual payment	3605	Normal Income
Commission	3606	Normal Income
Overtime	3607	Normal Income
Travel allowance	3701	Allowance
Subsistence allowance for local travel	3704	Allowance
Share options exercised	3707	Allowance
Telephone/cell phone allowance	3712	Allowance
Other allowances	3713	Allowance
Subsistence allowance for foreign travel	3715	Allowance
Broad-based employee share plan	3717	Allowance
General fringe benefits	3801	Fringe Benefit
Use of motor vehicle acquired by employer NOT via operating lease	3802	Fringe Benefit
Use of asset	3803	Fringe Benefit
Meals	3804	Fringe Benefit
Accommodation	3805	Fringe Benefit
Services	3806	Fringe Benefit
Loans or subsidy	3807	Fringe Benefit
Employee's debt - Employer paid Retirement Annuity Fund Contributions	3808	Fringe Benefit
Taxable Bursaries or scholarships to a non-disabled person - Basic Education	3809	Fringe Benefit
Medical aid contributions	3810	Fringe Benefit
Medical services costs	3813	Fringe Benefit
Non-taxable Bursaries or scholarships to a non-disabled person - Basic Education	3815	Fringe Benefit
Use of motor vehicle acquired by employers via "Operating Lease"	3816	Fringe Benefit
Taxable bursaries or scholarships to a non-disabled person - Further Education	3820	Fringe Benefit
Non-taxable bursaries or scholarships to a non-disabled person - Further Education	3821	Fringe Benefit
Employee pension contribution	4001	Deduction
Employee provident fund contribution	4003	Deduction
Employee medical aid contribution	4005	Deduction
Retirement annuity fund contribution	4006	Deduction
Medical service costs	4024	Deduction

Source: Based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Notes:** All source codes within *Normal Income, Allowances* and *Fringe Benefits* are included in *Gross Income.* All *Deductions* are included in *Reported Benefits*.

Table 3A.2: Transitions matrix showing switching between TES and non-TES employment for consecutive years over the panel (2011 – 2015)

	Share (%)	Number	Share (%)	Number	Share (%)	Number
	TES 2012		Non-TES 2012		Total	
TES 2011	84.24	128035	15.76	23957	100	151992
Non-TES 2011	0.58	25891	99.42	4430288	100	4456179
	TES 2013		**Non-TES 2013**		**Total**	
TES 2012	83.44	138813	16.56	27557	100	166370
Non-TES 2012	0.54	25195	99.46	4615266	100	4640461
	TES 2014		**Non-TES 2014**		**Total**	
TES 2013	84.12	144537	15.88	27286	100	171823
Non-TES 2013	0.56	27087	99.44	4821967	100	4849054
	TES 2015		**Non-TES 2015**		**Total**	
TES 2014	82.33	142951	17.67	30689	100	173640
Non-TES 2014	0.46	23187	99.54	4982984	100	5006171

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a).
Notes: For convenience in estimating the transitions, the sample only includes individuals who had one job contract per year and who stayed in the panel for every year. The totals therefore will differ to Table 2.2. Around 5 million individuals were dropped. This will underestimate the number of switches recorded, but nonetheless gives an indication that sufficient movement is occurring between the sectors to estimate an individual fixed effects regression.

Table 3A.3: Coefficient on TES variable by gender, age and earnings quintile

	All	Female	Male
All	-0.292***	-0.461***	-0.203***
	(0.006)	(0.001)	(0.001)
N	41389932	17432704	23072185
16-20	-0.257***	-0.326***	-0.219***
	(0.001)	(0.010)	(0.008)
N	939086	416747	509888
21-29	-0.278***	-0.396***	-0.214***
	(0.001)	(0.002)	(0.001)
N	11854548	5055345	6537744
30-39	-0.303***	-0.487***	-0.216***
	(0.001)	(0.002)	(0.001)
N	12781297	5335130	7100545
40-49	-0.326***	-0.620***	-0.188***
	(0.002)	(0.003)	(0.002)
N	8921328	3787232	4956472
50-65	-0.103***	-0.582***	0.112***
	(0.002)	(0.004)	(0.003)
N	6893673	2838250	3967536
Quintile 1	-0.277***	-0.215***	-0.141***
	(0.002)	(0.003)	(0.002)
N	8278033	3864063	4197935
Quintile 2	-0.097***	-0.112***	-0.066***
	(0.001)	(0.002)	(0.001)
N	8278189	3745113	4331737
Quintile 3	-0.073***	-0.138***	-0.035***
	(0.001)	(0.001)	(0.001)
N	8277792	3123520	4970072
Quintile 4	-0.077***	-0.144***	-0.048***
	(0.001)	(0.002)	(0.001)
N	8277982	3450806	4653369
Quintile 5	-0.017***	-0.034***	-0.018***

	(0.001)	(0.002)	(0.002)
N	8277936	3249202	4919072

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a).
Notes: The dependent variables are deflated such that 2015 is the base year. Specification 3 from Table 3.4 is used for all the regressions. * p<=0.1, ** p<=0.05, *** p<=0.01.

Table 3A.4: Coefficient on TES variables by gender, age and industry

	Agriculture	Mining	Manufacturing	Construction	Trade	Transport	NonGov	Finance
All	0.015*	-0.171***	-0.099***	-0.006	-0.331***	-0.566***	-1.319***	-0.253***
	(0.009)	(0.004)	(0.003)	(0.005)	(0.008)	(0.009)	(0.004)	(0.001)
N	3219296	1859963	6719370	1431136	4786819	1634496	2888925	10006657
Female	-0.172***	-0.053***	-0.148***	-0.020	-0.280***	-0.770***	-1.351***	-0.350***
	(0.021)	(0.017)	(0.013)	(0.020)	(0.015)	(0.037)	(0.004)	(0.002)
N	1335654	267328	2130700	225465	2441627	432448	1891148	4156712
Male	-0.017	-0.190***	-0.093***	-0.005	-0.326***	-0.550***	-1.193***	-0.195***
	(0.011)	(0.005)	(0.004)	(0.006)	(0.009)	(0.010)	(0.012)	(0.001)
N	1759362	1431357	4477433	1168400	2276497	1172609	919928	5702780
16 -20 years	0.158	-0.245***	-0.023	0.078	-0.215***	-1.231***	-1.011***	-0.241***
	(0.118)	(0.094)	(0.052)	(0.085)	(0.083)	(0.161)	(0.072)	(0.012)
N	137245	12092	130384	26950	207807	16368	57720	229237
21- 30 years	-0.009	-0.072***	-0.004	0.021*	-0.231***	-0.714***	-1.127***	-0.281***
	(0.017)	(0.011)	(0.007)	(0.011)	(0.012)	(0.026)	(0.009)	(0.002)
N	1014074	364695	1776204	424143	1802641	360449	779027	3811083
31 – 39 years	-0.011	-0.194***	-0.134***	-0.011	-0.354***	-0.611***	-1.377***	-0.221***
	(0.018)	(0.007)	(0.006)	(0.009)	(0.015)	(0.015)	(0.007)	(0.002)
N	968684	617217	2138971	472237	1442570	539581	801965	3069928
40- 49 years	-0.132***	-0.203***	-0.083***	-0.059***	-0.517***	-0.388***	-1.408***	-0.191***
	(0.025)	(0.008)	(0.007)	(0.012)	(0.028)	(0.017)	(0.008)	(0.003)
N	662908	493149	1515035	292346	807166	383595	652442	1660476
50- 65 years	-0.025	-0.166***	-0.064***	-0.036**	-0.276***	-0.457***	-1.461***	0.091***
	(0.035)	(0.011)	(0.009)	(0.014)	(0.046)	(0.021)	(0.011)	(0.005)
N	436385	372810	1158776	215460	526635	334503	597771	1359988

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Notes:** The dependent variables are deflated such that 2015 is the base year. Specification 3 from Table 3.4 is used for all the regressions. * p<=0.1, ** p<=0.05, *** p<=0.01.

Chapter 4

The Impact of Employment Protection on the Temporary Employment Services Sector

4.1 Introduction

The growth in atypical work has, in part, been exacerbated by stricter employment protection for permanent work, with employers trying to circumvent regulations by making use of atypical working arrangements (Dolado, García-Serrano, & Jimeno, 2002; Zhou, 2006). In these cases, employers either hire temporary workers through TES firms or directly on fixed-term contracts. The bulk of the literature that examines the interaction between temporary work and employment protection legislation (EPL) focuses on this aspect, namely the impact of the strengthening of EPL for permanent workers on temporary work. There is a dearth of literature on the impact of strengthening EPL for temporary workers, and particularly for TES workers, the subject of this paper. While there are examples of relatively strong EPL for TES workers in Germany, Belgium, France and Mexico, there has not been any empirical analysis of the effects of these particular policies. In part, this is driven by the lack of quality data that can provide insight into fixed-term and TES workers (Addison et al, 2019).

As discussed in Chapter 2, in South Africa, temporary work through TES or labour brokers, has been a feature of the labour market since the 1800s in the mining industry. In 1994, at the turn of the country's transition into democracy, labour legislation was redrafted to level the bargaining power of workers with employers. However, legislative reform really focused on workers in SER, largely leaving atypical work relationships unprotected. At this point, there was a surge in labour broking so employers could make use of flexible working relationships and circumvent some aspects of the new labour legislation (Theron, 2014). The government only implemented EPL for marginal workers - part-time, temporary and TES workers - in 2015. For TES workers in particular, the new regulations suggested that they be treated no less favourably than the permanent workers of the client firm and that temporary work be limited to contract lengths of three months. Essentially the *Labour Relations Amendment Act No.6 of 2014* (LRAA) was the government's attempt to regulate the triangular relationship between the client firm, the TES firm, and the worker, which was subject to limited regulation prior to April 2015.

The introduction of this stricter regulation was not without contention, however, given that around a quarter of the labour force in South Africa was unemployed (and closer to 40% when a non-searching definition of unemployment is used). Groups such as the Free Market Foundation, the Small Business Project, and the National Employment Association of South Africa raised opposition to the legislation, suggesting that it was inappropriate for small firms who would not be able to pay the wages and meet the working conditions that large firms could afford (Darroll, 2017). Further, it was suggested that stricter regulation of TES workers would disincentivise client firms from using TES firms and potentially result in a disemployment effect. Unions argued, however, that because temporary workers had been excluded from adequate employment protection in the past, these laws were vital to avoid people being trapped in low-paying jobs (Cosatu, 2012).

Although the amendments came into effect five years ago, empirical assessment of the impact of the amendments has been limited as, until recently, there was no reliable source of data on the TES sector. The quantitative studies that have examined the impact of the amendments have either relied on a small sample of TES workers that were not nationally representative (Bhorat, Magadla, & Steenkamp, 2015) or on estimates of the TES workforce from the labour force survey data (Bhorat and Lilenstein, 2017). The limitations of the QLFS in examining the TES sector have been detailed in Chapter 2, essentially pointing out that it does not allow the separate identification of TES employees, as TES employees are grouped together with other categories of workers in the SIC system.

This chapter uses the SARS-NT Employment Panel (IRP5 data) data to examine the short-term impact of the LRAA on the labour market status, wages and job duration of TES workers that were affected by the legislation. The panel nature of the data allows us to track individuals that were in the TES sector prior to the legislative amendments and to examine what happened to them once the amendments were implemented. The legislation applied to workers earning below a threshold of R205 433 a year in 2015, so a Regression Discontinuity Design (RDD) is used. Briefly, the findings suggest that individuals that were employed in TES in 2015 and were below the threshold were more likely to move into the non-TES sector than those above the threshold relative to being retained in the TES sector. Further, working conditions in terms of job duration and earnings seem to have improved for those that transitioned into the non-TES sector. However, a larger proportion of workers employed in the TES sector in 2015 moved out of tax registered firms altogether into either unemployment, the informal sector or the economically inactive population after the amendments were implemented. The amendments to the legislation

therefore appear to have had mixed results for the intended beneficiaries.[73]

This chapter is an important contribution to the literature for two reasons. First, there are not many cases in which stricter EPL is imposed on temporary work (as opposed to permanent work), and empirical research in this regard is therefore lacking. Second, the South African case is an interesting one, as stricter EPL was imposed in an environment where unemployment is unsustainably high and the prospects for economic growth are bleak. It is therefore important to examine whether the legislation made workers better off, or had unintended negative consequences for employment and job conditions. This paper contributes to the debate on the trade-off between protecting workers through formal EPL, and the potentially negative disemployment effects of raising the costs associated with employing TES workers. This is poignant in light of the fact that South Africa has recently strengthened the position of workers even further by introducing a national minimum wage in January 2019.

The following section discusses the theoretical and empirical literature. Section 4.3 provides context to the legislative framework. Section 4.4 discusses the data. Section 4.5 presents the descriptive analysis. Section 4.6 explains the econometric approach and Section 4.7 presents the results. Section 4.8 concludes.

4.2 Literature review

There is a dearth of literature on the impact of *strengthening* EPL on TES workers, so understanding the potential impact of legislative reforms on temporary workers requires going back to the circumstances under which temporary workers are hired and what might result in the growth of temporary work. The first section below on the theoretical literature thus examines the incentives firms face to hire temporary workers. In deciding on the optimal composition of labour, firms will weigh up the EPL faced by permanent workers relative to temporary workers. In other words, the growth of temporary work is often contingent on the EPL or firing costs related to permanent workers.

The second section reviews the empirical literature on the interaction between EPL and temporary work and the various outcomes that have been observed. The empirical literature in this area does not tend to differentiate between whether temporary work is through fixed-term employment or

[73] A first draft of the chapter has been published as a UNU-WIDER working paper (Cassim 2020) and is available at https://www.wider.unu.edu/publication/impact-employment-protection-temporary-employment-services-sector.

TES jobs. The latter are different because the administrative burden for the client is much lower in relation to a TES employee relative to fixed term hires who are paid directly by the firm.

4.2.1 Theoretical predictions

In order to explore the theoretical impact of stricter EPL on temporary workers, an understanding of why firms use temporary workers or outsource labour must first be developed. Importantly, a temporary contract allows for flexibility which means that firms can swiftly respond to changes in the economy and labour market (Nunez & Livanos, 2015). Also, it can be used to screen potential employees before committing to permanent hires (Autor, 2001). Autor (2003) was among the first economists to ask why firms do not *outsource all of their workers* to avoid firing costs (adjustment costs) associated with stricter EPL for permanent workers. The hypothesis explored by Autor (2003) was that by outsourcing employment, firms forgo specific human capital investments (Becker 1964 is cited) in permanent workers. In addition, workers with shorter contracts make smaller specific capital investments. Therefore, in firms where specific capital is highly productive, firms may commit to permanent hires even though temporary employment offers lower firing costs.

Autor (2003, p.8) considered a two-period model of employment "where the first period consists of hiring and specific capital investment and the second period consists of production." Workers choose specific capital investments to maximize their "expected utility", which is the difference between expected earnings and the cost of specific capital investments such as human capital investment in skills. Because firing costs reduce the odds of termination in the second period, workers make larger specific skill investments when firing costs are greater. Although firing costs raise the cost of terminating workers, they also raise the expected profitability of those workers who are retained by increasing their incentives to make specific skill investments. This means that for occupations where specific capital is quite productive, stronger EPL for permanent workers is unlikely to induce outsourcing because firms will have already written contracts with substantial firing costs and outsourcing these jobs may discourage investment. However, for occupations where specific capital is less important, any increase in firing costs may be sufficient to result in employment outsourcing. Hence, the model suggests that firms will primarily respond to legislated firing costs or stricter EPL for permanent workers by outsourcing those occupations that require the least specific capital.

Another point that Autor (2003) made is that EPL associated firing costs will only have an impact

on a firm if they exceed the firm's own firing costs. Therefore, if legislated firing costs exceed optimal firm firing costs for permanent workers, a subset of firms will find it more profitable to outsource employment despite the forgone specific capital investment. However, in the case that legislated firing costs for temporary workers exceed or are equivalent to firm firing costs for permanent workers, firms are less likely to outsource part of their workforce. Put differently, if stricter EPL (specifically, higher firing costs) is imposed on temporary workers then it disincentivises hiring them.

Further, when firing costs for permanent workers are high and there are rules forbidding temporary contract renewal, Bratti, Conti, and Sulis (2018) suggest that firms might be reluctant to convert temporary jobs into permanent ones. This may incentivise firms to rely instead on a number of temporary employees one after the other, increasing worker turnover (Cahuc & Postel-Vinay, 2002).

Lastly, when considering the potential impact on TES workers specifically, Baumann, Mechtel, and Stähler (2011) point out that the impact of EPL may differ for agency workers versus fixed term workers who are contracted directly by the firm. The main difference is that client firms pay a fee for TES workers over and above the worker's wage. This means when the client firm is making a hiring decision, it will consider the firing costs for temporary workers (relative to the firing costs for permanent staff) as well as the fee paid to the TES firm. If the fee and firing cost exceed the firm's own firing costs, then there is little incentive to hire TES workers. In the event of higher firing costs being imposed for TES workers, Baumann, Mechtel, and Stähler (2011) further suggest that TES agency profits may decline as the fee paid by client firms to the TES firm is offset by the higher firing costs borne by TES firms.

4.2.2 Empirical evidence

While a few countries have relatively strict EPL in place for TES workers, there are no empirical studies that examine the impact of strengthening EPL for TES workers, specifically. In a related study, however, Cahuc, Malherbet, and Prat (2019) considered the impact of taxing fixed term contracts in France, Spain, Portugal and Italy where taxation has been introduced to varying degrees. Often the tax is introduced to contribute to social benefits such as unemployment insurance, but it raises the cost to employers. Their main finding is that the taxation reduced mean job duration, decreased job creation, and increased unemployment for those who were on fixed-term contracts. This is because firms anticipated letting workers go in order to avoid paying higher costs on their contracts in the future. The authors suggest that while regulation of temporary

contracts means that the jobs are more secure until the contract comes to an end, it also induces greater job turnover.

The literature tends mostly to focus on the consequences of strengthening EPL for permanent workers on atypical work arrangements, without differentiating between fixed-term and TES workers (Baumann, Mechtel, and Stähler, 2011). Since the early 1990s, EPL in developed countries has eased the hiring and firing of temporary workers but has left strict rules in place for permanent hires (Dolado, García-Serrano, & Jimeno, 2002; Zhou, 2006). Zhou (2006) found this type of reform, which was termed "partial reform", fostered both job creation and job destruction for temporary workers. This was because strengthening EPL for permanent workers often incentivised employers to make use of atypical work arrangements to circumvent legislation, but they were also less likely to make temporary workers permanent, so job turnover increased. Hijzen, Mondauto, and Scarpetta (2017) similarly found that the asymmetric liberalisation of temporary work while leaving in place stringent regulations for permanent contracts, encouraged firms to substitute temporary for permanent workers. They found that in Italy, for instance, these types of amendments increased the incidence of temporary work, particularly among larger firms, and accounted for around 20 percent of the incidence of temporary work.

Further, Kahn (2010) conducted a cross-country review of the effect of employment protection legislation on temporary work in Europe and found that policies making it easier to create temporary jobs on average raised the likelihood that workers would be in temporary jobs, particularly when the unemployment rate was high as workers were in a relatively weak position. Consistent with these findings, in Spain, Dolado, García-Serrano, and Jimeno (2002) found that deregulation of temporary work resulted in an increased share of temporary employment overall. Similarly in France, deregulation of temporary work resulted in fewer transitions of temporary to permanent employment, as employers were more likely to employ a series of workers on fixed term contracts given the lower cost of fixed term workers relative to permanent workers (Blanchard & Landier, 2002). In other parts of the developed world such as Japan, deregulation of temporary work was also positively correlated with the replacement of permanent workers with temporary workers in domestic production (Machikita & Sato, 2011). In addition, it was found that industries losing their world share of value added tended to decrease their relative share of employment of permanent workers by more, highlighting the role of temporary workers as an employment buffer.

Unionisation, another form of worker protection, has also been found to increase the relative share of temporary employment because employers prefer hiring workers that are not unionised and

therefore have less bargaining power (Devicienti, Naticchioni, & Ricci, 2018). However, in a highly volatile economic environment, unions may be concerned about the weakening of their bargaining power associated with the extensive use of temporary workers.

There have also been those reforms which have resulted in employers moving away from temporary employment. In Italy, it was found that reform of fixed-term contracts, which was aimed at making it easier to hire temporary employees, induced a substitution of temporary employees for permanent ones (Cappellari, Dell'Aringa, & Leonardi, 2012). Essentially, the reforms intended to broaden the reasons allowed for firms to use temporary employment, worded more generally as reasons of a *"technical, organisational, production or replacement nature"*. Previously there were specific reasons why firms could use temporary employment including for example, when workers were on sick leave or during an increase in production. However, the reform had a high degree of uncertainty attached to it that may have added an additional burden to the law, as too much would be dependent on a judge's interpretation of the law (Aimo, 2006). The uncertainty around whether hiring on a fixed term contract could result in court action reduced the incentive to use these types of temporary contracts (Venn, 2009).

Besides changing the composition of employment at a firm, strengthening EPL for permanent hires can also have an impact on training and job duration at the firm. Research from Italy has shown that as the share of temporary workers in a firm grows in response to stricter EPL for permanent hires, fewer workers at the firm receive training (Autor, 2003 and Hijzen, Mondauto, & Scarpetta, 2017). Further, it has been found that job duration for low skilled workers is reduced while job duration for skilled workers increases (Cahuc & Carcillo, 2011). However, where changes to EPL resulted in more flexibility through increasing the maximum period of employment in TES agencies in Italy, there was a positive impact on the length of employment for TES workers (Antoni & Jahn, 2006). This was particularly the case for marginal workers, including disadvantaged groups, poorly qualified workers, unemployed persons, foreigners and young workers. However, average labour market job duration declined as firms opted for temporary contracts (which tend to be shorter) instead of permanent hires.

While the international empirical papers reviewed here do not mirror the case study being examined in this chapter, particularly since they do not differentiate between types of atypical employment, they still provide useful insights into the dynamics of EPL and how they may directly or indirectly impact the incidence and nature of temporary work. On the one hand, stricter EPL

and unionisation for permanent hires and the deregulation of temporary work tends to increase the incidence of temporary workers. In these cases, firms tend to reduce training and contract durations become shorter. On the other hand, stricter EPL for temporary hires and uncertainty around the regulations governing temporary workers can reduce the incidence of temporary work. Although this has not been studied empirically, in the case of TES firms specifically, stricter EPL for temporary workers could mean that the TES agency fee paid by the client firm is offset by higher firing costs, which in turn would likely mean that TES firms will provide fewer services in the form of fewer workers. Notably, the literature reviewed above was based on developed countries, as there have been no quantitative studies on the impact of legislative reform on TES workers (or fixed term contract workers) in developing countries outside of South Africa.

4.2.3 South African evidence

As mentioned in Section 4.1, there have been only a few quantitative studies that have examined the impact of the 2015 amendments to the LRA in South Africa. Bhorat, Magadla, and Steenkamp (2015) used survey data conducted by CAPES on a cross-section of industries in four provinces for two periods, March/April 2014 (before the legislation was implemented) and March/April of 2015 (just as the legislation became binding). CAPES collected information on employment status of TES workers across various client firms a year before the amendments and then immediately after the amendments were implemented. The authors found that the primary effect of the amendments in South Africa which strengthened temporary worker rights was one of disemployment. Half of the TES workers were terminated by the labour brokers and around a quarter were made permanent or taken on contract directly by the client firm. The rest were retained by the TES firms. Negative effects were felt most strongly in manufacturing, finance, real estate and business services, and public and social services, and in Gauteng and KwaZulu-Natal (relative to Western Cape and Mpumalanga). Positive employment effects were felt most strongly in the wholesale and retail trade and tourism industries, and in Gauteng and the Western Cape. While this study provides useful insights into the impact of the LRAA, the sample used is not nationally representative and the analysis is purely descriptive, presumably relying on a manager's response regarding TES employment in 2014 and 2015.

In a different study, Bhorat and Lilenstein (2017) used the QLFS to examine the impact of the amendments descriptively. However, there is no way to separately identify TES workers in the survey, so the authors analysed the category of workers captured as being in "Businesses Services not elsewhere classified" (SIC code 889). This code includes TES workers as well as workers in

other sectors[74] as discussed in Chapter 2. The authors find that there was a sudden decline in jobs in the first quarter of 2015 in this category but there was a reversion back to pre-amendment employment levels by the first quarter of 2017. While this is a useful exploration, caution should be exercised as the broader industrial classification overestimates the number of workers in the TES sector specifically and therefore may misrepresent the impact of the amendments. Further, as the authors themselves recognised, since the study was descriptive and did not use a control group, there was "no attempt at isolating the pure effect of the labour regulatory amendment on the employment of TES workers, nor their conditions of employment" (Bhorat & Lilenstein, 2016, p.12).

There have also been qualitative studies examining the amendments. The Small Business Project used focus groups to interview 18 firms including employers of TES workers within the mining, manufacturing, finance, insurance, and petroleum industries as well as employer associations for TES workers in 2016 and 2017 (Darroll, 2017). They asked nine questions regarding employers' understanding of the LRAA, the potential impact of the LRAA, compliance with labour laws and whether the economic environment was suitable for these types of amendments. The industry respondents, as well as those from TES firms, broadly suggested that they had witnessed not only reductions in employment, but also anticipated fewer opportunities in the future, particularly for the youth. Lastly, they suggested that the LRAA would drive more firms to invest in capital rather than apply the new regulations.

Joubert and Loggenberg (2017) undertook semi-structured interviews of the perceptions of employees regarding the potential impact of the LRAA in the petroleum and chemicals sector. While not specified, the paper suggests that interviews took place in the 2015 calendar year after the implementation of the LRAA. A purposive sampling technique was used in which six participants were identified. The participants must have worked in the human resources department of an integrated petroleum and chemical company, and the company must have made use of labour brokers. Four questions were put to the participants regarding the potential positive and negative impacts of the LRAA on the organisation and their employees. The potential negative

[74] The category includes '*labour recruitment and provision of staff; activities of employment agencies and recruiting organisations; hiring out of workers (labour broking activities)'* as well as '*disinfecting and exterminating activities in buildings; investigation and security activities; building and industrial plant activities; photographic activities; packaging activities; other business activities; credit rating agency activities; debt collecting agency activities; stenographic, duplicating, addressing, mailing list or similar activities; other business activities*'. As the descriptive analysis in Chapter 2 of the tax data showed, when TES firms are correctly identified, they only make up a small portion of all firms in the SIC 889 code.

outcomes of the LRAA that respondents reported included cost implications for the client firms, the administrative burden of the new policies and guidelines, and less employment flexibility for employers. The respondents suggested that there was a threat of unemployment for TES employees while permanent employees felt that they would have to take on more work. The potential positive impacts identified by the respondents included being able to choose better quality workers directly rather than getting less-skilled workers through a labour broker, and more job security for low-skilled workers that were retained by the firm.

This review suggests there are two gaps in the literature. First, none of the studies in South Africa have been able to examine the impact of the LRAA using a nationally representative sample of TES firms or TES workers specifically. Secondly, none of the studies has used a rigorous econometric analysis that attempts to isolate the impact of the LRAA on employment outcomes and explore conditions of work for employees that were retained in employment. This paper tries to fill these gaps by examining the impact of the LRAA on employment status as well as conditions of work for those who remained employed, using a large sample of TES workers from national level data. The study is not only a useful contribution to the South African literature on the impact of the LRAA, but, more broadly, it is a contribution to the international literature on the impact of regulating temporary or atypical work as there are few cases of this being examined empirically.

4.3 Background to legislative amendments in South Africa and hypothesised effects

The history of the legislative framework relating to the TES sector is detailed in Chapter 2 (Section 2.2). Therefore, this section highlights only the key changes to the framework that are relevant for this chapter. In 1983, labour broking was added to the Labour Relations Act 28 of 1956, merely allowing employees to employ workers through temporary agencies but not limiting the period for which workers could be placed. Theron (2005) suggests that this was part of the reason for the growth in the TES sector; "the LRA did not, in other words, specify what was 'temporary' about a supposedly temporary employment service" (Theron, 2005, p.7). In the absence of a collective agreement, Theron (2014) suggests that employers were able to pay workers a fraction of what they paid permanent workers for doing the same work which increased inequality and fragmentation in the workplace.

Just after South Africa transitioned to its first democratic government in 1994, the Labour Relations Act of 1995 (LRA) was promulgated (and enforced from November of 1996); it aimed to consolidate the rights of workers that had been negotiated in the previous two decades. At the

same time, the Commission for Conciliation, Mediation and Arbitration (CCMA) was formed to deal with labour disputes. At this point, there was a surge in labour broking, particularly of lower-skilled workers, in part, so employers could circumvent the newly adopted labour legislation (Theron, 2014). When the International Labour Organisation (ILO) attempted to set standards for "contract work" in the late 1990s, they faced substantial push back from employers and ultimately did not make the regulatory amendments they had hoped to. This made it difficult for South Africa to consider regulating temporary work even though it was undermining labour relations (Theron, 2014).

The decision by the South African government to increase employment protection for temporary workers followed a series of strikes organised by TES workers as well as calls by organised labour to ban labour brokers (also discussed in Chapter 2). The National Union of Mineworkers South Africa (Numsa) and Cosatu were two of the unions that were strongly opposed to labour broking, and the abolishment of labour broking is a long-standing demand noted in their policy documents[75].

In 2012, the Labour Relations Amendment Bill added four new sections to Section 198 (sections 198A–D) to deal with three categories of non-standard or atypical employees: TES employees; employees on fixed-term contracts and part-time employees. The amendments to the LRA were announced by the labour ministry in 2012 with the objective that the new legislation would come into effect in 2014. However, the Labour Relations Amendment Act was only published in August 2014 and became effective on 1 January 2015. It specifically targeted employees who earned below R205 433.30 per annum[76] which is the BCEA threshold. The provisions in the act governing temporary employment services only came into effect on 1 April 2015, after the expiration of a three-month grace period.

There were two particular changes to how TES employees were to be treated following the amendments (Section 198 A). First, a worker would only be seen as a temporary worker if they were employed to perform a genuine "temporary service" for a client. If that were not the case, the employee would be *deemed* to be an employee of the client firm, and not the TES firm.

[75] COSATU CEC Statement, 2018, available at http://mediadon.co.za/2018/05/25/cosatu-cec-statement/

[76] This is equivalent to $13803 in February 2020. The threshold has not changed since 2015.

Section 198 A (p.34) of the LRAA stated that "temporary service" is defined as work for a client by an employee:

(a) for a period not exceeding 3 months;

(b) as a substitute for an employee of the client who is temporarily absent, or

(c) in a category of work and for any period of time which is determined to be a temporary service by a collective agreement concluded in a bargaining council, a sectoral determination or a Ministerial notice.

The 3-month period referred to in point (a) started on the effective date of the Amendment Act, which was 1 January 2015. An employee working for a client for longer than three months would be deemed to be permanent unless the conditions (b) and (c) above applied. Prior to the change in legislation, client firms could hire employees on a temporary contract from a TES firm for an unlimited amount of time.

Second, the "deeming" provision meant that the client would now become legally liable for the well-being of the TES employee; in other words, the client would be legally obliged to treat TES employees no differently to their permanent staff even if the TES workers were not on the client firm's payroll. It is assumed that this means that the TES employee would be entitled to similar remuneration and benefits as the client's other employees doing the same or similar work. However, this is not stated explicitly in the legislation. The legislation did not apply to TES firms with fewer than 10 employees or TES firms with fewer than 50 employees that had been in existence for less than two years.

The *Assign Services (Pty) Limited v National Union of Metalworkers of South Africa and Others [2018] CCT 194/17* clarified the role of the TES firm and the client firm after three months. It was held that after three months, the role of the TES firm would be to pay and manage the human resources component of employment, while the day-to-day management including working conditions, work allocation and performance assessment would be conducted by the client (Milo, 2018).

The legislative amendments essentially made the conditions around hiring and firing temporary employees more stringent and less flexible. While the objective of the amendments was to eliminate the exploitation of vulnerable temporary employees that were kept on rolling temporary contracts, the limited flexibility might also disincentivise client firms from using TES agencies. In terms of the cost for the client, prior to the amendment they were paying the labour broker an amount that included the wage for the TES employee as well as the mark-up that covered the fee

to the labour broker. However, after the three months, the legislation suggested that if the client wanted to continue hiring the same worker through the TES agency, the client would have to pay the previous amount and, it is assumed, an additional amount that would cover higher wages and benefits afforded to their permanent workers, potentially making the cost of hiring through an intermediary more expensive than hiring workers directly. This might make it more attractive to hire workers directly.

Given the scope of the amendments, and the findings in the theoretical and empirical literature reviewed in Section 4.2, the hypothesised effects on employment, earnings and job duration, the three key outcome variables of interest in this study, are as follows:

- Employment: The amendments might have led to fewer workers employed in the TES sector because of the reduced flexibility and higher firing costs associated with the use of temporary workers through TES agencies. Further, when firing costs for non-temporary workers are high and there are rules forbidding temporary contract renewal, Bratti, Conti, and Sulis (2018) suggested that client firms might be reluctant to convert temporary jobs into permanent ones, resulting in unemployment of workers previously employed through TES agencies. However, workers could also have been absorbed by client firms as per the intention of the amendments, in which case employment in non-TES/client firms would be expected to increase following the legislative amendments (although the international literature suggests that this is less likely). This would depend on the value the client places on the worker.
- Earnings: If workers remain employed, one might expect to see the earnings of TES employees increase for two reasons. One, TES employers could have raised earnings above the threshold of R205 433 to avoid the legislation altogether. Two, if employers complied with the LRAA, then client firms may have taken on TES workers permanently and instead of paying TES agencies a mark-up fee they may have paid these workers more, in line with what they paid their permanent workers. This would result in higher wages post-amendments for those who remained in the TES sector and those that moved into the client/non-TES sector.
- Job duration: While the intention of the legislation was to do away with short fixed-term contracts, it may have resulted in contract duration being shortened to under three months by client firms as then the legislation would not apply. However, if client firms complied with the LRAA, then contract durations might be expected to increase because only workers doing actual temporary work could be employed on short-term contracts.

Alternatively, there may be no impact on contract length as employers could have used a sequence of different workers with short contracts instead of rolling short-term contracts for the same workers (Bratti, Conti, & Sulis, 2018).

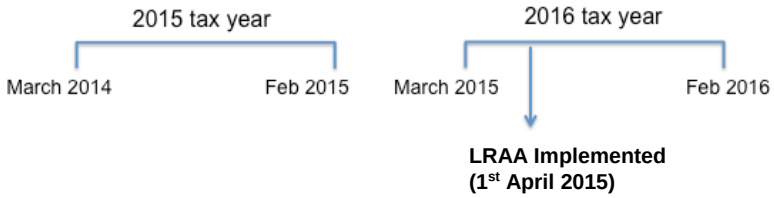
Given these potentially opposing effects, the overall outcome is ambiguous and becomes an empirical question for testing.

4.4 Data and sample

This chapter uses the 'cleaned' Employment Panel (see Appendix to Chapter 2) for the tax years 2015 (1 March 2014 to end February 2015) and 2016 (1 March 2015 to end February 2016) - the year before and after the LRAA was implemented respectively (see Figure 9). The unit of analysis is the *job contract* level as the dataset includes records of employment for tax-paying firms over the period, but it can also be collapsed to the individual level. While it is possible to see whether an individual is employed in a job contract by a TES firm (or a non-TES firm), it is not possible to match the TES employee to the client firm that the TES employee physically works at. This limits the analysis, as it would be useful to identify more precisely whether TES workers moved to the client firm post-amendments, whereas it is only possible to identify whether workers moved into the broader category of the non-TES sector (all non-TES firms). Unpacking the triangular relationship between TES firm, client firm and worker in more depth would require a different kind of data structure which is not available in the tax data or any other dataset currently available in South Africa (and more than likely would require purposive primary data collection where TES firms were matched to various client firms). Nonetheless, the dataset remains unique as the panel nature of the data allows us to track individuals over time, which means it is possible to identify transitions between the TES and non-TES sectors (and movement out of the data) after the amendments were imposed.

The sample used in this analysis is restricted to individuals who were working in the TES sector in the 2015 tax year just before the amendments were enforced. These workers are then tracked to analyse what happened to them in the following tax year (2016), just after the amendments were implemented. As noted above, although the legislation was enacted in January 2015, it was only enforced in April 2015 which forms part of the 2016 tax year (see Figure 4.1). This means that although the timing for the analysis is not perfect (the 2016 tax year starts in March) it is a very close match.

Figure 4.1: Timeline of tax data and LRAA



In any one tax year, individuals can be employed in more than one job contract. For example, in the 2015 tax year, there were around 399 466 individuals employed in the TES sector that had 459 762 contracts. Since the interest is in changes in employment outcomes just after the amendment was implemented, the sample was restricted to those individuals whose last contract of the 2015 tax year (in other words, the last contract before the reform) was in the TES sector. Of the 399 466 individuals that had TES contracts in 2015, 340 673 of these individuals held a TES contract as their last contract for the year (the rest held a TES contract in the first part of the year and then moved to the non-TES sector). By focusing on the sample whose last contract of 2015 was in the TES sector, certain changes that occurred prior to implementation on 1st April 2015 may be overlooked if employers pre-empted the legislation and acted early. However, for practical purposes, a cut-off closest to the implementation of the legislation was necessary for the analysis. In Section 4.7.4, a separate analysis is conducted in which the outcomes for the 2014 and 2015 tax years are examined to gauge whether employers might have pre-empted the legislation.

For the sample of individuals (340 673) whose last contract was in the TES sector in the 2015 tax year, their employment outcomes in the 2016 tax year (so after the reform) are analysed. In particular, three main outcomes are explored: employment status, earnings and job duration. First is an analysis of whether they remain employed in the TES sector, transition into the non-TES sector, or are no longer in the dataset. If they are no longer in the dataset, this implies they either became unemployed, not economically active, or were possibly working but for unregistered/informal firms. For those who remain in the dataset and therefore employed in the formal sector in the 2016 tax year, changes in the nature of their employment, in particular their earnings and job contract duration, are tracked.[77]

[77] For those workers who were employed in more than one job contract in the 2016 tax year, the first job contract of the tax year is analysed, to identify what happened to these workers just after the amendments became enforceable.

Since this study uses the discontinuity at the R205 433 annual earnings threshold to identify the impact of the LRAA, the accurate measurement of earnings is critical. In the labour legislation, the earnings threshold refers to gross income before deductions including tax, pension and medical benefits. Gross earnings are calculated using the 'source of income' dataset discussed in chapters 2 and 3.

Given that the sample is limited to those whose last contract in the 2015 tax year was in the TES sector, earnings from only that last job are taken into account when identifying the relevant sample. This potentially becomes a problem when a person has more than one contract in the same firm and their total earnings at the firm that year (summed over all their contracts) are higher than the BCEA threshold, even though for their last contract total earnings are lower than the threshold. Take the example of a person with four contracts at the same firm in one year, with each contract for R60 000. Taking just their last contract of the year, this person would fall into the sample of workers who were below the BCEA threshold as their last contract of R60 000 was below the threshold of R205 433. However, their total earnings at the firm that year would amount to R240 000 (R60 000 x 4) which means they fall above the threshold. Luckily, there are only 60 individuals (0.0002% of sample) for which this is the case, and they do not have a material impact on the analysis.

4.5 Descriptive statistics

In this section, descriptive statistics are presented on the outcomes of interest that are analysed further in the econometrics section that follows. The transition matrix in the first table (Table 4.1) shows whether TES workers employed in 2015 remained in the TES sector, transitioned to the non-TES sector or moved out of the data altogether in 2016. Those that moved out of the data are likely to be unemployed, economically inactive or working for firms not registered for tax. The table shows that, while the bulk of those that were in the TES sector in 2015 were employed in the TES sector again in 2016, of those that were not retained, a larger proportion of individuals moved out of the data than transitioned to the non-TES sector. This holds for those above and below the threshold. Second, if one compares those above and below the threshold, retention in the TES sector is 25 percentage points higher for those above the threshold compared to those below the threshold (78 percent versus 53 percent). Those above the threshold are much less likely than those below the threshold to transition to the non-TES sector (8 percent versus 19 percent) or to transition out of the data (14 percent versus 29 percent). This suggests that those above the

threshold are in a far less precarious employment position.[78] Below the threshold however, a large group is moving into better contractual positions which may suggest that the legislation had, to some degree, its intended effect.

Table 4.1: TES employee transitions between 2015 and 2016

		2016			
		TES	**Non-TES**	**Out of data**	**Total**
2015 TES	**Below threshold**	173 265	61 291	93 256	327 812
		52.85%	18.70%	28.45%	100.00%
	Above threshold	10 024	1 081	1 756	12 861
		77.94%	8.41%	13.65%	100.00%

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a).
Notes: The sample is at the individual level and includes all those whose last job contract of the 2015 tax year was in the TES sector. The threshold is R205 433.

Table 4.2 examines the job characteristics, namely earnings and job duration, of the sample before and after the LRAA, disaggregated by whether they were retained in the TES sector or employed in the non-TES sector in the 2016 tax year. Focusing on the earnings of those below the threshold (the upper panel of the table), while the percentage of workers for whom real earnings increased between the 2015 and 2016 tax years was similar for those that were retained in the TES sector and those that moved into the non-TES sector (about 57 percent of both groups experienced real earnings increases), the actual increase in real earnings was much higher for those that moved into non-TES compared to those that stayed in the TES sector (111 percent versus 20 percent). For those above the threshold (the lower panel of the table), less than half of those that stayed in the TES sector (41 percent) and around a third of those that moved to the non-TES sector (31 percent) saw an increase in real earnings between the 2015 and 2016 tax years, and on average, real earnings declined for both groups between 2015 and 2016. Those above the threshold that moved into the non-TES sector had a much more substantial decline in average real earnings than those that were retained in the TES sector. Regardless of whether they moved into TES or non-TES in 2016, those below the threshold were more likely to see an increase in real earnings, as well as a higher average increase in real earnings, than those above the threshold.

[78] Kerr (2018) uses the same tax data to show that worker flows, the sum of hires and separations, constitute around 52-54 per cent of average employment in the period between 2012 and 2014. This means that more than 50 percent of those employed either left their current employer and/or arrived at their current employer in each year. Table 4.1 similarly shows that worker flows are substantial in the labour broker sector and thus seem to be a pervasive part of the South African labour market. Kerr (2018) also shows that worker flows are higher for those in the lower income quintiles.

Table 4.2: Differences in job characteristics before and after implementation

Below threshold	Pre-reform		Post-reform TES (2016)			Post-reform non-TES (2016)		
	N	Mean	N	Mean	Change 2015-2016	N	Mean	Change 2015-2016
Real earnings increased in 2016 (%)			170137	56.99%		60133	58.71%	
Real earnings	323521	R43532.61	170137	R52272.09	20.08%	60133	R110273.5	110.96%
Job duration increased in 2016 (%)			164159	61.19%		59446	46.81%	
Job duration	322097	261.55	169115	294.21	12.49%	56737	256.54	-1.92%
Above threshold	**Pre-reform (2015)**		**Post-reform TES (2016)**			**Post-reform non-TES (2016)**		
	N	Mean	N	Mean	Change 2015-2016	N	Mean	Change 2015-2016
Probability of real earnings increasing in 2016			13152	42.37%		2239	30.68%	
Real earnings	17152	R523387.40	13152	R463933.80	-11.36%	2239	R292247.40	-44.16%
Probability of job duration increasing in 2016			12340	62.97%		2203	43.35%	
Job duration	17148	333.51	13120	295.09	-11.52%	2169	255.71	-23.33%

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Notes:** The differences between 2015-2016 are statistically significant at 1% level. Earnings are deflated using 2016 as the base year. Sample is at the individual level. The threshold is R205 433. Job duration is based on number of days.

Focusing on job duration[79] for those below the threshold (upper panel of Table 4.2), job duration increased for more than half of individuals retained in TES (61 percent) but less than half of those who moved to the non-TES sector (47 percent). Those retained in TES also saw a higher increase in average job duration relative to those that moved to non-TES, where average job duration declined (13 percent versus -2 percent). Similarly, for those above the threshold (lower panel of the table), more than half of those retained in TES experienced an increase in job duration (63 percent) compared to less than half of those that moved to non-TES (43 percent). Mean job duration, however, declined for both groups, although more so for those that moved into non-TES (-23 percent) compared to TES (-12 percent). Overall, the table suggests that those below the threshold that moved to non-TES benefitted the most in terms of earnings, while those below the threshold that were retained in TES benefitted the most in terms of job duration. It should be noted that the data does not allow for an analysis at the intensive margin (whether workers are retained but at reduced hours to cut costs) and only changes at the extensive margin (workers are

[79] Job duration refers to the job contract length captured in the tax data and is measured in days (with the maximum being 365 or 1 year).

employed or not) can be picked up which may only give a partial sense of action taken by employers to mitigate the impact of the LRAA.

4.6 Econometric strategy

This section describes the regression discontinuity strategy used. First, it explains why a sharp RDD is used; second, it assesses the validity of the RDD; and third, it examines whether the covariates used are balanced on either side of the threshold.

4.6.1 Sharp RDD

A sharp regression discontinuity design is used to estimate the impact of the legislative amendments on TES workers' labour market status, wages and job duration. A defining feature of the RDD is that the probability of being treated changes discontinuously at the cut-off (Cattaneo, Idrobo, & Titiunik, 2019). Individuals earning above the threshold who were not subject to the LRAA amendments provide a counterfactual to those below the threshold who were subject to the LRAA amendments. Specifically, there was a discontinuous change in the degree of regulation at the R205 433 earnings threshold. A sharp RD design is one in which the treatment condition assigned is identical to the treatment condition actually received for all units (Cattaneo, Idrobo, & Titiunik, 2019). In the case of the LRAA, the treatment applied to all individuals earning below a certain threshold however, there may have been firms that did not comply even though they were subject to the same rules. An advantage of the RDD is that it relies on relatively weak assumptions compared to other non-experimental approaches and consequently provides more credible results. In addition, the assumptions are testable in a similar manner to randomised experiments (Hijzen, Mondauto, & Scarpetta, 2017).

Studies examining the impact of employment protection on temporary work in other countries have sometimes used a Difference-in-Difference (DiD) strategy to isolate the impact of EPL amendments on temporary employees.[80] However, a DiD identification approach is not suitable in the South African case as the LRAA applied to TES firms as well as non-TES firms that have fixed-term and part-time workers. As such, non-TES firms or their employees could not be used as the control group as those that were part-time or on fixed-term contracts were also affected by the legislation. A key challenge with this approach is potential 'spill-overs' between the treatment

[80] See for example Autor (2003) in the case of the United States as well as cross-country studies by Damiani, Pompei, and Ricci (2016) and Pierre and Scarpetta (2013).

and control groups. One of the motivations for the LRAA was to encourage non-TES firms (what would be the control group) to hire people directly instead of through TES firms (what would be the treatment group). If this was the case, then the estimated 'impact' in terms of a disemployment effect would be larger than it actually is, since the control group is breaking the parallel trends assumption of DiD.

A few papers use a sharp RDD identification strategy similar to the one pursued in this paper (Bratti, Conti, & Sulis, 2018; Hijzen, Mondauto, & Scarpetta, 2017). The methodological difference between their work and this study is that in the South African case the legislation is applied to those earning below a certain level of income, instead of to firms above a certain size threshold as is the case in most other countries studied.[81]

A non-parametric local polynomial estimation method from Calonico, Cattaneo, and Titiunik (2014) that is commonly used in RDD analysis was used (Bratti, Conti, & Sulis, 2018; Kantorowicz and Hlobil, 2020). Using the non-parametric tool from Calonico, Cattaneo, and Titiunik (2014) means that the bandwidth around the earnings threshold was chosen using a data driven process on the basis of non-parametric approximation[82]. In this case the researcher needs to specify a given polynomial order and a specific kernel (Bratti, Conti, & Sulis, 2018). The bandwidth is chosen in a way that balances the lower variance associated with larger bandwidths with the bias associated with including observations far from the threshold. The bandwidths should be wide enough to include a sufficient number of observations and produce precise estimates but should also be narrow enough to compare similar units and avoid selection bias. Bandwidths are identified in the data-driven process noted above to minimise the mean squared error (MSE) of the RDD estimator. This is preferred to the parametric method which is based on an ad hoc chosen bandwidth and assumes away misspecification bias (Bratti, Conti, & Sulis, 2018).

[81] The South African legislation only applied to firms employing more than 10 workers or fewer than 50 workers if the firm was younger than two years. However, these additional restrictions were not applied in this chapter as the dataset did not include any TES firms with less than 10 employees and additionally, the dataset did not include information on the age of firms.

[82] Bandwidths were chosen using the Stata packages "rdrobust" and "rdbwselect" (Calonico, Cattaneo, & Titiunik, 2014).

After selecting the bandwidths, a weighted[83] least squares regression is run to examine the outcomes of interest for those who were employed in the TES sector prior to the amendments, namely the probability of being in a certain labour market status in 2016; the probability of wages increasing between 2015 and 2016 and the probability of job duration increasing between 2015 and 2016.

The specification is as follows:

$$Y_{it+1} = \alpha + \tau(D_i) + \beta_1(E_{it} - T) + \beta_n(E_{it} - T)^n + \beta_3 D_i (E_{it} - T) + X_{it} + \varepsilon_{it} \quad (1)$$

$$D_i = 1[(E_{it} > T]$$
$$T - h \leq Ei \leq T + h$$

Y_{it+1} is a binary variable representing the outcome in 2016. is earnings in 2015. *T* is the threshold of R205 433. The term $(E_{it} - T)$ refers to the normalised forcing variable and a polynomial of the forcing variable is included. D_i is a dummy that equals 1 if individual earnings are above the threshold and zero otherwise. While this may seem counter-intuitive for this analysis since the "treated group" are those below the threshold, RD models (as well as the statistical programmes) assume that those above the threshold are "treated" so RD estimates are reported in terms of the outcome for those above relative to those below the threshold. In this case, those below the earnings threshold are the "treated" group but the RD estimates are presented in terms of those above relative to those below the threshold which follows the standard approach in terms of RD analysis. Under a sharp RDD, the average treatment effect (τ) at the threshold (*T*) is the difference between the estimated parameters from the regression for those above ("non-treated" in this case) relative to those below the threshold ("treated" in this case).

$$\tau = E[Y_i(1) - Y_i(0)|E_i = T]$$

The RD estimates presented below provide the relative impact of the amendments, or the impact on those above relative to those below the threshold within the specified bandwidth. Controls X_{it}

[83] Each observation is weighted equivalent to $K(\frac{E_{it}-T}{h})$ in which *K* is the kernel. Cattaneo, Idrobo, and Titiunik (2019, p.43) recommend a triangular kernel because "when used in conjunction with a bandwidth that optimizes the mean squared error, it leads to a point estimator with optimal properties." The triangular kernel function assigns zero weight to all observations with a score outside the bandwidth and positive weights to all observations within the bandwidth.

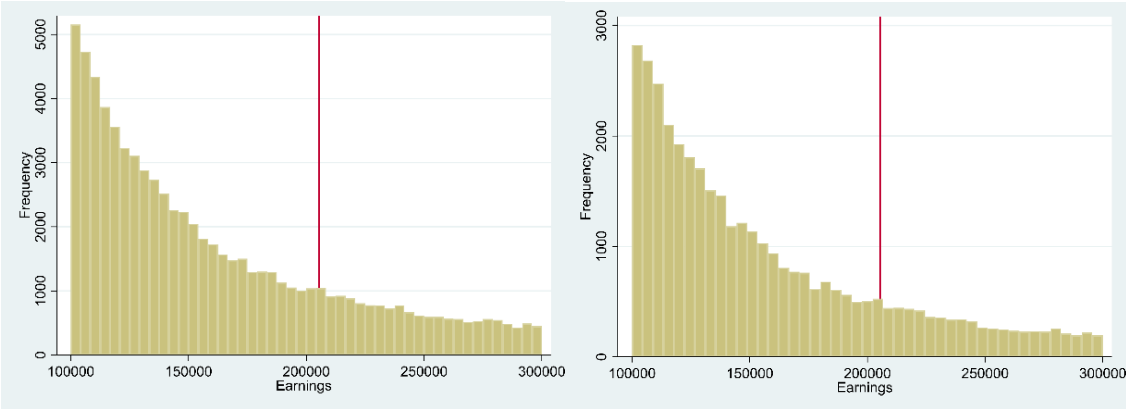
include age, gender, job contract duration and firm size in 2015. *h* refers to bandwidths estimated, which provide the window around the earnings threshold.[84]

4.6.2 Assessing the validity of the RD

One of the challenges with this type of analysis is to accurately distinguish between the independent effect of the amendments on earnings and the possibility that individuals self-select into earnings categories or employers manipulate earnings by moving employees above the threshold to circumvent the conditions of the LRAA.

Our identifying assumption in this analysis is that in the absence of the reform, there would be no substantial change to real earnings. Because the reforms prescribe that TES workers should be treated similarly to permanent workers in that they should be paid similar wages, an increase in wages may imply compliance with the legislation. However, if a number of workers are observed to move just over the threshold, then it may invalidate the RDD, as it could mean that employers are manipulating earnings, and the resulting outcomes are not a true reflection of what would happen if employers were complying with the amendments. Figure 4.2 presents the distribution of real earnings for the group of TES workers in 2015 (left) and in their subsequent employment in 2016 (right). A visual inspection does not suggest a jump in earnings to just above the R205 433 threshold.

Figure 4.2: Histogram of average earnings for 2015 and 2016



Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Note:** The axis presents the number of IRP5 contracts in a particular bin. The BCEA threshold is marked by the red line.

[84] While the outcomes considered are binary in nature, a series of linear probability models are run, as the RDD package does not support probits or multinomial logits.

The transition matrix in Table 4.3 shows that of those that were below the threshold in 2015, around 68 percent remained below the threshold, just under 4 percent moved above the threshold and around 29 percent moved out of the data. There was a larger proportion of individuals who moved from above the threshold in 2015 to below the threshold in 2016 (around 25 percent). Given that so few individuals move above the threshold, it is unlikely that there was substantial manipulation of earnings that would bias the results.

Table 4.3: Transitions across the threshold (2015-2016)

		2016			
		Below	Above	Out of data	Total
2015	**Below**	219071	11199	93251	323 521
	Share	*67.71*	*3.46*	*28.82*	*100%*
	Above	4254	11137	1761	17152
	Share	*24.8*	*64.93*	*10.27*	*100%*

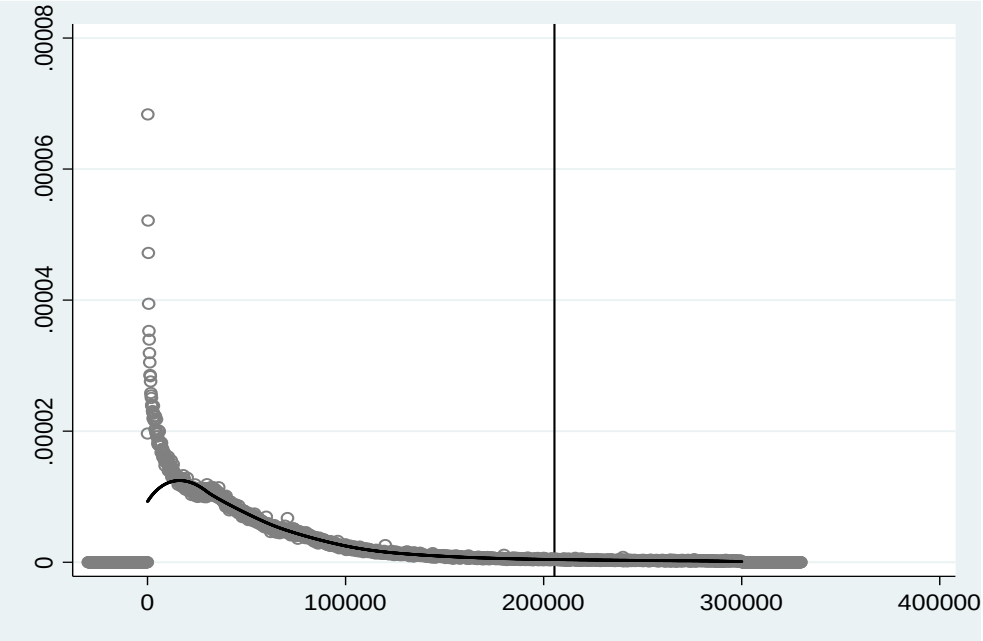
Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Note:** Sample is at the individual level. The threshold is R205 433.

To examine this further, a McCrary (2008) test is run which is a formal test of the null hypothesis of continuity of the density of the forcing variable at the threshold against the alternative hypothesis that there is a jump at the threshold. The McCrary test is visualised in Figure 4.3 with separate weighted kernel estimations and 95 percent confidence intervals of the log of density of earnings on either side of the threshold. The test gives a log difference between the frequencies to the right and left of the threshold of 0.014 (se 0.0270) which is statistically insignificant.[85] The null cannot be rejected which suggests that there is no sorting around the threshold in our case. Overall, there is no evidence of manipulation of earnings which means that the composition of employment on either side of the threshold was not subject to any "sorting".[86]

[85] The t-stat is 0.5, with a p-value>0.05, and therefore the null cannot be rejected using a 5% significance level as the cut-off.

[86] To further examine sensitivity of the results to observations around the threshold, "donut-hole" tests are estimated and the results are reported in Section 4.7.

Figure 4.3: McCrary Test



Source: Authors' estimates based on IRP5 data. **Notes:** The x-axis presents earnings in ZAR and the R205 433 threshold is marked by the black line. The bin size is 138.99.

4.6.3 Balancing covariates test

A balancing covariates test is conducted to understand whether the baseline covariates in the regression are balanced on either side of the threshold. If the covariates known to strongly correlate with the outcome of interest are discontinuous at the threshold, the continuity of the outcome functions may not hold (Cattaneo, Idrobo, & Titiunik, 2019). The condition should be met that the assignment variable and any covariates should be random around the threshold and should not affect the estimates apart from the standard errors *(*Hijzen, Mondauto, & Scarpetta, 2017). Given the limited data in the Employment Panel, only the following covariates can be analysed: age, gender, job duration and firm size. The method outlined by Cattaneo, Idrobo, and Titiunik (2019) is used where the dependent variable in Equation (1) is replaced with each of the covariates and, as above, a polynomial of the first order is chosen as well as a triangular kernel, and the bandwidths are selected using a non-parametric approach. The results are presented in Appendix Table 4A.1 at the end of this chapter.

All RD estimates besides the coefficient on *Female* are insignificant when a polynomial of the first order is used[87]. The significant coefficient on the *Female* dummy variable means that the probability

[87] There are no substantial changes when a second order polynomial is used.

of being female is lower for those above relative to those below the threshold. In order to determine whether the covariate that is significant will bias the analysis, the weighted least squares regression (Equation 1) is run with and without covariates in the section that follows. From this it is found that the results are generally consistent whether covariates are included or not.

4.7 Results

For each outcome variable, descriptive figures of the discontinuity as well as the tables showing the full regression results are shown in the sections below. The figures present graphical evidence of the outcome variables to show whether there was a discontinuity at the threshold, giving a sense of the expected outcomes in the regression analysis although, they do not control for any covariates nor does they use the optimal bandwidth that would be selected through a non-parametric analysis. The tables report the RD coefficient and standard error, the number of observations, the effective number of observations to the left and right of the threshold (within the bandwidth), the order of the polynomial (one or two), and the bandwidths estimated or selected. Equation 1 is estimated with and without covariates and using a polynomial of orders 1 and 2, in all cases using the optimally specified bandwidths (Columns 1-4 of each table). Our preferred specification is in Column 3 which includes covariates and uses a polynomial of order 1[88]. The results shown in the figures are largely consistent with the formal RD estimates shown in the tables (and where there is not consistency between the figures and the regression analysis, this will be discussed).

In order to test the sensitivity of the results to the response of units very close to the threshold, "donut-hole" tests are run (Cattaneo, Idrobo, & Titiunik, 2019) and shown in Columns 5 and 6 of each table. The idea behind the "donut-hole" regressions is to exclude observations close to the threshold that are most likely to be manipulated and then repeat the estimation. Cattaneo, Idrobo, and Titiunik (2019) suggest running this estimation a few times where the percentage of excluded observations around the threshold is varied. In the tables, the estimations are shown where those that earned 1 percent and 3 percent above and below the threshold (which amounts to around R2000 and R6000, respectively) are excluded. The tests are run using the bandwidth selected in our preferred specification from Column 3 for the sake of comparison.

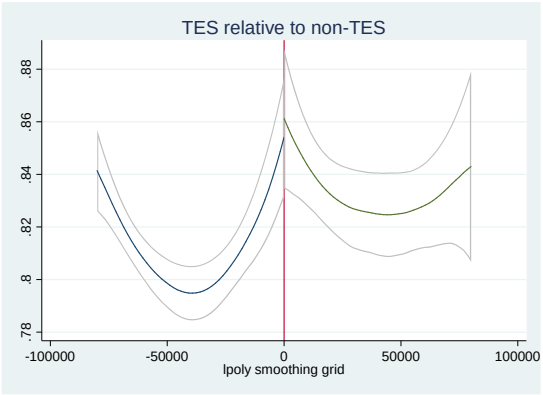
[88] Cattaneo, Idrobo, and Titiunik (2019) suggest that higher-order polynomials tend to produce over-fitting of the data and can lead to unreliable results near boundary points. The local linear RD estimator, which is also the default point estimator in most applications, is preferred by researchers as well as for this analysis.

4.7.1 The impact of the amendments on labour market status

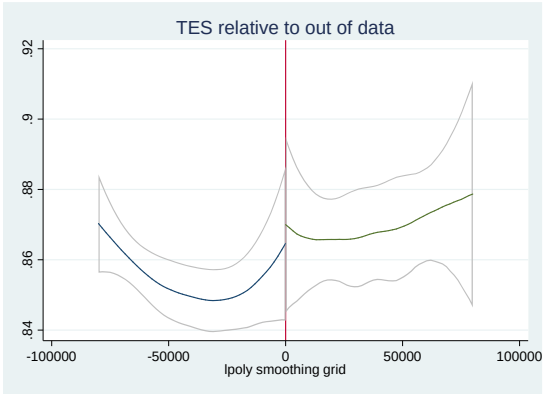
Three binary variables are used to measure the impact of the amendments on the labour market status in 2016 of the sample of workers whose last contract of 2015 was in the TES sector: (i) the probability of being retained in TES relative to moving to non-TES; (ii) the probability of being retained in TES relative to moving out of the data and (iii) the probability of moving out of the data relative to being in non-TES.

Figure 4.4: Polynomial plot depicting labour market outcomes in the 2016 tax year

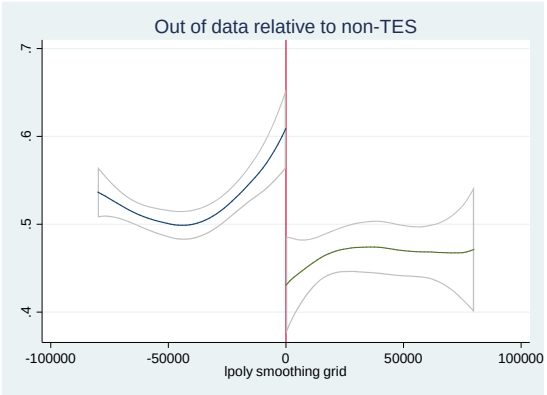
Panel A



Panel B



Panel C



Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Notes:** The graphs above are kernel-weighted local polynomial smoothing plots. The threshold is marked by the red line. The x axis presents the normalised forcing variable in ZAR. The y axis provides the probability of the labour market outcomes. All figures use a bandwidth of R80 000 on either side of the threshold.

As described under the hypotheses in Section 4.3, if conditions around hiring a TES worker become more stringent, employment of TES workers is likely to decline as they are either absorbed by the non-TES sector or become unemployed (Cahuc & Carcillo, 2011). Examining the figures, there is a small discontinuity in Panel A and Panel B however, confidence intervals indicate that

these outcomes are not significant. A clear and substantial discontinuity is evident in in Panel C, which shows the probability of moving out of the data relative to the non-TES sector.

Table 4.4: Probability of retention in TES relative to non-TES in 2016

	1:No covs, p=1, h=MSE	**2:No covs, p=2, h=MSE**	**3:Covs, p=1, h=MSE**	**4:Covs, p=2, h=MSE**	**5:DH: 1%, p=1, h= col 3**	**6:DH: 3%, p=1, h= col3**
RD_Estimate	0.010	0.016	0.015	0.009	0.024	0.017
	(0.017)	(0.022)	(0.014)	(0.029)	(0.018)	(0.019)
N	245661	245661	244545	244545	243596	243379
Effective N (left)	5854.0	6943.0	9133.0	6946.0	8637.0	8509.0
Effective N (right)	3403.0	3672.0	4073.0	3617.0	3620.0	3531.0
Order of polynomial (p)	1.0	2.0	1.0	2.0	1.0	1.0
Bandwidth (h)	45789.5	51334.0	61435.8	51752.7	61435.8	61435.8
Covariates	No	No	Yes	Yes	Yes	Yes

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Notes:** Standard errors in parentheses. All regressions are calculated using the Calonico, Cattaneo, and Titiunik (2018) rdrobust routine for Stata. Specifications 1 and 2 are run without covariates (covs) while the rest are run with covariates including age, gender, job duration and firm size in 2015. In models 1-4, bandwidths are selected using the mean square error (MSE) estimator for the RD treatment effect. Models 5 and 6 apply the same bandwidth as specification 3 which is the preferred specification. All specifications use a triangular kernel. *** p<0.01 ** p<0.05 * p<0.10.

In terms of the first outcome (Table 4.4), the consistently positive RD estimates suggest there is a higher probability of being retained in TES relative to non-TES for those above (the non-treated) relative to those below the threshold (the treated), however, none of the estimates is statistically significant. This result is consistent with what was observed in the transition matrix in the descriptive statistics in Section 4.5 and the graph displayed above (Figure 4.4, Panel A). Adding covariates to the model and changing the order of polynomial affects the size of the estimate but not the significance. Furthermore, the RD estimates in the donut-hole tests in columns 5 and 6 are largely consistent with the comparable baseline result in Column 3 (using the same bandwidth). The RD estimates are still positive and insignificant, but now the estimates are larger in size. This means that observations further from the threshold are driving the result rather than observations closer to the threshold.

In terms of the second outcome (Table 4.5), the positive RD estimates suggest that the probability of being retained in TES relative to moving out of the data is higher for those above relative to

below the threshold. This result is also consistent with the transition matrix (Table 4.1[89]) which suggested that those above the threshold (the non-treated) were in a less precarious position than those below the threshold as would be expected. However, the RD coefficients are very small and not significant, suggesting no difference in the probability of being retained relative to being out of the data between those above and below the threshold. Panel B in Figure 12 also presents a very small discontinuity. The estimates from the donut-hole tests in columns 5 and 6 are similarly small (in fact close to zero) and insignificant.

Table 4.5: Probability of retention in TES relative to moving out of data in 2016

	1:No covs, p=1, h=MSE	**2:No covs, p=2, h=MSE**	**3:Covs, p=1, h=MSE**	**4:Covs, p=2, h=MSE**	**5:DH: 1%, p=1, h= col 3**	**6:DH: 3%, p=1, h= col3**
RD_Estimate	0.004	0.002	0.011	0.010	-0.000	0.002
	(0.016)	(0.019)	(0.015)	(0.019)	(0.020)	(0.021)
N	292297	292297	290699	290699	289724	289490
Effective N (left)	5467.0	9101.0	6363.0	9278.0	5845.000	5709.0
Effective N (right)	3323.0	4182.0	3513.0	4150.0	3056.0	2958.0
Order of polynomial	1.0	2.0	1.0	2.0	1.0	1.0
Bandwidth (h)	43189.9	60327.7	48584.0	61645.3	48584.0	48584.0
Covariates	No	No	Yes	Yes	Yes	Yes

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Notes:** Standard errors in parentheses. All regressions are calculated using the Calonico, Cattaneo, and Titiunik (2018) rdrobust routine for Stata. Specifications 1 and 2 are run without covariates (covs) while the rest are run with covariates including age, gender, job duration and firm size in 2015. In models 1-4, bandwidths are selected using the mean square error (MSE) estimator for the RD treatment effect. Models 5 and 6 apply the same bandwidth as specification 3 which is the preferred specification. All specifications use a triangular kernel. *** p<0.01 ** p<0.05 * p<0.10.

In terms of the third outcome (Table 4.6), the RD estimates yield a negative coefficient which suggests that, for those who were employed by TES firms in 2015, the probability of being out of the data relative to being employed in the non-TES sector in 2016 is lower for those above relative to those below the threshold. Put differently, those below the threshold, or the treated group, are more likely to move out of the data than into the non-TES sector, relative to the non-treated group. These results yield higher RD estimates than the previous outcomes, are consistent across specifications, but are still not statistically significant, despite the graphical results in Figure 4.4, Panel C, showing a noticeable effect. The donut hole tests in columns 5 and 6 produce estimates

[89] It should be noted that Table 4.1 presents descriptive statistics for the full sample while the RDD results are for a specific bandwidth so the outcomes are not directly comparable. This also applies to Table 4.2 and Table 4.3 which are compared to RDD results that follow.

that are close to zero and insignificant suggesting that any small negative effect on the outcome that was observed in the baseline estimates is driven by those closer to the threshold.

Table 4.6: Probability of moving out of data relative to transition into non-TES in 2016

	1:No covs, p=1, h=MSE	2:No covs, p=2, h=MSE	3:Covs, p=1, h=MSE	4:Covs, p=2, h=MSE	5:DH: 1%, p=1, h= col 3	6:DH: 3%, p=1, h= col3
RD_Estimate	-0.014	-0.046	-0.019	-0.042	-0.003	0.004
	(0.033)	(0.053)	(0.033)	(0.057)	(0.036)	(0.038)
N	143388	143388	142546	142546	142275	142275
Effective N (left)	5187.0	4143.0	5541.0	3388.0	5397.0	3864.0
Effective N (right)	1356.0	1258.0	1340.0	1133.0	1213.0	1087.0
Order of polynomial	1.0	2.0	1.0	2.0	1.0	1.0
Bandwidth (h)	90596.6	80636.7	93626.0	72612.8	93626.0	93626.0
Covariates	No	No	Yes	Yes	Yes	Yes

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Notes:** Standard errors in parentheses. All regressions are calculated using the Calonico, Cattaneo, and Titiunik (2018) rdrobust routine for Stata. Specifications 1 and 2 are run without covariates (covs) while the rest are run with covariates including age, gender, job duration and firm size in 2015. In models 1-4, bandwidths are selected using the mean square error (MSE) estimator for the RD treatment effect. Models 5 and 6 apply the same bandwidth as specification 3 which is the preferred specification. All specifications use a triangular kernel. *** p<0.01 ** p<0.05 * p<0.10.

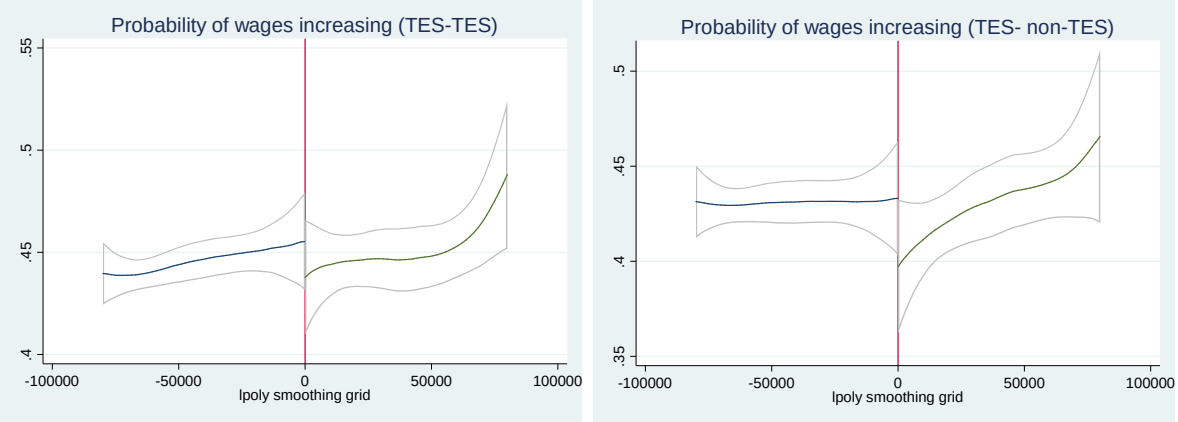
While the policy amendment did not explicitly specify that individuals should be moved to the client firm in the non-TES sector, it made it less attractive for client firms to hire workers through an intermediary TES firm, as TES workers would have to be treated as though they were permanent by the client firm and the client firm would also become legally liable for the TES workers. So, one might expect that the client firm would employ the TES workers on their own books. The results in this analysis suggest that 2015 TES workers below the threshold were more likely to move into the non-TES sector relative to staying in the TES sector than those above the threshold. However, they were also less likely to be retained by the TES sector relative to moving out of the data, and more likely to move out of the data relative to moving to the non-TES sector, than those above the threshold. It is assumed this is contrary to the effect the legislation intended to achieve. Notably, these results are largely insignificant and the coefficients are very small which means that these transitions cannot necessarily be attributed to the LRAA implying that employers did not actually comply with the legislation.

4.7.2 The impact of the amendments on wages

In this section, the impact of the LRAA on wages is assessed. Specifically, the probability of wages increasing is examined for those above relative to those below the threshold. The outcome variable is a binary variable that equals 1 if wages increased between 2015 and 2016 and 0 if wages stayed the same or declined. The results are presented separately for those that were retained by the TES sector in 2016 and those that moved to the non-TES sector in 2016. As in the previous section, graphical evidence is provided in Figure 4.5 and the RD estimates are presented in Tables 4.7 and 4.8.

Figure 4.5: Polynomial plot depicting the probability of wages increasing 2015-2016

Panel A **Panel B**



Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Notes:** The graphs above are kernel-weighted local polynomial smoothing plots. The threshold is marked by the red line. The x axis presents the normalised forcing variable in ZAR. The y axis provides the probability of wages increasing. All figures use a bandwidth of R80 000 on either side of the threshold.

While both panels of Figure 4.5 suggest a discontinuity at the threshold, the confidence intervals suggest that the results are not significant. The negative RD estimates in Table 4.7 and Table 4.8 are in line with the results in the descriptive analysis in Table 4.2 and the graphical depiction in Figure 4.5. They indicate that the probability that real wages increased is lower for those above relative to those below the threshold. In other words, those below the threshold (or the treated group) were more likely to see an increase in wages relative to those above. For those that were retained in the TES sector, the effect is very small, insignificant, and when the donut hole tests are conducted, tends to zero. For those that moved to the non-TES sector, however, the estimates are significant and quite sizeable, indicating that the probability wages increased is between 11 and 14 percent lower for those above relative to those below the threshold. In other words, for those that moved into the non-TES sector, the treated group did better than the non-treated group.

Above-inflation wage increases for this group could suggest that there was some level of compliance with the legislation, if those that moved to the non-TES sector were moved onto the client firm's payroll. However, TES workers may also have moved into the non-TES sector but not necessarily to the client firm, therefore this result could also be picking up that the non-TES sector pays better wages than the TES sector on average. [90]

Table 4.7: Probability of wages increasing between 2015 and 2016 (TES to TES)

	1:No covs, p=1, h=MSE	**2:No covs, p=2, h=MSE**	**3:Covs, p=1, h=MSE**	**4:Covs, p=2, h=MSE**	**5:DH: 1%, p=1, h= col 3**	**6:DH: 3%, p=1, h= col3**
RD_Estimate	-0.010	-0.018	-0.004	-0.007	0.006	0.003
	(0.024)	(0.031)	(0.020)	(0.029)	(0.022)	(0.025)
N	183289	183289	182415	182415	182055	181414
Effective N (left)	5591.0	8924.0	10451.0	10874.0	10261.0	9917.0
Effective N (right)	3071.0	3743.0	3935.0	3991.0	3765.0	3468.0
Order of polynomial	1.0	2.0	1.0	2.0	1.0	1.0
Bandwidth (h)	51274.6	68523.0	75156.1	76689.9	75156.1	75156.1
Covariates	Yes	Yes	Yes	Yes	Yes	Yes

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Notes:** Standard errors in parentheses. All regressions are calculated using the Calonico, Cattaneo, and Titiunik (2018) rdrobust routine for Stata. Specifications 1 and 2 are run without covariates (covs) while the rest are run with covariates including age, gender, job duration and firm size in 2015. In models 1-4, bandwidths are selected using the mean square error (MSE) estimator for the RD treatment effect. Models 5 and 6 apply the same bandwidth as specification 3 which is the preferred specification. All specifications use a triangular kernel. *** p<0.01 ** p<0.05 * p<0.10.

[90] As an additional exercise (data not shown here), the rate of real wage growth between 2015 and 2016 was used as an alternative dependent variable. Consistent with the main results that use the binary variable as the outcome, the RD estimates suggest that wage growth rates are lower for those above relative to those below the threshold. Larger growth rates were also observed for those that moved into the non-TES sector compared to those that stayed in the TES sector, which supports the result above that those that moved to the non-TES sector were better off.

Table 4.8: Probability of wages increasing between 2015 and 2016 (TES to non-TES)

	1:No covs, p=1, h=MSE	2:No covs, p=2, h=MSE	3:Covs, p=1, h=MSE	4:Covs, p=2, h=MSE	5:DH: 1%, p=1, h= col 3	6:DH: 3%, p=1, h= col3
RD_Estimate	-0.111**	-0.130**	-0.117**	-0.140**	-0.118**	-0.091
	(0.052)	(0.057)	(0.053)	(0.058)	(0.060)	(0.075)
N	62372	62372	62130	62130	62082	61965
Effective N (left)	1252.0	3230.0	1123.0	3018.0	1098.0	1033.0
Effective N (right)	579.0	871.0	550.0	838.0	527.0	475.0
Order of polynomial	1.0	2.0	1.0	2.0	1.0	1.0
Bandwidth (h)	48578.1	87027.9	45584.3	84203.8	45584.3	45584.3
Covariates	48029.1	69564.5	57360.5	73556.5	57360.5	57360.5

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Notes:** Standard errors in parentheses. All regressions are calculated using the Calonico, Cattaneo, and Titiunik (2018) rdrobust routine for Stata. Specifications 1 and 2 are run without covariates (covs) while the rest are run with covariates including age, gender, job duration and firm size in 2015. In models 1-4, bandwidths are selected using the mean square error (MSE) estimator for the RD treatment effect. Models 5 and 6 apply the same bandwidth as specification 3 which is the preferred specification. All specifications use a triangular kernel. *** p<0.01 ** p<0.05 * p<0.10.

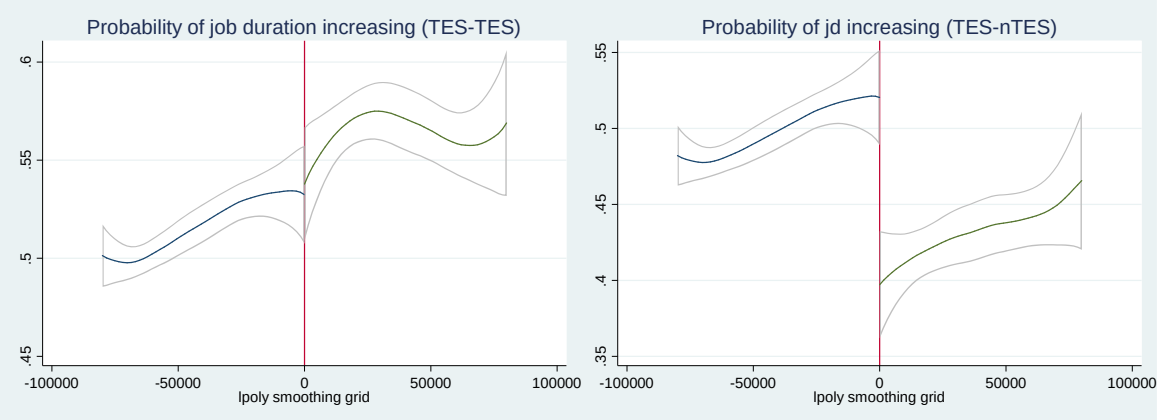
4.7.3 The impact of the amendments on job duration

The next set of estimations considers the short-term impact of the LRAA on job duration since the objective of the legislation was to do away with rolling short-term contracts. The same set of specifications as above are estimated but the dependent variable is a binary variable which equals 1 if the individual experienced an increase in contract duration between 2015 and 2016 and 0 if the contract duration declined or stayed the same after the amendments[91]. As above, the results are differentiated for those that remain in the TES sector and those that move to the non-TES sector. Figure 4.6 suggests different effects for those that were retained in TES (Panel A) and those that moved to non-TES (Panel B). This is further explored in the regression analysis in Tables 4.9 and 4.10.

[91] As for wages, job duration growth between 2015 and 2016 was used as an alternative dependent variable to the binary variable used here. There were no substantive differences to the main results, and therefore they are not shown here.

Figure 4.6: Polynomial plot depicting the probability of job duration increasing 2015-2016

Panel A **Panel B**



Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Notes:** The graphs above are kernel-weighted local polynomial smoothing plots. The threshold is marked by the red line. The x axis presents the normalised forcing variable in ZAR. The y axis provides the probability of wages increasing. All figures use a bandwidth of R80 000 on either side of the threshold.

Table 4.9: Probability of job duration increasing between 2015 and 2016 (TES to TES)

	1:No covs, p=1, h=MSE	**2:No covs, p=2, h=MSE**	**3:Covs, p=1, h=MSE**	**4:Covs, p=2, h=MSE**	**5:DH: 1%, p=1, h= col 3**	**6:DH: 3%, p=1, h= col3**
RD_Estimate	0.012	0.001	0.034*	0.089**	0.023	0.054**
	(0.029)	(0.033)	(0.020)	(0.041)	(0.015)	(0.025)
N	176499	176499	175669	175669	175337	174750
Effective N (left)	3444.0	6847.0	10411.0	4605.0	10021	9925.0
Effective N (right)	2349.0	3248.0	3792.0	1904.0	3549	3359.0
Order of polynomial	1.0	2.0	1.0	2.0	1.0	1.0
Bandwidth (h)	38574.8	61530.9	78497.1	68855.6	78497.1	78497.1
Covariates	No	No	Yes	Yes	Yes	Yes

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Notes:** Standard errors in parentheses. All regressions are calculated using the Calonico, Cattaneo, and Titiunik (2018) rdrobust routine for Stata. Specifications 1 and 2 are run without covariates (covs) while the rest are run with covariates including age, gender, job duration and firm size in 2015. In models 1-4, bandwidths are selected using the mean square error (MSE) estimator for the RD treatment effect. Models 5 and 6 apply the same bandwidth as specification 3 which is the preferred specification. All specifications use a triangular kernel. *** p<0.01 ** p<0.05 * p<0.10.

For those that were retained in the TES sector, the descriptive statistics (Table 4.2 and Figure 4.6, Panel A) indicate that the probability that job duration increased between 2015 and 2016 was marginally higher for those above the threshold relative to those below the threshold. The positive RD estimates in Table 4.9 are consistent with the descriptive statistics. When covariates are

included (columns 3 and 4), the RD estimates are significant and suggest that for those retained in TES, the probability that job duration increased between 2015 and 2016 was 3.4 to 8.9 percent higher for those above relative to those below the threshold. The donut-hole tests are largely consistent with the baseline results, which indicate that even when those close to the threshold are removed, the result holds.

For those that moved into the non-TES sector (Table 4.10), the negative and significant coefficients on the RD estimates across specifications mean that the probability job duration increased between 2015 and 2016 was 13 to 16 percent lower for those above relative to those below the threshold. This is consistent with the descriptive results as well as Figure 4.6 (Panel B). In other words, the treated group do better than the non-treated group in terms of job duration only if they moved into the non-TES sector.

Table 4.10: Probability of job duration increasing between 2015 and 2016 (TES to non-TES)

	1:No covs, p=1, h=MSE	**2:No covs, p=2, h=MSE**	**3:Covs, p=1, h=MSE**	**4:Covs, p=2, h=MSE**	**5:DH: 1%, p=1, h= col 3**	**6:DH: 3%, p=1, h= col3**
RD_Estimate	-0.130***	-0.147**	-0.132**	-0.155***	-0.165***	-0.152**
	(0.045)	(0.058)	(0.052)	(0.059)	(0.056)	(0.064)
N	61649	61649	61463	61463	61415	61302
Effective N (left)	2326.0	3997.0	1454.0	3754.0	1429.0	1367.0
Effective N (right)	771.0	945	617.0	904.0	594.0	543.0
Order of polynomial	1.0	2.0	1.0	2.0	1.0	1.0
Bandwidth (h)	73284.6	97047.86	55408.6	94669.3	55408.6	55408.6
Covariates	No	No	Yes	Yes	Yes	Yes

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Notes:** Standard errors in parentheses. All regressions are calculated using the Calonico, Cattaneo, and Titiunik (2018) rdrobust routine for Stata. Specifications 1 and 2 are run without covariates (covs) while the rest are run with covariates including age, gender, job duration and firm size in 2015. In models 1-4, bandwidths are selected using the mean square error (MSE) estimator for the RD treatment effect. Models 5 and 6 apply the same bandwidth as specification 3 which is the preferred specification. All specifications use a triangular kernel. *** p<0.01 ** p<0.05 * p<0.10.

Overall, the results suggest that of the 2015 TES workers that remained employed in 2016 (70% of the full sample), only the treated group (those below the threshold) that moved into the non-TES sector were better off. They had a higher probability of both earnings and job duration increasing relative to those untreated or above the threshold. The results also suggest that those just around the threshold are not driving the outcomes observed.

4.7.4 Further examination: Did employers pre-empt the legislation?

Informal interviews with labour brokers conducted in June 2014[92] suggested that they saw the impact of the legislation in 2014 already, with a number of client firms no longer using their services. In order to examine whether employers pre-empted the amendments and acted prior to the implementation of the LRAA on 1st April 2015, an additional exercise was undertaken in which the RDD analysis was run one year prior, for the 2014 (1st March 2013 to end Feb 2014) and 2015 (1st March 2014 to end Feb 2015) tax years. A sample of 310 953 individuals whose last contract in the 2014 tax year was in the TES sector was used. The dependent variables are analogous to those above: the labour market status of the individual in the 2015 tax year, the probability of earnings increasing between the 2014 and 2015 tax years, and the probability of job duration increasing between the 2014 and 2015 tax years. All the estimations, presented in Table 4.11, were run using the preferred specification, which includes covariates and a polynomial of order 1.

Similar to the labour market transitions for 2015/16, these results are insignificant and the coefficients are small, so no strong conclusions can be drawn about labour market transitions in the years prior to the amendments.

The results in Table 4.12 present the probability of wages and job duration increasing for those that were retained in TES and those that moved to non-TES between 2014 and 2015. The probability of wages increasing is consistent with those for 2015/16 in that those below the threshold are more likely to see an increase in earnings relative to those above the threshold. However, now the only significant result is for those that are retained in the TES sector (rather than for those that move to the non-TES sector as was the case with the 2015/16 sample) (Table 4.11, Column 1). No conclusion can be drawn from the results on job duration (columns 2 and 4, respectively) as neither of the coefficients is significant.

Table 4.11: Labour market status in 2015

	1: TES relative to non-TES	**2: TES relative to out of data**	**3: Out of data relative to non-TES**
RD_Estimate	-0.008	-0.006	-0.045

[92] Informal interviews were undertaken as part of Ms Cassim's research for the paper by Bhorat, Cassim, and Yu (2016) and were conducted with three TES firms in Gauteng.

	(0.015)	(0.017)	(0.038)
N	215724	273163	129613
Effective N (left)	6387.0	4687.0	2708.0
Effective N (right)	3394.0	2860.0	1131.0
Order of polynomial	1.0	1.0	1.0
Bandwidth (h)	55779.1	43749.1	77758.8
Covariates	Yes	Yes	Yes

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Notes:** Standard errors in parentheses. All regressions are calculated using the Calonico, Cattaneo, and Titiunik (2018) rdrobust routine for Stata. Specifications are run with covariates (age, gender, job duration and firm size in 2014), a polynomial of order 1 and using a triangular kernel. A sample of 310 953 individuals whose last contract in 2014 was in the TES sector is used. *** p<0.01 ** p<0.05 * p<0.10.

Table 4.12: The probability of wages and job duration increasing between 2014 and 2015

	TES- TES		**TES- Non-TES**	
	1: Wage	**2: Job duration**	**3: Wage**	**4: Job duration**
RD_Estimate	-0.045*	-0.015	-0.072	-0.019
	(0.024)	(0.025)	(0.059)	(0.055)
N	174440	130352	41284	38938
Effective N (left)	6161.0	5072.0	830.0	1241.0
Effective N (right)	3074.0	2250.0	467.0	571.0
Order of polynomial	1.0	1.0	1.0	1.0
Bandwidth (h)	59081.5	68426.0	58115.4	77723.0
Covariates	Yes	Yes	Yes	Yes

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Notes:** Standard errors in parentheses. All regressions are calculated using the Calonico, Cattaneo, and Titiunik (2018) rdrobust routine for Stata. Specifications are run with covariates (age, gender, job duration and firm size in 2014), a polynomial of order 1 and using a triangular kernel. A sample of 310 953 individuals whose last contract in 2014 was in the TES sector is used. *** p<0.01 ** p<0.05 * p<0.10.

While these results might suggest higher levels of retention in TES for workers below the threshold in 2014/15 relative to 2015/16, because the coefficients are insignificant, it is not possible to conclude that employers acted differently prior to the amendments. The finding on wages could suggest that even prior to the amendments, those below the threshold that moved into the non-TES sector had a higher probability of wages (as coefficients are larger compared to those that were retained in the TES sector). While employers may have pre-empted the legislation and acted prior to April 2015, there is no evidence in our data to suggest so.

4.8 Conclusion

The legislative amendments in 2015 were a first attempt to regulate and protect atypical work arrangements in South Africa. Specifically, for TES workers, the intention of the amendments was to create less precarious employment by making the conditions around employing temporary workers less flexible. Short-term contracts could not be renewed on a continuous basis, and temporary employees had to be treated similarly to the permanent employees of the client firm. This study is the first to try and isolate, using econometric methods, the impact of the EPL on those workers who were employed in the TES sector as the amendments came into effect. A regression discontinuity was used as the legislative reforms applied to those earning below the threshold of R205 433.

In terms of labour market outcomes, the direction of the coefficients suggests treated TES workers (namely those below the threshold) were more likely than the non-treated TES workers to move to the non-TES sector or out of the data than be retained in the TES sector just after the amendments were implemented. However, of the two outcomes, treated TES workers were more likely to move out of the data than into the non-TES sector. This suggests the disemployment effect was larger than the intended effect of the legislation, which was ideally to transfer workers to the non-TES sector or the client firm. However, because the coefficients are not significant in any of the specifications, the most that can be said is that any changes were likely very small, at least in the short-term. Notably, a disemployment effect was found in other research using survey data however, the limitations of using this type of data to analyse the TES sector has been discussed in detail in Chapter 2 (Bhorat, Magadla & Steenkamp, 2015; Bhorat & Lilenstein, 2016).

The analysis then went further to explore the job characteristics of those that remained employed after the amendments were implemented (70 percent of the original sample). The results differed depending on whether the workers were retained in the TES sector or moved to the non-TES sector. Among those that moved to the non-TES sector (20 percent of the full sample of TES workers in 2015), the treated group seemed to be better off, with the probability of wages and job contract duration increasing being significantly larger than for the non-treated group. While the number of workers being absorbed by the non-TES sector was in line with the intention of the amendments, it may mean that working conditions improved for those who did move into the non-TES sector at the expense of the larger proportion of workers that moved out of the formal sector altogether in the 2016 tax year. It should be noted, however, that the data do not allow us to tell whether those that moved into the non-TES sector were absorbed by client firms directly

or moved into other firms in the non-TES sector. This means the results could also be picking up that the non-TES sector has better-paying jobs than the TES sector as found in Chapter 3. This suggests that, for some, TES firms may be a stepping-stone into better employment and perhaps TES employment serves as a screening tool for employers in the client/non-TES sector, as has been found internationally (Booth, Francesconi, & Frank, 2002; de Graaf-Zijl, Van den Berg, & Heyma, 2011; Ichino, Mealli, and Nannicini, 2008).

Overall, the results suggest, that when controlling for other factors, the amendments had a very limited impact on worker transitions, but that there were improved conditions for the relatively small group that did move out of the TES sector into the non-TES sector. The limited impact in terms of labour market status in the 2016 tax year could be because employers pre-empted the legislation and made hiring and firing decisions in the 2015 tax year, although no evidence of this could be found in the data on transitions between the 2014 and 2015 tax years. Alternatively, it could be that employers did not comply with the legislation when it was first meant to be enforced, in the 2016 tax year, and changes to employment (if any) only happened later. Compliance with labour legislation in South Africa has typically been low, specifically in terms of minimum wages and sectoral determinations (Bhorat et al. 2020). They may have only complied in 2018 after the *Assign Services* Constitutional Court judgment clarified the role of the client firm in terms of the amendments. Unfortunately, these longer-term effects cannot be analysed with the SARS-NT data currently available (as the TES firm identifier is only available up until the 2016 tax year). This is an important avenue of research to pursue in the future as more data become available.

An additional area of further consideration from a policy perspective would be to examine how to ensure compliance with employment protection legislation given the economic constraints facing South African firms. This is particularly pressing since TES and other atypical workers have been left with limited legislative protection for a number of years.

4.9 Chapter Appendix

Table 4A.1: Balancing covariates

	Age	**Female**	**Job duration (baseline 2015)**	**Firm size (baseline 2015)**
RD_Estimate	0.221	-0.061***	1.306	-245.049
	(0.403)	(0.022)	(4.784)	(359.588)
N	338895	338962	338962	338962
Effective N (left)	10118.0	5540.0	6969.0	6388.0
Effective N (right)	4533.0	3446.0	3630.0	3708.0
Order of polynomial (p)	1.0	1.0	1.0	1.0
Bandwidth (h)	60027.5	40247.0	51843.6	44645.0
Covariates	Yes	Yes	Yes	Yes

Source: Author's estimates based on Employment Panel (National Treasury and UNU-WIDER 2019a). **Notes:** Standard errors in parentheses. All regressions are calculated using the Calonico, Cattaneo, and Titiunik (2018) rdrobust routine for Stata. Bandwidths are selected using the mean square error (MSE) estimator for the RD treatment effect. All specifications use a triangular kernel. *** p<0.01 ** p<0.05 * p<0.10.

Chapter 5

Concluding Discussion

This thesis examined the temporary employment services sector in South Africa, otherwise known as the labour broker sector. Temporary and atypical employment has been on the rise globally as well as in South Africa over the last few decades, and has been the subject of much research and discussion. However, the debate around TES employment specifically has been particularly heated given the specific nature of this sector. A defining feature of the TES sector is the triangular relationship between the client, the TES employee and the TES firm. This relationship has been highly contested in South Africa as it was perceived to perpetuate labour market segmentation and high levels of economic inequality, among South Africa's overarching challenges.

However, little was known about the size of the sector or the pervasiveness of workplace discrimination across the sector, partly due to a dearth of data available. Prior to this thesis, the empirical work on the TES sector was largely qualitative, based on small sample surveys or case study work, while quantitative studies used data that did not accurately represent the TES sector. For example, labour force survey data subsumed TES workers into an industrial classification that included many other types of workers, making it difficult to isolate TES workers into a category of their own. This meant that estimating the size of the sector or identifying which workers worked in the TES sector, was particularly challenging.

The release of the SARS-NT tax data in 2015 provided the first opportunity to explore various features of the TES sector. The reason for this is that that the data includes a binary indicator identifying TES firms, based on the IRP30A form that TES firms registered for tax are obliged to complete. This form absolves the client firms from having to deduct tax from any payments made to a TES firm, as the TES firm is responsible for paying tax on behalf of their employees. This requirement by the tax legislation means that one can identify the TES sector (and therefore the workers employed in the sector) with much more accuracy than any other data source available. Of course the tax data is not without its own limitations (and describing these was a recurring theme throughout the thesis). But, despite its complexity and various limitations, the tax data is still the most reliable source of information on the formal TES sector to date, and it has opened up a number of opportunities to better understand the sector.

This thesis examined three distinct areas related to the TES sector. The second chapter presented a profile of the TES sector, drawing on a variety of sources as well as the newly released administrative tax data. The aim was to synthesise and critically analyse the information available on the sector and draw attention to the research gaps. The third chapter measured the size of the gross wage penalty for TES workers (relative to non-TES workers), and examined how the administrative data can be used to unpack the drivers of this penalty, such as differences in worker characteristics between the TES and non-TES sectors; differences in the nature of the job itself; and differences in the conditions under which workers accepted a job in the TES sector. The chapter also considered whether wages were structured differently by comparing TES and non-TES workers' contributions to certain benefits such as pensions and medical aid. The fourth chapter estimated the short-term impact of the amendments to the LRA in 2015 on employment status, earnings and job duration between 2015 and 2016.

The discussion that follows summarises the key findings and contributions of each of the chapters, presents potential avenues for further research on the TES sector, and considers the broader implications of the findings for labour market policy in South Africa.

5.1 Chapter 2: A profile of the TES sector in South Africa

The objective of Chapter 2 was to present a profile of the TES sector, both in terms of its history as well its current form. The historical account covered the Apartheid period and the post-Apartheid period drawing on case study work, work by legal scholars, and various pre-existing studies and surveys. This was the first attempt to synthesise and critically analyse this full body of work. The foundational literature showed that historically, the TES sector was used by firms to circumvent certain aspects of labour law resulting in workers facing poorer working conditions relative to non-TES workers. This was because until 2015, the legislative framework did not recognise the client firms as the statutory employer and therefore TES workers had little recourse against the client firm in terms of workplace discrimination. The legislative amendments implemented in 2015 (LRAA) were introduced as a result of consistent calls from unions as well as strike action undertaken by TES workers themselves, including in public agencies such as SAPO. An analysis of the pre-existing surveys and studies (i.e. prior to the release of the tax data) showed the limitations of the the data available and methodologies used to analyse the TES sector. The data available were often based on small samples of firms with low response rates (and unclear weighting strategies), the sampling of TES firms specifically (as opposed to other recruitment agencies) was not robust, and the definition of what constitutes a TES worker was problematic. This meant it was difficult to make broad generalisations about the TES sector and to conduct

robust empirical analysis. It was also difficult to track the number of firms and employees in the sector over time as the samples of data available and the methodologies used produced divergent estimates. Despite the inconsistent methods and incomplete samples used to study the sector, what was available on worker characteristics suggested that TES workers were in a more precarious position than non-TES workers.

The second part of the chapter presented a descriptive analysis of the size and characteristics of the TES sector using the more reliable tax data for the 2011 to 2016 tax years. It also provided a detailed description of the structure of the Employment/IRP5 Panel as well as the CIT-IRP5 Panel which can be used to examine TES firms and their workers in the formal sector. Given the complexity of the tax data, this description will be useful for other researchers who may want to use the tax data for applied research. The IRP5 data indicated that the TES sector contributed around 400 000 jobs or 5 percent of formal sector employment in South Africa between 2011 and 2016, which is not insignificant considering the country's high level of unemployment. In a descriptive examination of the data, the tax data showed that TES workers were younger, more likely to be male, employed on shorter contracts, had lower rates of retention and earned substantially less than their non-TES counterparts.

The analysis in this chapter also paved the way for the next two chapters. The finding that jobs in the sector were more precarious than in the non-TES sector, and particularly that TES workers earned much less than non-TES workers, warranted further investigation using more robust techniques – the subject of Chapter 3. The analysis of the data over time also suggested that there were some changes in the size of the sector in the final tax year analysed (i.e. March 2015 to February 2016). This might have been due to the amendments to the LRA that aimed to provide additional legislative protection to TES workers - the focus of Chapter 4.

5.2 Chapter 3: Identifying the wage penalty in the labour broker sector

This chapter explored one of the most contested aspects of the precarity of TES employment, the extent of the wage and benefits penalty among TES workers relative to non-TES workers (pre-legislative amendments). First, the chapter aimed to examine the size of the gross wage penalty for TES workers (relative to non-TES workers) and to explore how the administrative data could be used to unpack the drivers of this penalty. Second, the chapter examined whether the gross wages of TES and non-TES workers were structured differently in terms of contributions to benefits.

This unique exercise was possible as IRP5 forms disaggregate wages into sources of income, taxable benefits, allowances and deductions reserved for medical aid and pension schemes.

In the first part of the chapter, a substantial gross wage penalty of 88 percent was found. However, controlling for differences in experience and accounting for time-invariant worker characteristics (using individual fixed effects) resulted in the penalty declining to 47 percent. The penalty fell further, to 34 percent, when the job and firm characteristics available in the dataset were included. This suggests, as we might expect, that TES workers are different to non-TES workers, as is the nature of the jobs they do, and that this accounts for over half of the gross wage differential. Furthermore, additional analysis suggested that a part of the penalty is likely related to the circumstances that led to the worker taking up the TES job rather than the TES job itself. In the South African context of volatile labour markets, a high unemployment rate and a small informal sector, displaced workers or those with fewer entry points into the labour market would have little option but to take on a lower-paying TES job as a last resort.

The second part of the chapter, which analysed differences in benefits, showed that the gross wage of TES workers was structured differently to non-TES workers. Only a third of TES workers reported benefits compared to just over half of non-TES workers. Of those that contributed to benefits, TES worker contributions were a fraction of what non-TES workers contributed (roughly 33 percent at the mean), resulting in a large TES benefits penalty. Interestingly, despite the substantial benefits differential between TES and non-TES workers, only a very small part of the TES gross wage penalty could be attributed to differences in the benefit contributions. This was because the percentage of workers contributing, and the size of the contributions relative to the gross wage, were too small to markedly affect the overall wage differential. Estimating the TES wage penalty using earnings net of benefits still produced a TES penalty of between 28 and 30 percent. Further, low levels of retirement and medical aid contributions mean that the broader well-being of TES workers is more at risk, particularly in the long term, where workers would be left without a private safety net and would need to rely on state support.

There were, however, limitations identifying the wage penalty using data of this kind. First, the South African tax data do not contain information on hours worked which means it was not possible to measure how much of the wage differential was due to TES workers potentially working fewer hours per day in their contracts compared to non-TES workers. Second, because the occupation of the worker is also not available in the data, it is not entirely clear if workers

doing similar work are being compared. Although it does not solve this problem altogether, the wage penalty was also estimated for narrower samples of workers in the same industry, by age group and by gender, among whom we might expect less heterogeneity. A significant wage penalty for TES workers was found across almost all sample combinations (except for a few in the construction and agricultural sectors which had relatively small sample sizes). Nonetheless, without additional information on job characteristics, in particular relating to skill level or occupation, the wage penalty identified in the tax data would need to be considered an upper bound. While the penalty found for South Africa of around 30 percent is higher than estimates found for developed countries where such studies have been conducted (ranging from 6 to 23 percent after controlling for various factors), these studies are not directly comparable given the differences in data, methods and, most importantly, labour market context. One might expect the penalty in South Africa to be higher in the context of mass unemployment and weak legislative protection for TES workers prior to 2015. Furthermore, given the size of the TES penalty identified for South Africa, it would be unlikely that accounting for these additional factors would eliminate the penalty entirely, suggesting that TES workers earn considerably less than non-TES workers. Together with the finding that they are also less likely to report benefits than non-TES workers, this gives some weight to perceptions that the TES sector offers 'less desirable' employment and working conditions. This suggests that the LRAA was a necessary first step towards levelling the conditions of work for TES and non-TES workers after decades of unequal treatment.

5.3 Chapter 4: The impact of employment protection on the temporary employment services sector

Owing to the data limitations that existed prior to the release of the SARS-NT data, the impact of the amendments to the LRAA have not been examined in a robust empirical context. The studies that do exist were largely qualitative and focused on particular sectors. In light of this, Chapter 4 made a novel contribution to the South African literature by examining an important policy change regarding the legislative framework governing the TES sector, a sector which prior to 2015 had been unprotected in terms of South Africa's labour law.

The chapter examined the short-term impact of the LRAA on the employment, earnings and job duration of the group of workers who were employed in the TES sector prior to the implementation of the new legislation in April 2015. The South African case is a unique one in that stricter legislation was imposed on temporary work, as opposed to permanent work, which has been the more common approach in other countries. Additionally, stricter employment

protection legislation for temporary work was imposed in an environment of extremely high levels of unemployment and poor prospects for economic growth. It was therefore important to examine whether the legislation made workers better off, or had unintended negative consequences for employment and job conditions.

A regression discontinuity design was used as the legislation applied to workers earning below the BCEA threshold which meant the outcomes for the "treated" group (those below the threshold) could be compared to those above the threshold who were unaffected by the amendments. Three outcomes were measured, namely the employment status of workers post-amendments, and for those who remained employed, the probability of wages increasing and the probability of job duration increasing between the 2015 and 2016 tax years. The descriptive results from the analysis suggested that treated TES workers (namely those below the threshold) were more likely than the non-treated TES workers to move to the non-TES sector or out of the data than be retained in the TES sector just after the amendments were implemented. However, of the two outcomes, treated TES workers were more likely to move out of the data than into the non-TES sector. This suggests that the disemployment effect was larger than the intended effect of the legislation, which was to transfer workers to the non-TES sector or the client firm. However, given that the coefficients from the regression analysis were not significant in any of the specifications related to labour market transitions, the most that can be said is that the changes were very small in the short term.

Where the legislation seemed to have been somewhat effective in the short term was in terms of the job conditions for those that moved from the TES sector to the non-TES sector following the amendments. Those in the treated group that moved from the TES to the non-TES sector seemed to be better off, with the probability of wages and job contract duration increasing being significantly larger than those in the non-treated group. While workers being absorbed into the better-paying, more stable non-TES sector is in line with the intention of the amendments, a broader view of the full set of results could imply that working conditions improved for those who moved into the non-TES sector at the expense of the larger proportion of workers that moved out of formal employment altogether in the 2016 tax year. Although, again, it must be stressed that all the labour market transition effects found were small and not significant in the regression analysis.

It is possible that the limited impact of the amendments on the labour market status of TES workers in the 2016 tax year was because firms pre-empted the legislation, which had already been announced in 2012. However, re-estimating the analysis using the data from a year earlier found that employers did not act differently prior to the amendments being implemented. Alternatively, the limited impact in terms of labour market status could be because employers only started complying with the legislation much later, perhaps in 2018 after the *Assign Services* Constitutional Court judgment clarified the role of the client firm in terms of the amendments. Case study evidence discussed in Chapter 2 (the case of workers in Sedibeng (Webster & Englert, 2020)) indicated that some employers did not comply immediately with the LRAA which in certain cases led to TES workers taking legal action against the client firm. In these examples it was also clear that the TES sector was largely unorganised and had little bargaining power so taking legal action was no easy feat and outcomes were often only partially successful in that not all workers were retained on better terms. While the amendments were necessary, they were by no means sufficient and additional measures were required to support marginal workers to achieve workplace equality. Unfortunately, because the data on the TES sector is only available up until the 2016 tax year, this longer-term analysis was not possible in this thesis.

5.4 Avenues of further research

There are still many aspects of the TES sector where further research would prove valuable. As described above, the tax data include the TES identifier only up until the 2016 tax year. As later years of the TES data become available, an interesting area of research using the SARS-NT data would be to look at the longer-term impact of the LRAA on TES workers and TES industry performance, particularly after landmark judgments such as *Assign Services* were handed down, which helped clarify the role of the client firm. Furthermore, as more years of data become available, an analysis of the TES wage penalty post-amendments would be fruitful, as it would provide some insight into whether the very large penalty identified in this thesis in the pre-amendment period was ameliorated in the changed legislative environment.

However, a fuller analysis of some of the intricacies of the TES sector will require going beyond the tax data. Currently there is no data available on the triangular employment relationship between the client, the firm and the TES worker. Data matching each of these three parties would allow for many more avenues of additional research. For instance, it would be possible to examine the contribution of TES workers in the various client sectors of the economy, and whether the working conditions of TES relative to non-TES workers differ within client firms. Further, it

would be insightful to understand the cost-benefit equation for client firms when deciding whether to use TES workers versus employ workers directly, and whether client firms that used TES workers moved towards labour-saving interventions or technologies in light of the LRAA. While these innovations can be important for productivity, displacement of workers may have a detrimental impact on the labour market in the short term. A second area where data is not available is on the informal TES sector. An analysis of workers in the informal TES sector would be useful to fully understand the extent of precarity in the sector, as it is possible that the most exploitative practices occur in that part of the sector that is unregistered. The latter would, however, require primary data collection.

In the absence of new primary data collection, consideration should also be given to whether IRP5 forms could be altered to provide greater insight into areas that are important for policy, for example by specifying the client firm a TES worker was placed at. While the intention of revenue-collection agencies and tax forms is not to provide data for research, administrative tax data has the potential to provide novel insights and build evidence that could inform the decisions made by policy-makers. The SARS-NT data has already provided pertinent insights into labour market interventions, tax policy and industrial policy, making it a powerful tool for the academic and policy community, and this feature should be capitalised on wherever practical.

5.5 Conclusion

A recurring theme across the chapters of thesis has been the precarity of work in the TES sector, a topic that was fiercely debated in the lead up to the legislative amendments. Certainly, the evidence provided in this thesis is that TES workers earn considerably less than non-TES workers, they are less likely to receive benefits, and also more likely to work in shorter job contracts. The fact that it took almost two decades after the country's transition to democracy to amend the legislation to protect atypical workers is an indictment of how little attention these workers garnered despite the important role they play in enabling flexibility for firms. With the expansion of the gig economy, and as firms recover from the Covid-19 pandemic, it is going to become increasingly important for there to be oversight of the way in which atypical workers are being treated as they are likely to play an important role as economies are rebuilt.

However, it is also important to remain cognisant of the very high unemployment and low growth context that South Africa faces. While after the legislative amendments were implemented the working conditions of those TES workers who moved into the non-TES sector improved, the

descriptive data suggest a greater proportion of TES workers moved out of employment altogether. Complementary policies and interventions should be initiated to mitigate the potential negative outcomes of employment protection legislation. In the case of the LRAA, national labour centres should have been capacitated to work towards facilitating a "stepping-stone" for TES workers into other jobs, capitalising on the TES work experience. Where there was resistance to implementing the LRAA, effective mechanisms should have been developed to monitor and support compliance and where necessary, facilitate mediation between the client and TES worker. Overall, it is important that employers and policy-makers play an active role against the marginalisation of workers, particularly those on the periphery of the labour market.

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