Temporary Employment Services in South Africa:

A Wage and Employment Empirical Update July 2019

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I. Introduction

Research on the Temporary Employment Services (TES) sector in South Africa suggests that it is an important and growing source of employment, especially for vulnerable individuals (Bhorat, Cassim, & Yu, 2014). Given that South Africa has an extraordinarily high unemployment rate – 27 percent in 2018, which is virtually unchanged from 30 percent two decades ago (World Bank, 2019) – identifying and quantifying fast-growing sectors of the economy can help to ensure that the employment and growth potential of these industries are harnessed.

Research from 2014 (Bhorat, et al., 2014) has shown that the TES sector annual average employment growth rate was 8.7 percent over the previous two decades. Crucially, this rate of employment expansion exceeded the national job creation rate over this period, as well as the employment growth rate of every main sector of the economy. The same research estimates the economic value-add of the sector at 9 percent of South Africa's GDP. This highlights the importance of the TES sector both for job creation and as a contributor to growth and economic value-add in the domestic economy.

Clearly, the TES sector is an important source of economic growth in an economy so desperately in need of employment. However, there has simultaneously been a growing debate around decent work and labour regulation, with arguments that the TES sector may provide a way for employers to obviate existing labour laws. Since South Africa has a history of oppression and exploitation of labour, the necessity of providing decent labour conditions is understandably paramount in the minds of both the public and policy makers.

As a part consequence of the above, an amendment to the Labour Regulations Act (LRA) was passed in 2015 with the aim of regulating the TES sector through limiting the legal duration and scope of temporary employment. It is necessary, therefore, to assess whether the TES sector continues to be a growing source of employment, both for vulnerable workers and in general, in the years since the LRA amendment. Although we do not directly assess the impact of the LRA amendment in this paper, the work provided here will give an indication of whether the LRA is likely to have had a large impact on the TES sector or not. Hence, the paper has two joint aims: The first is to provide a current update on the TES sector, and the second is to assess whether changes seen in employment could be reflective of the amendment.

2. Background

As mentioned, previous research indicates that the TES sector is a substantial contributor both to employment as well as to GDP (Bhorat et al., 2014). In addition, the authors suggest that vulnerable workers find employment in the TES sector, namely youth and individuals who reside in households that are close to national poverty lines¹.

The literature also shows that the TES sector is not a homogenous employer (Bhorat, Cassim, & Magadla, 2015). Firms vary substantially in size, wages, and the level of non-wage benefits that employees receive. Critically, Bhorat, et al. (2015) found that dividing TES employment

¹ The authors used the three poverty lines proposed by Woolard & Leibbrandt (2006).

into three compliance categories resulted in a more nuanced and accurate analysis of the sector. The authors examined three indicators of compliance: Employers contribution to the Unemployment Insurance Fund (UIF) on behalf of the employee, whether employees are able to take sick leave, and the provision of paid annual leave. The authors then defined fully compliant (FC) employment as workers receiving all three benefits, partially compliant (PC) employment as those receiving one or two of the above, and non-compliant (NC) employment as those receiving none of the three benefits.

Bhorat et al. (2015) analysed wages in the TES sector after controlling for the employment heterogeneity described above. Contrary to the popular belief that TES workers are universally less well remunerated than workers in the non-TES sector, the authors found that TES workers in FC employment receive comparable wages to non-TES workers. The conditional estimates suggest that wages for TES workers in FC employment were lower by 9 percent than for non-TES employees. On average, TES workers did earn less than workers in the non-TES sector, but this was driven by PC and NC wages, and NC wages in particular. TES workers in PC employment earned 15 percent less than non-TES workers and TES workers in NC employment earned 46 percent less than non-TES workers. Hence, the authors showed that legal compliance is an important source of heterogeneity in the TES sector, which can be obscured when looking only at average results.

Despite this heterogeneity in the TES sector, the recent changes to the Labour Relations Amendment Act (s198) applies to all TES employees earning below a threshold of R205 433.30 per annum, and attempts to regulate the industry in a bid to ostensibly achieve fair compensation and job security for all of these temporary workers. The amendment stipulates that a temporary employee employed for more than three months is entitled to the same wage and non-wage benefits as a permanent employee, unless there exists justifiable reason for acting otherwise². The amendment officially came into effect on 1 January 2015 and employers were given three months to comply with the law.

Early analyses of the effect of the LRA indicated large losses in a number of sectors (Bhorat, Magadla, & Steenkamp, 2015). This research used firm-response data and quantified job shedding in the post-law period. However, since this work had no identifiable control group to compare results to, it is possible that the job shedding seen emanated from factors not related to the regulatory amendment. In an attempt to quantify job losses econometrically, research from 2018 attempted to isolate the impact of the legal amendment (Bhorat, Stanwix, & Lilenstein, 2018). This research did not find a significant negative impact on employment as a result of the LRA. However, this study suffered from sample size and estimation concerns.

This paper is less ambitious in that its central aim is to provide an empirically updated assessment of the TES sector, within the context of the recent regulatory amendment³. We do not attempt to isolate the effect of the LRA amendment but rather, we provide a current overview of the TES sector in terms of size, growth, demographic changes, and wages. We do this while keeping the LRA in mind, and highlighting its possible effects from the trends seen, without making conclusive statements.

² For more on the specifics of this amendment visit http://www.labournet.com/hr-news-articles-south-africa/246-newsflash-labour-relations-act-amendments

³ Early qualitative evidence on the firm responses to the amendment is provided in SBP (2017).

This research paper tackles two broad areas related to understanding the current status of the TES sector. Firstly, we assess employment within the sector. Here we quantify the current employment level within the TES sector, as well as analysing the growth rate of employment in TES since 2000. We do this overall as well as by demographic characteristics. In this section we pay special attention to the period around the LRA amendment to observe whether unusual employment changes occurred around the time if the LRA. Next, we examine the receipt of non-wage benefits for TES and non-TES sector workers. In light of the heterogeneity found in the TES sector by Bhorat et al. (2015), we separate our TES sample into compliance categories for the latter analysis.

Secondly, we update the wage gap literature by assessing whether and to what extent remuneration within the TES sector, and between the TES sector and the non-TES sector, has changed since Bhorat et al.'s (2015) research. The aim is to provide an understanding of the changes that have occurred in TES in the post-LRA period. There is no empirical strategy used to ensure changes found are driven by the LRA. Instead, we simply quantify current wage gaps and changes since the 2015 paper. Like Bhorat et al. (2015), we separate TES firms by compliance type to ensure the heterogeneity in the sector is accounted for.

This paper proceeds as follows: Section 3 details the data and methods used. Section 4 offers the first empirical assessment – a descriptive overview of employment in the TES sector between 2000 and 2019, with a focus on the period directly before and after the LRA amendment. Section 5 provides an analysis of wage differentials between the TES and non-TES sector. This section also provides demographic insight, focusing on racial, gender, and age patterns, as well as an assessment of wage differentials within the TES sector itself. Section 6 concludes.

3. Data and Method

The data used for the employment analysis (Section 4) is the South African Labour Force Survey (LFS) from 2000 to 2007, and the Quarterly Labour Force Survey (QLFS) from 2008 to 2019. For the wage analyses (Section 5), the 2017 Labour Market Dynamic Study is utilized (LMDS), which is the annualised release of the QLFS but includes data on wages.

The biannual LFS was replaced in 2008 by the QLFS, which has run every quarter since. The LFS, QLFS, and LMDS survey individuals aged 15-64 on their labour market activities. They are conducted by Statistics South Africa (Stats SA) and use a household-based sample which is constructed according to the latest census. The census serves as the basis for sampling stratification. The QLFS is conducted four times each year using a rotating panel of respondents, while the LFS was conducted twice a year in the same manner. Each of these surveys represents one cross-section on the state of employment in South Africa. The employment analysis employs 39 cross-sections, encompassing the LFS 2000Q1 to the QLFS 2019Q1. All cross-sections are pooled and treated as repeated cross-sections over time. The LMDS for 2017 is used for the wage analysis since 2018 and 2019 data are currently not available.

The labour force surveys capture information about employment in different sectors by asking respondents to select which category they identify with out of a number of possible options. Unfortunately, there is no specific category for "Temporary Employment Services" as an employment sector in either of the two labour market surveys used in this paper. However,

under the category "Financial and Business Services" there is a subsection of "Business Not Elsewhere Classified" (Business N.E.C.) which is defined as follows:

"Labour recruitment and provision of staff; activities of employment agencies and recruiting organisations; hiring out of workers (labour broking activities; 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; "

Bhorat et al., (2014) argue that, despite the detailed list that makes up the Business N.E.C, the dominant activities which make up the list are employment agency, labour brokering, and security services employment activities. The authors also look into which occupation groups make up the Business N.E.C. sector. The three main occupation groups were found to be "Protective Service Workers Not Elsewhere Classified", "Helpers and Cleaners", and "Farmhand and Labourers". All three of these would clearly fall under the TES sector rather than one of the other sectors in the list that makes up the Business N.E.C. category. Hence, while the Business N.E.C. category is not an exact representation of the TES sector (i.e. it likely includes more than just TES workers), it may be a good approximation of the TES sector while including some over-representation. This data cannot be used to differentiate individuals any further, and so the use of this data is the best fit available. However, it must be noted that although this category includes mainly TES workers, not all TES workers would classify themselves under this category. For example, workers employed by a labour broker to work in mining or construction are likely to respond that they work in mining or construction, rather than in the financial and businesses sector. Hence the Business N.E.C. category is also likely to underrepresent the total TES sector.

3.1. Modelling Employment

In the observation of employment given in this paper (Section 4) it is useful to differentiate between two amendment phases. This follows the methodology of Bhorat et al. (2018). Firstly, a 'No Expectations' phase is defined as differentiating 'before' and 'after' periods based on the date that the amendment came into effect (January 2015). Secondly, given that the law was already passed by the National Assembly and submitted to the President in August 2013, employers may have begun to react to the amendment as early as 2013Q3. Therefore, an 'expectations' phase is defined as differentiating pre-amendment and post-amendment periods based on this date (August 2013). The figures below illustrate this concept.

Figure I below displays the 'no expectations' phase, with the before and after periods defined exactly and only by the date that the amendment came into effect. In contrast, the 'expectations' phase in Figure 2 shows that the before and after periods are defined by the date that the amendment was passed by the National Assembly – August 2013.

Figure 1. The No-Expectations Model



Figure 2. The Expectations Model



This differentiation attempts to incorporate the notion that employers had information and thus formed expectations, prior to the formal implementation of the amendment – and hence may have responded earlier than January 2015 in terms of their TES employment practices. We use these two definitions of the date of the LRA to inform Section 4 of this analysis, when we assess the potential impact of the LRA on employment in the TES sector.

3.2. Modelling Wages

This section analyses wages within the formal TES Sector and compares these to wages of the formal non-TES sector. We use data from the 2017 LMDS and compare our results to similar work by Bhorat et al. (2015) who conduct the same analysis on 2013 data. Following this research, we account for heterogeneity in the TES sector by defining compliance categories according to whether an employee receives statutory benefits, where statutory benefits include paid annual leave, paid sick leave, and statutory wage costs such as UIF. The compliance categories are defined as per the below:

- I. Fully compliant (FC) Employee receives UIF, paid sick leave and paid annual leave.
- 2. Partially compliant (PC) Employee receives one or two of the following but not all three: UIF; paid sick leave and paid annual leave.
- 3. Non-compliant (NC) Employee receives no UIF, no paid sick leave and no paid annual leave.

Although this is employee-level data and not firm-level data, we use this categorisation to infer the compliance levels of firms in the TES sector. Following Bhorat et al. (2015), we conduct two econometric analyses. Firstly, we assess the overall wage gap between TES and the formal non-TES sector, and within TES compliance categories. We employ a standard OLS strategy here, whilst also assessing wages along the distribution by employing a quantile regression analysis strategy.

This methodology attempts to control for individual and firm level characteristics to arrive at an estimate of the wage gaps between compliance categories in TES as well as the between these and the non-TES sector. This follows the methodology employed by Bhorat et al. in 2015. We use a standard semi-logarithmic earnings function for understanding and comparing which labour market characteristics result in higher or lower wages. Typically, the earnings function used is the expected log earnings (or wage) of an individual, and is a linear function of that individual's labour market and demographic characteristics.

The earnings function is estimated as a Mincerian function for the following specification:

Log of Monthly Wages_i =
$$\beta_1 + \beta_2 X_i + \beta_3$$
(Fully Compliant) + β_4 (Partially Compliant) + β_6 (Non - Compliant) + Ui (1)

Earnings are reported as a logged variable of the self-reported monthly wage for individuals. Here, the explanatory variables of interest are the three TES compliance categories. The reference category is the formal non-TES sector. The vector Xi consists of observable characteristics that are controlled for, including age, race, gender, location, occupation, education, firm size, and hours of work.⁴ Hence, the regression specification above aims to estimate the conditional wage return to being in the fully compliant, partially compliant or non-compliant TES sector, relative to the formal non-TES sector, when controlling for a range of demographic and other observable characteristics of workers.

A quantile regression approach allows for a more detailed assessment of the returns to individual level earnings at different points along the wage distribution. Again, this follows the methodology used by Bhorat et al. (2015). This approach can be used to determine if the

⁴ This paper doesn't include 'experience' as a control variable, unlike like Bhorat et al. (2015), because LMDS 2017 doesn't have the relevant variable available.

impact of the explanatory variable of interest (in our case here, the sector of employment) is stronger at any particular point of the distribution whilst controlling for other additional individual level factors that influence earnings. While through ordinary least squared estimation, as estimated in the above regression models, we derive a sample mean by minimising the sum of squared residuals - the sample median can be derived through minimising the sum of absolute residuals (Koenker & Hallock, 2001; Koenker & Bassett, 1978). If we take a general statement of this approach across all points, or quantiles, in the distribution, we have the estimation for the regression quantile as minimising the equation:

$$\underset{\beta \in \mathfrak{R}^{k}}{Min} \left[\sum_{i \in \{i: y_{i} \geq X_{i\beta}\}} \theta |Y_{i} - X_{i}\beta| + \sum_{i \in \{i: y_{i} < X_{i\beta}\}} (1 - \theta |Y_{i} - X_{i}\beta|) \right]$$
(2)

This then provides the solution for the 10^{th} , 50^{th} , 75^{th} and 95^{th} quantiles, where $\theta < .10, .5, .75, .95 < 1$, allowing for the estimation at any given point in the distribution of the outcome variable. In the above, Y_i is the dependent variable, X_i is the kx l vector of independent variables and log of monthly wages is the coefficient vector (Koenker & Bassett, 1978).

This analysis allows us to gain insight into whether the average wage results determined under the methodology described in Section 3.2.1 are obscuring differences for low and high wage earners.

4. Employment in the TES sector

This section begins by providing a broad overview of the employment changes that have occurred in the TES and formal non-TES sectors from 2000 through to the first quarter of 2019, with a particular focus on the period around the LRA amendment. Following this, we assess how the demographic characteristics of the labour market have changed over the past 20 years across a range of individual-level and employment indicators.

Table I below provides employment statistics and employment growth rates of the TES and formal non-TES sector over the past two decades. The key headline result here is that the TES sector quadrupled its level of employment from just under 300 000 individuals in 2000 to over 1.2 million individuals in 2019. This drastic increase in employment levels has been coupled with an almost 200 percent increase in the size of the TES sector relative to the formal non-TES sector. The formal non-TES sector then, experienced only a 51 percent growth over the same period – less than an eighth of the growth of the TES sector. These relative differences in employment growth rates, illustrate the importance of the TES sector in providing employment opportunities in the South African economy. In turn, they re-affirm the importance of the TES sector as a key component of the economy's long-run employment growth trajectory.

Year	TES	Formal non-TES	TES/non-TES ratio	TES share of Total Employment
2000	298 68	7 166 866	0.04	0.03
2005	481 760	7 923 060	0.06	0.04
2010	864 172	9519898	0.09	0.06
2015	I 022 090	10 673 419	0.10	0.07
2019	230 591	10 851 682	0.11	0.08
Change 2000-2019	932 423	3 684 816	0.07	0.05
% Change 2000-2019	312.72	51.41	172.57	199.53

Table 1: TES and Formal non-TES Employment, 2000-2019

Notes: Data for each year is from Quarter I of the QLFS

In considering the possible impact of the LRA on employment, TES employment as a fraction of both total employment and of the Financial and Business Services sector is plotted in Figure 3 below. Vertical lines are included to denote the third quarter of 2013 (when the LRA was announced – the 'expectations' model) and the first quarter of 2015 (when the LRA was implemented – the 'no expectations' model), so as to analyse the impact of the legislation. Detailed tables on employment in TES and non-TES under the 'expectations' and 'no expectations' models are provided in Appendix A, Tables AI and A2. Consistent with the data in Table I above, the TES sector has increased in importance between 2000 and 2019, with its share of total employment rising from about 3 percent in 2000 to approximately 7 percent in 2019. Over this same period, the share of employment in the Financial and Business Services sector accounted for by TES providers, has increased from approximately 35 percent in 2000 to nearly 50 percent in 2019.

The implementation of the new LRA is indicated by the two red vertical lines in the figure. The solid line indicates the announcement of the LRA in the third quarter of 2013, while the dashed red line indicates the implementation of the LRA in the first quarter of 2015. It seems that between 2013Q3 and 2015Q1, the growth in the relative share of the TES sector stagnated, and even decreased in some quarters of 2014. This indicates that perhaps the announcement of the LRA was met with uncertainty on the part of employers, and as a result, growth of the TES sector stagnated. After the implementation of the LRA in 2015Q1, however, growth in the TES sector has recovered slightly, with the relative share of the TES sector increasing once again, albeit at a much slower rate.

As indicated before, the Business N.E.C. category is likely to underrepresent the total TES sector.⁵ TES workers embedded in the Mining and Construction industries are mapped using the three main occupation groups which make up the Business N.E.C sector. Figure A1 in the appendix shows the ratio of TES employment to total employment within Mining and Construction. The figure shows a clear downward trend between 2000 and 2019. This suggests that TES workers have shed jobs in the Mining and Construction sectors over the reported period. However, we cannot suggests that this change is due to the LRA.

⁵ One would expect that a respondent employed through an employment agency to work on a construction site, or on a mine, would note his or her sector of employment to the fieldworker, as Construction or Mining – rather than the Financial & Business Services.

Figure 3: TES Employment, Share of Total and Finance Employment, 2000-2019



Figure 4: TES:Formal non-TES Employment, 2000-2019



However, the slower rate of increase in the TES share of employment is not necessarily indicative of the TES sector becoming less important in the South African economy. According to the figure, it is clear that the ratio of TES employment to overall employment has returned to, and even surpassed, pre-amendment levels. This is corroborated by Figure 4, which shows

the ratio of TES workers to formal non-TES workers. It should be emphasised however, that whilst employment growth has reverted to pre-LRA levels, such growth may indeed have been even higher were it not for the LRA amendments.

4.1. Employment by Individual Characteristics

Previous research on this topic indicates that vulnerable workers may be better able to find work in the TES sector than the non-TES sector (Bhorat et al., 2014). In order to determine whether this is the case, we disaggregate general employment trends in the TES and non-TES sectors by demographic characteristics. A particular focus is levied on women, youth (defined as those between the ages of 15 and 34), and African and Coloured individuals.

Table 2 provides a breakdown of the labour market trends in the TES and formal non-TES sectors between 2000 and 2019. The first half of Table 2 gives the proportion of each demographic group (in the left column) that is represented in the TES sector for the time periods under consideration (in the top row). The second half of Table 2 gives the same information for the formal non-TES sector. The changes over the period are given in the last two columns of each section (either TES or non-TES). We provide the absolute changes over the period 2000-2019 as well as the percentage changes over the period. The right-most column of Table 2 provides the ratio of changes in the TES to the formal non-TES sector.

The average age in the TES sector in 2000 was 34 years, while in non-TES it was 37 years for the same time period. The average age in both the TES and non-TES sectors increased between 2000 and 2019. Comparing TES to non-TES in the final column of Table 2, the ratio of the percentage change in age is 1.82, indicating that age increased more in the TES sector relative to the non-TES sector by a factor of 1.82. This is an intriguing result given that the TES is known to be an employer of young people (Bhorat et al., 2014). In Appendix A, Table A3, we provide a breakdown of the changes by ten-year age brackets for the ages 15-64. Interestingly, when considering the overall age distribution of the TES sector relative to the non-TES sector in 2019, one can see that the distributions are approximately the same. This stands in contrast to 2000, where the share of youth employed in the TES sector was approximately 13 percentage points higher than in the formal non-TES sector.

The most prominent relative changes are in gender and skill levels. Female representation increased in TES relative to non-TES by a factor of 2.6 over the period. In 2000, females constituted 32 percent of TES employees, while in 2019 this figure is at 40 percent. Female representation also increased in the non-TES sector, from 38 percent to 42 percent, and remains higher than in the TES sector. However, the relative changes from the table indicate that females are being absorbed into TES at a faster rate than in the non-TES sector.

In 2000, the unskilled represented 21 percent of the TES sector, and the skilled represented 11 percent (making the semi-skilled 68 percent of the sector). Both groups increased in prominence, with the unskilled making up 29 percent, and the skilled making up 14 percent in 2019. Overall, semi-skilled workers decreased in prominence in both the TES and non-TES sectors. The non-TES sector employs fewer unskilled workers than the TES sector (19 percent in 2000 and 21 percent in 2019), and more skilled workers (27 percent in 2000 and 31 percent in 2019), confirming that the TES sector proportionately provides employment for more vulnerable workers.

	TES						Formal non-TES								
	2000	2005	2010	2015	2019	Change 2000- 2019	% change 2000- 2019	2000	2005	2010	2015	2019	Change 2000- 2019	% change 2000- 2019	TES/non- TES ratio of % changes
Age	34.23	34.71	34.35	35.82	38.28	4.05	11.83	36.72	37.61	37.99	38.22	39.11	2.39	6.50	1.82
Education	9.95	10.85	10.82	10.94	11.01	1.06	10.69	9.79	10.46	11.06	11.30	11.66	1.86	19.04	0.56
Female	0.32	0.29	0.35	0.37	0.40	0.08	26.16	0.38	0.37	0.40	0.42	0.42	0.04	10.07	2.60
Unskilled	0.21	0.18	0.27	0.27	0.29	0.07	34.80	0.19	0.19	0.19	0.21	0.21	0.02	11.08	3.14
Skilled	0.11	0.19	0.13	0.14	0.14	0.03	31.90	0.27	0.28	0.32	0.29	0.31	0.04	14.91	2.14
Race															
African	0.64	0.67	0.77	0.80	0.82	0.18	27.88	0.55	0.59	0.62	0.68	0.69	0.13	24.28	1.15
Coloured	0.11	0.12	0.08	0.08	0.08	-0.02	-21.80	0.15	0.13	0.13	0.12	0.12	-0.02	-15.38	1.42
White	0.21	0.17	0.12	0.09	0.08	-0.13	-61.64	0.25	0.23	0.20	0.16	0.15	-0.10	-40.92	1.51

Table 2: TES and Formal non-TES Workers, Individual Characteristics: 2000-2019

Notes: Data for each year is from Quarter I of the QLFS

There is little change in the education profile of either sector over the period. Overall, average education levels in the non-TES sector are increasing more than in the TES sector, but by a modest factor of 0.56. A breakdown by education category is available in Appendix A, Table A4. From this table we see that although there is a moderate trend toward more highly educated individuals, this is more pronounced for the non-TES sector. In fact, workers with incomplete secondary education are actually increasing in prominence in TES, albeit by a small amount (41 percent in 2000 to 43 percent in 2019). This may be indicative of the TES sector providing employment opportunities for those individuals who have slightly lower levels of education, and who have not been able to find employment of unskilled individuals in the TES sector grew 3.14 times faster than in the formal non-TES sector. Although the TES sector also experienced substantial growth in the share of skilled workers employed, this growth was substantially slower than that of unskilled workers, which suggests that the TES sector may have acted as a haven for a large number of unskilled workers in the South African economy.

Racial changes are also more prominent in the TES sector in comparison to the non-TES sector. In particular, the representation of Africans in TES has gone from 64 percent in 2000 to 82 percent in 2019. The non-TES sector also saw an increase in African workers, from 55 percent to 69 percent. The TES sector clearly saw a greater proportionate increase, and this is reflected in the ratio of the percentages changes, which is 1.15. In 2019, the TES sector is accurately reflecting the country's demographics, which is roughly 80 percent African (QLFS, 2019), while the formal non-TES sector still employs relatively fewer Africans than make up the country as a whole.

With the increase in African employees, both sectors saw a proportionate decrease in Coloured and White workers. For TES this was a change from 11 percent to 8 percent for Coloured workers, and a change from 21 percent to 8 percent for White workers. For non-TES these changes were from 15 percent to 12 percent and 25 percent to 15 percent for Coloured and White workers respectively. Since the TES sector saw a larger percentage increase in African workers than non-TES, it stands to reason that they also saw a larger percentage decrease for both Coloured and White workers, by a factor of 1.42 and 1.51 respectively.

Coloured individuals make up roughly 9 percent of South Africans in 2019 (QLFS, 2019Q1), indicating that both the TES and non-TES sectors are currently employing 'fair' levels of Coloured workers. White individuals make up roughly 8 percent of the population in 2019 (QLFS, 2019Q1), indicating that the TES sector is close to representing national averages for White workers. The non-TES sector still employs more White workers than their demographic status in the country.

4.2. Employment by Firm Compliance

Besides these demographic shifts seen above, it is also interesting to investigate changes in the receipt of non-wage benefits of TES and non-TES workers over the period.

Table 3, below, provides the trends in non-wage benefits between 2000 and 2019. From Table 3, one can conclude that in general, workers in the TES sector obtain decidedly less in the way of non-wage benefits than their counterparts in the formal non-TES sector. However,

perhaps due to the LRA introduced in the first quarter of 2015, the presence of pension funds for TES workers has increased by approximately 20 percent between the first quarter of 2015 and the first quarter of 2019. This is particularly interesting given that the non-TES sector has experienced a decline in the presence of pension funds of 9 percent in the same period. Overall, however, in 2019 a greater share of employees in the non-TES sector receive pension contributions (59 percent) compared to in the TES sector (49 percent).

TES workers also work longer hours than their counterparts in the formal non-TES sector, as is evidenced in the final row of Table 3. The hours worked by workers in the TES sector has decreased by 11.73 percent between 2000 and 2019, perhaps indicating that there has been a shift at the intensive margin with firms cutting back the number of hours for which they employ workers. If this is the case, however, it seems that the largest cut-back occurred between 2000Q1 and 2005Q1, whereafter the number of hours worked per week has stabilised. Indeed, Figure A2 in Appendix A, which plots out the cumulative density function of hours worked in the TES sector, shows the CDFs for years 2005 to 2019 clustered closely together, indicating that the number of hours worked have not changed significantly in recent years. It would thus suggest that there has not been a significant change in the hours worked in the TES sector in the post-LRA period.

	TES							Formal non-TES							
	2000	2005	2010	2015	2019	Change 2000- 2019	% change 2000-2019	2000	2005	2010	2015	2019	Change 2000-2019	% change 2000-2019	TES/non-TES ratio of % changes
Union	0.35	0.25		0.20	0.27	-0.08	-23.00	0.42	0.38		0.35	0.37	-0.05	-12.23	1.88
Contract	0.65	0.88	0.87	0.91	0.92	0.27	41.52	0.68	0.81	0.90	0.90	0.92	0.24	35.91	1.16
Pension	0.41	0.50	0.38	0.41	0.49	0.09	20.93	0.65	0.64	0.58	0.57	0.59	-0.06	-9.15	-2.29
Medical	0.14	0.21	0.11	0.09	0.14	0.00	-3.23	0.37	0.39	0.40	0.38	0.38	0.01	2.23	-1.45
Hours/week	54.83	49.56	48.74	47.96	48.40	-6.43	-11.73	47.82	46.17	44.04	43.67	43.11	-4.71	-9.86	1.19

Table 3: Non-Wage Benefits, TES and Formal non-TES sectors: 2000-2019

Source: Own calculations from LFS 2000-2007 and QLFS 2008-2019

Notes: I. Union membership for individuals in 2010Q1 was not collected in the QLFS. As a result, this cannot be calculated. 2. Data for each year is from Quarter 1 of the QLFS.

In order to further investigate the presence of non-wage benefits, we apply the compliance categories suggested by Bhorat et al. (2015) and detailed in Section 3.2 to control for heterogeneity in the sector. Figure 6, below, shows the ratio of the growth rate of FC employment to the growth rate of NC employment in the TES sector over time (blue line) as well as the ratio of FC TES employment to the growth rate of employment in the non-TES sector (green line). The horizontal orange line in Figure 6 indicates the scenario where the growth in FC TES employees is equal in magnitude to growth in the comparator sector.



Figure 6: Growth of FC:NC TES and FC:non-TES Firms, 2011-2019

A striking result that one can observe in Figure 6 is that within the TES sector, there seems to be very little in the way of changing compliance categories from NC to FC, even after the implementation of the LRA. The ratio of FC to NC growth is just below unity for the majority of this period. The growth in FC TES to non-TES growth is more volatile, with a spike in FC TES employees between 2013Q3 and 2014Q1. Given that this is the period immediately following the announcement of the LRA, this is indicative that firms in the TES sector rushed to ensure compliance with statutory non-wage benefits. Hereafter, however, the employment growth ratio has swung in favour of the non-TES sector again, except for briefly during 2016. Overall, comparative growth in FC TES employees has substantially slowed after the implementation of the LRA in 2015Q1, although the lack of a long-term trend does not allow strong conclusions to be drawn.

This descriptive overview seems to provide an early suggestion that while the TES sector will continue to be an important sector in the South African economy moving forward, the LRA amendment has potentially slowed the growth of the TES sector overall. We have also seen that although proportionately fewer youth are employed by the TES sector in recent years, the sector is a growing of source of employment for Africans and women. Currently, the TES

sector is relatively invariant in employment by race, with the composition of the TES sector reflecting society in general. Non-wage benefits in the TES sector are less prevalent than in the formal non-TES sector, but pension recipient numbers have increased substantially in the post-law period. Finally, although NC employment remain a fixture of the TES sector, there appears to have been a sharp, albeit temporary, upswing in the proportion of FC employment in the post-law period.

5. Wages in the TES Sector: 2013 and 2017

In this section, we look at wages within the TES sector and between the TES sector and the non-TES sector. We use the latest wage data available, which is from 2017. We compare this to previous research from 2015 (Bhorat et al., 2015) which used 2013 data in its analysis. To allow comparison to Bhorat et al. (2015), we only consider individuals employed in the formal sector in the analysis that follows.

Table 4 provides the mean and median nominal wages of TES and non-TES workers, with the former disaggregated by compliance types. The ratio of mean wages by TES compliance categories and non-TES workers is given in the final column of Table 9. These are overall ratios, which do not account for demographic or employment differences between the sectors, which we evaluate in sections 5.2 and 5.3.

Average wages in the TES sector were R6 129 in 2017. This is 36 percent lower than the average wage for the non-TES sector, which was R9 585. Given the dominance of FC and PC employment, the average wage in the TES sector lies between the average FC and PC wage, at R6 884 and R5 853 respectively, while the average NC wage is far lower at R4 330. Average wages in FC TES employment are 15 percent higher than in PC employment, and 37 percent higher than wages paid in NC employment. Average PC earnings are 26 percent higher than in NC TES employment. When comparing average wages in this manner, Bhorat et al. (2015) found that in 2013 FC earnings were 34 percent higher than PC earnings and 123 percent higher than NC earnings, while PC earnings were 66 percent higher than NC earnings. This suggests a substantial narrowing of the raw wage gap between the compliance categories within the TES sector between 2013 and 2017.

Table 4. Monthly Wages, by I	L3 Comp	nance Catego	JIY, 2017
	Mean	Median	Ratio: Mean wages
TES sector	6 29	3 600	1.00
Formal non-TES sector	9 585	4 333	0.64
FC	6 884	4 000	1.00
PC	5 853	3 500	1.18
NC	4 330	2 600	1.60

Table 4: Monthly Wages, By TES Compliance Category, 2017

Source: LMDS (2017)

Note: Figures are nominal

The median wage for TES and non-TES workers was more similar. Median wages for TES workers were R3 600, 17 percent lower than the median wage for non-TES workers (R4 333). Notably, median wages in FC TES employment were closer to the median non-TES wage than the median TES wage.

In Figure 7 below we provide the cumulative distribution function (CDF) of wages by of the TES and non-TES sectors. This allows us to assess wage differentials across the wage distribution rather than simply at the mean and median. Figure 8 provides the same analysis while differentiating TES firms by compliance category.

In Figure 7, the x-axis plots the log of the monthly wage, while the y-axis plots cumulative density (or the cumulative number of people at each wage level). Hence, we can see from the figure that roughly 40 percent of all TES and non-TES workers earn less than R3 300. While 88 percent of TES workers earn R10 000 or less, only 73 percent of non-TES workers earn R10 000 or less. Put differently, the non-TES curve lies below the TES curve at all wages above R3 300.



Figure 7: Cumulative Wage Distribution, TES and non-TES sectors: 2017

A different picture emerges when we decompose the TES sector by compliance categories in Figure 8. In this case, the NC curve lies above all others at all wage levels, indicating that workers are always worse-off in NC employment. As in Figure 7, we see a break at wages of around R3 400. Until this point, FC, PC, and non-TES wages are remunerated similar amounts. Although wages are similar in FC, PC, and non-TES employment below wages of R3 400, we do see the curve for FC firms lying slightly below the non-TES sector below this point. Although the difference is small, given that all median wages were below R4 500, it is an important observation. This means that for nearly half of all workers, the FC TES sector pays the highest wages.

Source: LMDS (2017)





Source: LMDS (2017)

There are large differences in the proportion of workers earning below R10 000 a month across compliance categories. While 73 percent of non-TES workers earn less than R10 000, this figure is much higher across the TES compliance categories - 86 percent for the FC, 89 percent for the PC and 93 percent for the NC. This indicates that workers in employment that is non-compliant are more likely to be paid lower wages, across the entire wage distribution. Again, workers in the non-TES sector are better-off than all TES workers beyond the R4 000 mark.

5.1. Wage Differentials by Worker-Level Characteristics

In this subsection we assess wage differentials by demographic characteristics focusing on race, gender, and age. We use graphs to visually represent differences, while the values behind the figures can be found in Appendix B, Table B1.

Figure 9 displays density functions to provide a visual representation of the wage structure of non-TES workers and TES workers by compliance categories across population groups. The x-axis plots the log of the monthly wage, while the y-axis plots density (or the number of people at each wage level). The red line in each graph indicates the average TES wage.

It is evident from the first two graph sets in Figure 9 that the majority of African and Coloured workers in TES employment earn below the TES mean wage, with the peaks of the density functions lying to the left of the mean line. In contrast, the majority of Indians and Whites earn above the TES mean wage, with density peaks to the right of the mean line. These results reinforce the common pattern of wage differences by race in South Africa.



Figure 9: Wage Distribution by Race, TES Compliance Category

Furthermore, it is striking that the various density functions for White workers are almost completely overlapping. This indicates that there is little difference in wages between compliance categories for this race group – that is, White individuals do not suffer the same wage penalties in NC and PC employment that other race groups do. In fact, there are so few White (and Indian) workers in NC employment that these functions could not be plotted. In contrast, it is clear from the figures that African and Coloured workers fare more poorly in NC and PC employment than their counterparts in FC and non-TES employment.

Figure 10 displays the wage ratios of men and women. We can see that, on average, FC employment earnings are higher than PC and NC employment earnings, irrespective of gender. However, men earn more than women in all TES compliance segments (see Table B2 in Appendix B). Bhorat et al. (2015) found similar results, except that women earned higher in NC employment than men. This means that in 2017, women in NC employment are comparatively more disadvantaged than four years earlier.

Source: LMDS (2017)



Figure 10: Mean Wage Ratio: TES Compliance Category and Gender



Figure 11: Mean Wage Ratio: TES Compliance Category & Age Cohorts

Source: LMDS (2017)

Note: Youth are defined as between the ages of 15-29.

Similar patterns are observed when the sector is examined by age (Figure 11). Irrespective of age, non-TES workers earn more than TES workers. In addition, non-youth earn more than youth for all compliance categories.

In sum, the most disadvantaged earner in the TES sector would be an African female, young and working in NC employment. In the non-TES sector, the most disadvantaged earner would

Source: LMDS (2017)

be Coloured, male, and young. In contrast, Bhorat et al. (2015) found that the most disadvantaged earner in the TES sector would be an African male, aged 15-24 years or 55-65 years and working in NC employment. In the non-TES sector, the most disadvantaged earner would have been an African female aged between 15 and 24. Hence, although the patterns remain largely similar, gender disadvantages in the NC and non-TES sectors have reversed.

5.2. Determinants of Wage Differentials: An Econometric Analysis

The descriptive overview above indicated some interesting trends. Here, we present an econometric analysis to ensure that demographic and employment characteristics are controlled for when assessing wage differentials in the TES sector. Indeed, the raw and simple wage gap analysis above is incomplete, in that it does not simultaneously control for the characteristics of workers to derive estimates of wage differences. This section tries to move beyond such raw and simple wage gap ratios, to extract more comprehensive conditional wage difference results. In the first estimation strategy then, we use OLS analysis to determine conditional mean wage differences. The regression is run for three different samples: the full sample; a sample including only Africans and a sample including only youth. Table 5 below provides regression results for the earnings estimates.

The baseline result is striking: On average when controlling for relevant covariates, earnings in FC TES employment are not statistically different to the non-TES sector in 2017. Put differently, there is a zero conditional wage gap between FC TES employment and non-TES employment. In addition, PC TES workers were earning roughly 6.0 percent less than non-TES workers and the conditional wage gap was 20.3 percent for NC employment when compared with non-TES employment.

			/			
VARIABLES	OLS		African		Youth	
	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
FC	0.014	0.583	0.003	0.119	0.139***	2.946
PC	-0.062**	-2.470	-0.076***	-2.971	-0.013	-0.260
NC	-0.227***	-5.022	-0.197***	-4.279	0.031	0.396
Observations	38,442		30,542		8,771	
R-squared	0.295		0.283		0.253	

Table 5: Mean Wage Gap Estimates, 2017⁶

Note: ***Significant at the 1% level, **significant at the 5% level. Controls are included for age, race, gender, location, occupation, education, firm size, and hours of work.

Bhorat et al. (2015) found a similar pattern of results for PC and NC firms. However, the magnitude of the wage gap has narrowed for the PC TES and NC TES employment from four years earlier. The earnings differentials have decreased by nearly three-fifths (14 percent previously) between PC TES employment and the non-TES sector, and almost halved between NC TES employment and non-TES employment (37 percent previously). Earnings differentials

⁶ To calculate the percentage change in earnings from the coefficient on a dummy variable in a semi logarithmic model, we used the following conversion: $100.{exp(B) - 1}$ where B is the value of the coefficient (see Halvorsen & Palmquist, 1980: 474-475).

have also decreased by 100 percent between FC employment and non-TES employment (8 percent previously).

A similar pattern is observed when we look at the sample of Africans. The results suggest that there is no mean wage differential between Africans in FC employment and those in the non-TES sector, while the conditional wage gap in PC and NC employment was 7 percent and 18 percent respectively. Again, Bhorat et al. (2015) found a similar pattern of results (except between FC TES and non-TES employment), but the wage gap has narrowed between non-TES and the PC TES and NC TES compliance segments in the same magnitude as for the full sample above.

The most striking demographic results are for the youth. Here, we find that workers in PC and NC employment earn a wage which on average is not significantly different when compared with young people in non-TES employment. Furthermore, the conditional wage gap for the youth in FC employment, which stands at 15 percent, actually favours these workers. From the descriptive analysis in the section above, we saw that youth in FC employment earn slightly lower than those in non-TES employment. This suggests that after taking into account individual and employment characteristics, we find that in fact, youth in FC TES employment actually earn more on average than youth in non-TES employment.

Whilst the above results are useful and insightful, these earnings estimates represent coefficients at the mean of the wage distribution. While critical, often these mean results can mask the returns to TES employment across the entire wage distribution, ranging from low-wage to high-wage workers. In the section that follows, we again follow the methodology used by Bhorat et al. (2015) by using a quantile regression to examine wage differentials across the wage distribution for the full sample, only Africans, and only the youth (15-29 year olds).

5.2.1. Wage Differences across the Distribution

In a vein similar to the standard OLS estimate above, we consider the difference in returns to wages across the wage distribution for FC TES employees (compared with non-TES employees), PC TES employees (compared with non-TES employees) and finally NC TES employees (compared with non-TES employees). The variable of interest here provides an estimate of the returns to each category across each percentile of the wage distribution. The graphs below present the derived coefficients for the relevant variables across the wage distribution. The coefficient estimates and significance levels can be viewed in Appendix B, Tables B2 to B4. The vast majority of these coefficients are significant, both overall and for the African and youth subgroups.

Figure 12 illustrates the coefficients for the quantile regression results for the compliance categories for the full sample. The zero line on the y-axis indicates the point at which the wage gap is zero. Above this line the wage gap favours the relevant TES category while below the line the wage gap favours the non-TES sector.

At first glance, it is clear that the average results above obscured the more nuanced interpretation that we see here. The negatively sloped curves indicate that the wage gaps favour the non-TES sector more and more as wages increase. Given that public anxiety around the TES sector is driven by the belief that it disadvantages vulnerable workers, this is a positive result. Not only this, but we actually see the TES curves crossing the zero line, indicating that at the lower end of the wage spectrum, workers are actually better-off in the TES sector.

The point at which each curve crosses the zero line, and hence goes from being TESfavourable to non-TES-favourable, is different for each compliance category. In NC employment, the crossing of the zero line happens twice, since the wage gap initially favours the non-TES sector, briefly switches to favouring NC employment, and then quickly favours the non-TES employment again. Besides this small section at around the 10th percentile, we can say that in general workers in NC employment earn less than workers in the non-TES sector.



Figure 12: TES:non-TES Conditional Wage Differentials

For PC employment, almost half of all workers are better-off in TES than in non-TES employment. This is the case below the 40th percentile. Hence, despite the fact that PC workers earn on average 6.2 percent less than non-TES workers, a large proportion of workers, and especially low-wage workers, are actually paid higher wages in PC employment than in non-TES employment. Bhorat et al. (2015) found that almost all workers in PC employment earned less than non-TES workers. Corroborating what was found when we compared average wages, this indicates that workers in PC employment were substantially better off in 2017 than they were in 2013.

Despite the lack of significance in the OLS results between FC employment and non-TES employment, the quantile regression analysis indicates that the majority of FC workers are better off in the TES sector than in the non-TES sector. The non-TES sector only begins to display a favourable wage gap after the 65th percentile. Bhorat et al. (2015) found that workers in FC employment earned more than non-TES workers up until around the 25th percentile, thereafter the non-TES workers earned more than workers in FC TES employment. This wage shift indicates improving wages for workers in FC TES employment. This is a key affirmation and extension, of a previous result. The estimates here suggest that when conditioned on a variety of factors, FC TES workers are in fact earning more than non-TES workers to a point above the median of the wage distribution.

When the same analysis is conducted for the sample of Africans only, very similar results are seen. This is not surprising given that the TES sector was dominated by African workers in

Source: LMDS (2017)

2017 (see Section 4.2). Given the high degree of similarity, these results are not repeated here.

Figure 13 shows the quantile regression coefficients for the sample of young workers, aged 15-29. It is immediately obvious from the graph that the TES curves all cross the zero line later in the distribution as compared to the average results above, and also that they are closer together. This indicates (1) that the TES sector displays a favourable wage gap for a wider proportion of the youth population than the general population, and (2) that within the TES sector, workers within the different compliance categories earn wages that are more similar to each other for youth than in general.

Figure 13: TES:non-TES Conditional Wage Differentials, Youth (15-29)



Source: LMDS (2017)

Young workers in the FC employment earn more than non-TES workers across most of the wage distribution (i.e. up to the 80th percentile). In contrast, Bhorat et al. (2015) found that youth working in FC employment earn less than those in non-TES employment across the whole distribution, except in the 10th percentile (but not significant). This means that in the period post the LRA amendment, wages in TES FC employment have surpassed that of earnings in the non-TES sector for the youth. This is despite the fact that the proportion of youth in the TES sector has declined (see Section 4).

The lack of significance in the OLS coefficients between PC/NC and the non-TES sector for youth hid the nuances that we see here. Here, it is clear that there are differences in the sectors which change according to which point on the wage distribution is considered. Before the 60th percentile, young workers earn more in PC employment than they do in the non-TES sector, they earn less thereafter. Furthermore, youth working in NC TES employment earn more than the non-TES sector up until around the 50th percentile. Hence, for both PC and NC employment, the estimates here suggest that when conditioned on a variety of factors, TES workers are in fact earning more than non-TES up until at least the median of the wage distribution. Again, Bhorat et al. (2015) found that young employees in PC and NC TES employment earn less than those in non-TES sector for most of the distribution. Perhaps it is

this increase in wages among the youth in TES firms that is behind the sector's slowing youthabsorption rate.

In sum, then – our econometric analysis suggests a few key results. Firstly, that based on the OLS estimates – there is on average no significant difference between the conditional FC TES and non-TES average wage. This is a key result, which holds for African workers as well, in that it indicates no wage gap between FC TES workers and those employed in non-TES firms. Secondly, the mean wage for youth in FC TES firms is in fact on average 14% higher than for young peope in non-TES companies. In terms of the quantile regression results, our estimates suggest perhaps an even more powerful set of outcomes: That FC TES workers earn more than their non-TES counterparts at every point in the wage distribution up to the 65th percentile in the wage distribution. Hence, lower-wage workers in employment which is legally compliant are actually better off in the TES sector. Furthermore, young people in FC TES employment, are also shown to yield higher wage returns at every point in the distribution up to the 80th percentile, relative to those in non-TES employment. Indeed, the results for youth in TES employment are so strong, that the majority are better off even if they work for PC and NC TES firms.

6. Conclusion

Given the fast-growing nature of the TES sector, it is not surprising that changes have been seen both in the last two decades and even in the last four years. We've shown here that the TES sector remains an important employer in 2019, with over 1.2 million employees currently, and also an important employer of vulnerable groups, despite the decline in the proportion of youth making up the sector. The vast majority of workers in the TES sector are African – 82 percent – mirroring the demographic make-up of the country. Workers in the TES sector still receive fewer benefits than those in the formal non-TES sector, although pension receipt has increased substantially in the post-LRA period. Even though the TES sector may provide fewer non-wage benefits to workers on average, this may be as a result of workers taking up entry-level jobs in the TES sector as a way of breaking into the labour market, on their way to more formal, permanent employment, where these benefits are more prevalent.

Despite the purely descriptive nature of the employment analysis, evidence of a growth slowdown in the period following the LRA amendment was seen. Employment growth is currently at pre-LRA levels, although growth may have been even higher were it not for the LRA.

Substantial changes in wages have been witnessed since 2013, both among workers in the formal TES sector, as well as between workers in the formal TES sector and those in the formal non-TES sector. As opposed to research on data from 2013 (Bhorat et al., 2015), average conditional wages in the TES sector, amongst workers who received statutory benefits, are on average no different to wages in the non-TES sector. This is true for the sample as a whole and also for African workers. In addition, although non-compliant TES employment still pays the lowest wages, fewer workers find themselves in this type of employment (a decrease from 13 percent to 9 percent) and where they do the wage gap is smaller than what it was (by half – currently at around 20 percent). Furthermore, it should be noted that a firm's level of compliance can directly impact the wages earned by a worker: Employees in non-compliant employment. This suggests that the effective enforcement of the conditions stipulated under the LRA could assist in increasing wages for TES workers.

The average wage in the TES sector is lower than the average wage in the formal non-TES sector, however, this trend is not consistent across the entire wage distribution: In legally compliant employment, whether fully or partially, low-wage workers earn more in the TES sector than they do in the non-TES sector. This is particularly striking for the youth, despite the slowing down of youth employment in the sector. Youth in the fully legally compliant TES sector not only earn higher wages at lower-wage levels, but they even earn a statistically significantly higher average wage than youth in the non-TES sector.

Overall, this paper highlights the continuing importance of the TES sector, as well as the lack of basis for fears that TES sector workers unequivocally receive lower pay and less non-wage benefits. Although it is true that currently fewer TES workers receive non-wage benefits, the gap has been narrowing. Wages are in general in line with the non-TES sector, and even higher for low-wage workers in many cases. Furthermore, although we do not rigorously investigate the impact of the LRA, there is little evidence to suggest a drastic and lasting negative impact of the legal amendment on the TES sector. This is a positive finding given how important sectors which are fast-growing in employment are to the South African economy.

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Appendix A Figure A1: TES employment in Mining and Construction, 2000-2019

Figure A2: CDF of Hours worked in the TES Sector, 2000-2019



	2013Q1	2013Q3	2014Q1	2014Q3	2015Q1	2015Q3	2016Q1	2016Q3	2017Q1	2017Q3
Employed	0.06	0.06	0.06	0.06	0.07	0.06	0.07	0.07	0.07	0.08
Employed (N)	900895	943910	969201	892744	1022090	953859	1038273	1135139	1138412	1229258
Age	35.93	36.47	36.41	36.51	35.82	35.93	36.64	37.46	37.74	37.31
15-24	0.10	0.08	0.08	0.08	0.11	0.09	0.08	0.07	0.06	0.06
25-34	0.38	0.40	0.39	0.37	0.37	0.40	0.35	0.34	0.33	0.36
35-44	0.34	0.33	0.36	0.38	0.33	0.35	0.38	0.36	0.38	0.36
45-54	0.13	0.12	0.13	0.13	0.14	0.14	0.16	0.18	0.16	0.16
55-64	0.04	0.06	0.05	0.04	0.04	0.03	0.03	0.04	0.06	0.06
Education	10.79	10.92	11.06	11.23	10.94	10.98	10.99	11.01	11.10	11.15
No Schooling	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01
Primary	0.07	0.07	0.06	0.04	0.07	0.07	0.07	0.06	0.07	0.05
Secondary	0.42	0.40	0.42	0.41	0.43	0.44	0.41	0.43	0.41	0.41
Matric	0.40	0.38	0.39	0.39	0.37	0.37	0.40	0.39	0.40	0.40
Tertiary	0.10	0.13	0.13	0.15	0.13	0.12	0.11	0.11	0.12	0.13
Female	0.38	0.36	0.38	0.38	0.37	0.35	0.37	0.37	0.37	0.36
Race										
African	0.75	0.78	0.76	0.79	0.80	0.82	0.79	0.82	0.81	0.80
Coloured	0.11	0.10	0.10	0.08	0.08	0.08	0.09	0.07	0.08	0.07
White	0.11	0.10	0.11	0.11	0.09	0.09	0.10	0.09	0.09	0.10
Married	0.47	0.48	0.48	0.45	0.46	0.45	0.46	0.48	0.47	0.47
Unskilled	0.30	0.28	0.26	0.23	0.27	0.25	0.24	0.27	0.27	0.26
Skilled	0.16	0.15	0.16	0.18	0.14	0.15	0.15	0.14	0.16	0.15
Union	0.21	0.25	0.23	0.25	0.20	0.22	0.22	0.25	0.27	0.26
Contract	0.91	0.91	0.93	0.93	0.91	0.91	0.91	0.92	0.93	0.93
Pension	0.42	0.41	0.44	0.45	0.41	0.41	0.43	0.49	0.50	0.45
Medical	0.11	0.11	0.12	0.13	0.09	0.10	0.11	0.14	0.13	0.14
Hours	47.57	48.40	48.11	48.55	47.96	49.19	49.58	49.63	48.84	48.41
No. of Employees										
0 emp	0.06	0.03	0.03	0.04	0.06	0.05	0.04	0.05	0.04	0.03
I-4 emp	0.09	0.08	0.07	0.08	0.09	0.09	0.08	0.09	0.09	0.08
5-9 emp	0.09	0.08	0.09	0.09	0.09	0.10	0.09	0.11	0.09	0.10
10-19 emp	0.13	0.17	0.15	0.14	0.14	0.14	0.13	0.14	0.14	0.12
20-49 emp	0.18	0.19	0.17	0.20	0.18	0.19	0.21	0.19	0.20	0.21
50+ emp	0.45	0.45	0.49	0.45	0.44	0.43	0.45	0.41	0.45	0.45

Table A1: The TES Labour Market: A Descriptive Overview, 2013-2017

Notes:

1. The period 2013Q1 to 2013Q3 represents the 'before' period for the expectations phase. The period 2013Q4 to 2017Q3 represents the 'after' period for the expectations phase.

2. The period 2013Q1 to 2015Q1 represents the 'before' period for the no-expectations phase. The period 2015Q2 to 2017Q3 represents the 'after' period for the no-expectations phase.

						,				
	2013Q1	2013Q3	2014Q1	2014Q3	2015Q1	2015Q3	2016Q1	2016Q3	2017Q1	2017Q3
Employed	0.93	0.92	0.92	0.93	0.92	0.93	0.92	0.91	0.91	0.91
Employed (N)	10117314	10475321	10495724	10617923	10673419	10865519	10768173	10781941	11066049	10964532
Age	38.21	38.24	38.49	38.64	38.22	38.41	38.51	38.48	38.64	38.83
15-24	0.09	0.09	0.08	0.08	0.09	0.09	0.08	0.08	0.08	0.08
25-34	0.32	0.32	0.32	0.31	0.32	0.31	0.32	0.32	0.31	0.31
35-44	0.31	0.31	0.31	0.30	0.30	0.31	0.30	0.30	0.30	0.31
45-54	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.21	0.21
55-64	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.10
Education	11.30	11.36	11.34	11.32	11.30	11.32	11.37	11.38	11.55	11.57
No Schooling	0.01	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01
Primary	0.08	0.08	0.08	0.08	0.09	0.09	0.08	0.09	0.07	0.07
Secondary	0.29	0.28	0.28	0.29	0.28	0.28	0.28	0.29	0.29	0.27
Matric	0.34	0.34	0.35	0.35	0.35	0.35	0.36	0.35	0.34	0.35
Tertiary	0.27	0.28	0.27	0.26	0.26	0.27	0.27	0.26	0.29	0.29
Female	0.41	0.42	0.42	0.41	0.42	0.42	0.42	0.42	0.43	0.42
Race										
African	0.66	0.67	0.67	0.67	0.68	0.68	0.68	0.68	0.68	0.69
Coloured	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
White	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.16	0.15
Married	0.56	0.55	0.55	0.54	0.55	0.55	0.54	0.54	0.54	0.55
Unskilled	0.19	0.20	0.20	0.20	0.21	0.23	0.22	0.21	0.21	0.21
Skilled	0.33	0.33	0.32	0.32	0.29	0.29	0.30	0.30	0.30	0.30
Union	0.38	0.36	0.36	0.38	0.35	0.35	0.36	0.36	0.37	0.37
Contract	0.91	0.92	0.93	0.92	0.90	0.90	0.91	0.91	0.91	0.91
Pension	0.60	0.59	0.60	0.60	0.57	0.57	0.59	0.57	0.59	0.60
Medical	0.42	0.41	0.41	0.41	0.38	0.39	0.39	0.38	0.39	0.39
Hours	43.97	43.68	43.64	43.39	43.67	43.43	43.54	43.41	43.52	43.23
No. of Employees										
0 emp	0.02	0.02	0.01	0.01	0.02	0.01	0.01	0.02	0.02	0.01
I-4 emp	0.05	0.05	0.04	0.04	0.04	0.04	0.05	0.04	0.04	0.04
5-9 emp	0.10	0.11	0.11	0.12	0.11	0.12	0.11	0.11	0.11	0.11
10-19 emp	0.17	0.18	0.17	0.17	0.16	0.17	0.17	0.18	0.17	0.16
20-49 emp	0.20	0.21	0.21	0.21	0.22	0.21	0.22	0.22	0.21	0.22
50+ emp	0.46	0.44	0.46	0.45	0.45	0.44	0.43	0.43	0.46	0.46

Table A2: The Formal non-TES Labour Market: A Descriptive Overview, 2013-2017

Notes:

1. The period 2013Q1 to 2013Q3 represents the 'before' period for the expectations phase. The period 2014Q1 to 2017Q3 represents the 'after' period for the expectations phase.

2. The period 2013Q1 to 2015Q1 represents the 'before' period for the no-expectations phase. The period 2015Q3 to 2017Q3 represents the 'after' period for the no-expectations phase.

	TES							Formal non-TES							
	2000 Q I	2005 Q I	2010 QI	2015 Q1	2019 QI	Chang e 2000- 2019	% change 2000- 2019	2000 QI	2005 QI	2010 Q1	2015 QI	2019 QI	Change 2000- 2019	% change 2000- 2019	TES/non- TES ratio of % changes
No Schooling	0.04	0.01	0.01	0.01	0.01	-0.03	-84.90	0.05	0.03	0.02	0.02	0.01	-0.04	-76.99	1.10
Primary	0.15	0.08	0.07	0.07	0.07	-0.08	-54.19	0.19	0.15	0.09	0.09	0.07	-0.12	-65.16	0.83
Secondary	0.41	0.36	0.44	0.43	0.43	0.02	4.31	0.31	0.28	0.29	0.28	0.27	-0.04	-14.04	-0.3 I
Matric	0.31	0.44	0.36	0.37	0.39	0.08	27.15	0.27	0.32	0.35	0.35	0.36	0.09	35.34	0.77
Tertiary	0.09	0.10	0.11	0.13	0.11	0.01	15.36	0.19	0.21	0.25	0.26	0.30	0.11	59.57	0.26

Table A3: Educational profiles of the TES and Formal non-TES Sectors, 2000-2019

Table A4: Age profiles of the TES and Formal non-TES Sectors, 2000-2019

		TES						Formal non-TES							
	2000 Q I	2005 Q I	2010 Q1	2015 Q1	2019 Q1	Chang e 2000- 2019	% change 2000- 2019	2000 Q I	2005 Q I	2010 Q1	2015 Q1	2019 QI	Change 2000- 2019	% change 2000- 2019	TES/non- TES ratio of % changes
15-24	0.14	0.11	0.13	0.11	0.06	-0.08	-58.60	0.12	0.10	0.09	0.09	0.07	-0.05	-40.69	1.44
25-34	0.45	0.48	0.42	0.37	0.32	-0.13	-28.25	0.34	0.35	0.33	0.32	0.30	-0.03	-9.83	2.87
35-44	0.23	0.26	0.31	0.33	0.35	0.13	55.19	0.31	0.28	0.30	0.30	0.31	0.00	1.30	42.40
45-54	0.13	0.10	0.11	0.14	0.20	0.07	52.32	0.17	0.19	0.20	0.20	0.22	0.05	30.50	1.72
55-64	0.05	0.06	0.03	0.04	0.06	0.02	32.16	0.07	0.08	0.08	0.09	0.10	0.03	41.54	0.77

Source: Own calculations from LFS 2000-2007 and QLFS 2008-2019

Appendix B

Table B1: Mean earnings by demographics, 2017

		Formal sector TES					F	Ratios	
									FC/Formal
Race	Fully compliant	Partially compliant	Non-compliant	Total TES	Formal non-TES	FC/PC	FC/NC	PC/NC	nonTES
African	6 109	5 028	4 223	5 366	7 957 *	1.22	1.45	1.19	0.77
Coloured	5 395	7 131	1 929	5 656	8 272 *	0.76	2.80	3.70	0.65
Indian/Asian	15 001	12 447	1 500	13 613	13 249	1.21	10.00	8.30	1.13
White	13 819	19 427	9 062	15 762	19 705	0.71	1.52	2.14	0.70
Male	6 988	6 282	4 942	6 431	10 240 *	1.11	1.41	1.27	0.68
Female	6 752	5 463	3 154	5 803	8 751 *	1.24	2.14	1.73	0.77
Youth	6 483	5 541	4 450	5 713	7 164 *	1.17	1.46	1.25	0.90
Non-youth	6 975	5 939	4 271	6 243	10 327 *	1.17	1.63	1.39	0.68
15-24	5 714	4 360	3 769	4 640	6 237	1.31	1.52	1.16	0.92
25-34	7 016	5 814	5 007	6 158	8 501 *	1.21	1.40	1.16	0.83
35-44	6 224	5 752	4 183	5 796	9 904 *	1.08	1.49	1.38	0.63
45-54	7 943	5 800	3 499	6 521	11 087 *	1.37	2.27	1.66	0.72
55-65	6 791	6 411	2 709	5 920	12 302 *	1.06	2.51	2.37	0.55

Source: LMDS (2017) Notes: * Formal non-TES mean wages statistically significantly different to formal TES wages at the 5% level of significance

	F	ull compl	iance	Pa	rtial com	pliance	1	No compl	iance
Percentile	coeff.	signific.	t-stat	coeff.	signific.	t-stat	coeff.	signific.	t-stat
0.05	0.319	***	46.166	0.126	***	19.451	-0.203	***	-14.893
0.10	0.323	***	87.532	0.264	***	75.947	0.091	***	12.450
0.15	0.192	***	76.316	0.191	***	80.682	-0.008		-1.641
0.20	0.153	***	63.058	0.152	***	66.640	-0.088	***	-18.333
0.25	0.120	***	50.920	0.097	***	43.732	-0.106	***	-22.760
0.30	0.101	***	48.152	0.048	***	24.198	-0.177	***	-42.780
0.35	0.078	***	36.513	0.016	***	8.127	-0.224	***	-52.769
0.40	0.072	***	37.647	0.005	***	2.996	-0.231	***	-61.293
0.45	0.057	***	26.632	-0.022	***	-11.254	-0.236	***	-56.231
0.50	0.030	***	14.410	-0.046	***	-24.037	-0.283	***	-69.692
0.55	0.012	***	6.009	-0.070	***	-38.606	-0.296	***	-77.980
0.60	0.009	***	4.888	-0.092	***	-55.232	-0.267	***	-76.475
0.65	-0.006	***	-3.018	-0.126	***	-66.904	-0.277	***	-69.961
0.70	-0.028	***	-14.262	-0.150	***	-80.990	-0.272	***	-70.062
0.75	-0.077	***	-41.432	-0.180	***	-102.342	-0.297	***	-80.406
0.80	-0.130	***	-61.455	-0.203	***	-102.204	-0.398	***	-95.272
0.85	-0.182	***	-76.928	-0.208	***	-93.764	-0.441	***	-94.451
0.90	-0.203	***	-77.280	-0.243	***	-98.279	-0.481	***	-92.710
0.95	-0.195	***	-62.717	-0.193	***	-66.200	-0.437	***	-71.186

Table B2: Earnings Quantile Regression Results: Full Sample

Source: LMD 2013, own calculations

Notes: *** Statistically significant at the 1% level of significance.

Controls are included for age, race, gender, location, occupation, education, firm size, and hours of work.

Table B3: Earnings Quantile Regression Results: Africans

	F	ull compl	iance	Pa	rtial com	pliance	٩	No compli	iance
Percentile	coeff.	signific.	t-stat	coeff.	signific.	t-stat	coeff.	signific.	t-stat
0.05	0.347	***	45.117	0.105	***	15.239	0.171	***	12.002
0.10	0.354	***	84.086	0.278	***	73.607	0.144	***	18.426
0.15	0.263	***	77.164	0.184	***	60.107	-0.018	***	-2.772
0.20	0.176	***	62.434	0.143	***	56.140	-0.071	***	-13.585
0.25	0.130	***	45.935	0.085	***	33.386	-0.085	***	-16.097
0.30	0.103	***	46.127	0.044	***	21.958	-0.147	***	-35.380
0.35	0.065	***	30.846	0.012	***	6.381	-0.200	***	-50.862
0.40	0.054	***	27.103	-0.001		-0.430	-0.200	***	-54.488
0.45	0.036	***	17.799	-0.035	***	-19.060	-0.224	***	-58.942
0.50	0.016	***	8.099	-0.070	***	-38.455	-0.261	***	-69.958
0.55	-0.018	***	-9.317	-0.087	***	-51.205	-0.238	***	-67.600
0.60	-0.026	***	-12.414	-0.105	***	-55.979	-0.223	***	-57.622
0.65	-0.047	***	-21.607	-0.132	***	-67.035	-0.246	***	-60.615
0.70	-0.062	***	-34.586	-0.166	***	-103.276	-0.242	***	-72.829
0.75	-0.111	***	-53.153	-0.187	***	-99.237	-0.268	***	-69.004
0.80	-0.165	***	-94.748	-0.215	***	-137.302	-0.346	***	-107.171
0.85	-0.225	***	-92.299	-0.241	***	-109.819	-0.429	***	-94.686
0.90	-0.240	***	-97.029	-0.275	***	-123.589	-0.526	***	-114.418
0.95	-0.252	***	-83.081	-0.185	***	-67.916	-0.460	***	-81.597

Source: LMD 2013, own calculations

Notes: *** Statistically significant at the 1% level of significance.

Controls are included for age, race, gender, location, occupation, education, firm size, and hours of work.

	Full compliance			Partial compliance			No compliance		
Percentile	coeff.	signific.	t-stat	coeff.	signific.	t-stat	coeff.	signific.	t-stat
0.05	0.610	***	31.530	0.332	***	19.439	0.515	***	17.645
0.10	0.542	***	89.06 I	0.325	***	60.535	0.383	***	41.639
0.15	0.386	***	71.467	0.299	***	62.893	0.252	***	30.921
0.20	0.366	***	65.356	0.267	***	53.975	0.148	***	17.453
0.25	0.345	***	69.253	0.238	***	54.066	0.151	***	20.024
0.30	0.298	***	61.838	0.175	***	41.155	0.110	***	15.137
0.35	0.248	***	61.205	0.136	***	38.097	0.061	***	9.993
0.40	0.216	***	79.014	0.127	***	52.750	0.007	*	1.724
0.45	0.199	***	64.322	0.091	***	33.280	0.024	***	5.069
0.50	0.181	***	73.873	0.074	***	34.211	0.037	***	10.144
0.55	0.144	***	40.404	0.039	***	12.425	0.006		1.128
0.60	0.099	***	24.732	0.009	**	2.428	-0.052	***	-8.598
0.65	0.048	***	14.672	-0.029	***	-10.187	-0.070	***	-14.234
0.70	0.027	***	5.123	-0.058	***	-12.315	-0.117	***	-14.607
0.75	0.017	***	3.514	-0.085	***	-20.102	-0.145	***	-19.932
0.80	0.001		0.275	-0.148	***	-37.976	-0.172	***	-25.749
0.85	-0.075	***	-14.943	-0.240	***	-54.058	-0.230	***	-30.236
0.90	-0.128	***	-25.897	-0.345	***	-78.951	-0.216	***	-28.85 I
0.95	-0.196	***	-24.529	-0.469	***	-66.627	-0.006		-0.537

Table B4: Earnings Quantile Regression Results: Youth (15-29)

Source: LMD 2013, own calculations

Notes: *** Statistically significant at the 1% level of significance ** Statistically significant at the 5% level of significance

* Satistically significant at the 10% level of significance

Controls are included for age, race, gender, location, occupation, education, firm size, and hours of work.