Job Quality in South Africa: A Proposed Index for Ongoing Monitoring of Job Quality

By Jabulile Monnakgotla and Morné Oosthuizen

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Abstract

While employment—or the quantity of jobs—is measured regularly in South Africa, the quality of those jobs is not, making it difficult to assess how job quality has evolved over time. This paper proposes a simple job quality index using the Quarterly Labour Force Survey data that can be readily updated on an ongoing basis as new data becomes available. The index covers four dimensions of job quality, namely wages; benefits and employment security; working time and work-life balance; and representation and voice. Dimensions of job quality are equally weighted within the overall index, while indicators are equally weighted within each dimension. Using this index, we find that job quality declined over the 2011-2017 period, driven by deterioration in the average scores on the dimensions of wages and representation and voice. Unfortunately, the Quarterly Labour Force Surveys do not collect data on working conditions or on aspects of skills and career development, and these two dimensions are not included within the index. In order to measure job quality comprehensively, nationally representative surveys would need to be expanded to collect (additional) data on working conditions, access to training, work-life balance, and prospects for career development, amongst others.

Keywords: Job quality index; South Africa; Employment

JEL codes: J81, J30

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1. Introduction

As a result of the global financial crisis in 2008/2009, South Africa lost nearly a million jobs during the recession (Development Policy Research Unit (DPRU), 2018). The recovery in employment was slow and uneven and it took four years for employment to reach pre-crisis levels (DPRU, 2018). The decade of post-crisis employment growth was, however, swiftly wiped out by the effects of the COVID-19 pandemic and associated lockdowns. Within a single quarter (from 2020Q1 to 2020Q2), the South African economy shed 2.2 million jobs, with the quarter-on-quarter decline in non-agricultural employment being the largest since the start of the data series in 1970 (SARB, 2021).

Analysis and discussion of the performance of the South African labour market tends to focus primarily on the quantity of jobs within an economy. Thus, indicators such as the level of employment or the unemployment rate are measured regularly and receive much of the attention in the media and in policy discussions. However, all jobs are not equal. Instead, they differ across a wide range of attributes including, but not limited to, pay, benefits, working conditions, job security, autonomy, and potential for career advancement.

From the perspective of the worker, the quality of jobs is important since higher quality employment may be associated with higher remuneration, better working conditions, and stability, as well as better access to aspects of social security, such as unemployment insurance, medical aid or insurance, and pension savings. Better quality jobs also hold benefits for employers through their ability to elicit feelings of greater job satisfaction or loyalty from employees. In their review of the literature, for example, Tumen and Zeydanli (2015) highlight how "job satisfaction is a significant determinant of labor market mobility—in particular, the quitting behavior", and that higher levels of satisfaction are found to be associated with greater labour productivity.

Unfortunately, the quality of jobs is not measured regularly in South Africa and, as a result, not much is known about potential changes in the quality of employment over time. This is particularly important during periods of significant turmoil in the labour market. Thus, for example, we do not know whether job losses during the financial crisis were concentrated amongst jobs of a particular quality level, nor do we know how these significant job losses (and subsequent employment growth) affected the quality of the 'average' job. If employment growth was disproportionately concentrated amongst lower quality jobs, then this would suggest an economy struggling to overcome the effects of the financial crisis. If lower quality jobs were most likely to have been shed during the financial crisis, this might also suggest that the jobs recovery might be brittle in the sense that these jobs might easily be shed again.

While there have been sporadic efforts at measuring job quality in South Africa, these have been once-off and have often not been nationally representative. As far as we have been able to ascertain, there are relatively few examples of research into measuring job quality systematically over time in South Africa, and certainly none are currently updated on a regular basis. Work by Webster et al. (2015), for example, is confined to three industries and uses a specially developed questionnaire that was administered in Gauteng. Reddy (2014), in his discussion of job quality, focusses on various individual indicators of job quality but has no overarching measure. This research, then, proposes to fill this gap by constructing a transparent measure, with national coverage, that can be updated relatively easily using regular publicly available labour force surveys conducted by Statistics South Africa.

This paper presents a set of indices measuring job quality in South Africa since 2000, which will form the baseline for our future estimates. Importantly, the approach that has been chosen is informed by the requirement to regularly provide updated estimates over time. The approach must also be sensitive to the way in which labour force surveys are released in South Africa, with wage data published months or even years after the data were collected.

The paper processed as follows: In Section 2 we measure job quality and briefly explain key conceptual issues, then we present the literature review of the previous efforts that has been done in measuring job quality globally and in South Africa. In Section 3 we explain the method and data we used to derive our South African job quality indices. In Section 4, we present our main findings and look at the variations across different groups. Then, Section 5 concludes.

2. The Measurement of Job Quality

2.1. Some Key Conceptual Issues

In the late 1960s and 1970s, the concept and measurement of 'quality of working life' came into fruition (Burchell et al., 2014; Kalleberg et al., 2000). During this period, institutional economists drew attention to differences in the quality of jobs by arguing that the labour market was divided into a primary segment comprising 'good' jobs, and a secondary segment comprising 'bad' jobs (Kalleberg et al., 2000). A key concern, then, was that the latter group of jobs was growing more rapidly, therefore reducing the average worker's welfare (Kalleberg et al., 2000).

In 1999, the concept of decent work was launched by the International Labour Organisation (ILO) and declared its institutional priority (Burchell et al., 2014). At the time, the ILO's main purpose regarding decent work was to "promote opportunities for women and men to obtain decent and productive work, in conditions of freedom, equity, security and human dignity" (ILO, 1999). According to the ILO (2011), the concept of decent work is based on the understanding that work is not only an income source but also more crucially a source of personal dignity, family stability, peace in community, and economic growth that extends opportunities for productive jobs and employment. Consequently, there has been a growing interest in the field of measuring job quality (Santero-Sanchez et al., 2015; Ficapal-Cusi et al., 2016; Crespo et al., 2017; Yu, 2020).

In parallel to the ILO's launch of Decent Work, the European Union (EU) began to focus more directly on the quality of jobs. Since 2001, promotion of 'better jobs' has been part of the European employment policy agenda (Leschke et al., 2008) and it has attracted ongoing research interest. While there is a substantial literature on the subject in the EU and Latin America (Alhawarin and Salamat, 2012, Huneeus et al., 2012, and Crespo et al., 2017, for example), there is relatively little research into job quality in Africa. In South Africa, job quality or employment quality has been the subject of studies by Reddy (2014), Webster et al. (2015), Mncwango (2016), and Yu (2020), for example.

The first challenge confronting any study of job quality is the lack of a single internationally accepted definition of the term and the absence of any uniform or comparable methods (Santero-Sanchez et al., 2015). Conceptually, there are differences among disciplines: thus, for example, economists typically focus on pay, sociologists focus on skill and autonomy, and psychologists focus on job satisfaction (Findlay et al., 2013). Indeed, in their analysis of decent work deficits, Bescond et al. (2003) highlight differences in terminology as one of the challenges in making cross-country comparisons.

A second analytical challenge is that job quality is a multidimensional concept (Muñoz de Bustillo et al., 2009; Leschke et al., 2008). The general or overall quality of a job is the sum of multiple aspects affecting both the employment relation and the work itself (Muñoz de Bustillo et al., 2009). This multidimensionality makes the development of a single indicator or a system of indicators more difficult as, prior to such development, it is necessary to define what aspects should be taken into consideration and their overall impact on job quality (EU, 2008).

Accordingly, different approaches or methodologies are used to measure job quality (Charlesworth et al., 2014; Burchell et al., 2012). One broad approach draws on economics and psychology and is generally described as more "subjective" (Charlesworth et al., 2014; Muñoz de Bustillo et al., 2009). A

second approach draws on the sociological literature and focuses on the more "objective" or intrinsic features of the job (Charlesworth et al., 2014; Eurofound, 2012). A third approach combines aspects of each approach by including both subjective and objective aspects of the job (Davoine et al., 2008; Santero-Sanchez et al., 2015).

The subjective approach consider job quality as the "utility that a worker derives from his or her job" (Eurofound, 2012). This approach is centred on extrinsic characteristics or outcomes of jobs such as job satisfaction, which expresses the overall judgements that a worker holds in relation to his or her job (Muñoz de Bustillo et al., 2011; Charlesworth et al., 2014). In this case, it is the worker's evaluation that is measured, not the features of the job itself (Charlesworth et al., 2014). This means that, what one perceive as 'good', might be 'bad' for someone else. While such evaluations may well reflect job features such as wages and hours, they are also relative to the aspirations and expectations workers may have about the quality of their job (Charlesworth et al., 2014; Burgess, 2005). This is reflected, for example, in the higher reported job satisfaction of part-time and female workers (Charlesworth et al., 2014; Wooden and Warren, 2004).

Despite the lack of an agreed comprehensive model of job quality, there is a strong evidence base regarding the individual factors known to influence job quality, and the aspects which might be included in a composite measure (Jones et al., 2014). The choice of approach is largely decided by the availability of data.

As discussed by Crespo et al. (2017), a series of methodological options is involved in the measurement of job quality measurement through micro-indicators. Firstly, the broad dimensions of job quality to be included in the analysis need to be identified. Secondly, proxy measures of the selected dimensions are chosen. Finally, one must opt for an analysis of either these individual indicators or a composite index constructed as a combination of these dimensions.

The aggregation of the scores for individual indicators is a key challenge: at its core, this is a problem of deciding the relative importance of each indicator in determining job quality. The simplest option is to calculate the average score across the set of indicators identified (Leschke et al., 2008; Wright et al., 2018). While this choice avoids an explicit decision on the relative weights of different dimensions of job quality, it implicitly assumes equal importance across each dimension. Alternatively, where it is felt that a particular dimension may be more (or less) important than another dimension, this can be accommodated by applying different weights to these dimensions. The challenge here, however, is that such choices are not objective in the sense that different researchers are likely to have different views on the exact weights that should be attached to each dimension. As Leschke et al. (2008) note, while "[many] people may agree on whether one indicator is more important than another … they are unlikely to agree by how much their relative importance differs". At the same time, scores from different dimensions may be combined using, for example, geometric as opposed to arithmetic means. A third approach—exemplified by methods such as Principal Components Analysis (PCA)—applies weights that are derived from an analysis of the data itself (see, for example, Santero-Sanchez et al., 2015). These methods have the advantage of not relying on subjective rankings of the importance of individual dimensions or indicators of job quality. However, PCA requires that all the data is available at the outset to derive the weights, something that is not true in all contexts.

In practice, most job quality indices are constructed using variations of this simple approach. Proxy indicators are combined as weighted or unweighted (or rather, equally weighted) averages of the normalised scores for each indicator to derive scores for the identified dimensions of job quality. In turn, these dimension scores are combined as a simple unweighted arithmetic mean to derive an overall job quality index. This simple and transparent approach is similar to that followed in the construction of well-known indices such as the Human Development Index (UNDP, 2019), which applies equal weights at the indicator and dimension level and aggregates dimensions using a geometric mean, or the World Economic Forum's *Global Competitiveness Index* (WEF, 2019), which applies equal

weightings at the indicator level but differential weightings at the dimension level and aggregates dimensions using an arithmetic mean.

2.2. Measuring Job Quality Internationally

Muñoz de Bustillo et al. (2011) discuss different views and existing proposals of job quality indicators, focussing primarily on Europe. The authors discuss the theoretical and methodological approaches in determining the process of designing an indicator of job quality and note that job satisfaction is unsuitable as an indicator of job quality for policy purposes. The paper reviews 19 job quality indices from Europe, USA, Chile and middle-income and developed countries. However, there are 2 indices reviewed which used subjective variables such as job satisfaction (Quality of Work in Flanders and Subjective Quality of Working Life Index). The paper caution against including job satisfaction together with other job quality components because of the problem of using input and output indicators simultaneously, thus double counting certain attributes. Furthermore, Muñoz de Bustillo et al. (2011) criticised the Laeken indicators of job quality for excluding important job quality attributes such as work intensity and wages while including unrelated variables such as unemployment rate and labour market transition. The Laeken JQI includes distributional variables (such as age and gender) but do not allow for distributional analysis because they are constructed at a country level.

Clark (2005) examines changes in job quality in OECD countries using both cross-section and panel data during the 1990s. The study uses six indicators to measure job quality, namely: pay, future job prospects, hours of work, job content and how hard or stressful the job is and interpersonal relationships. The study found that better educated and younger workers were protected against declining job quality over time.

Davoine et al. (2008) measure employment quality in the EU using both the objective and subjective indicators. The study uses four dimensions to measure employment quality, namely; socio-economic security, skills and training, working conditions and ability to balance work and family life. However, the measure does not include a wage dimension.

Alhawarin and Salamat (2012) use micro-level datasets to construct a job quality index for Jordanian wage and salary workers between 2000 and 2007. They found that a persistent gender gap exists in favour of male workers, whose jobs are characterised by a higher JQI scores. Workers with basic education and below are found to obtain considerably poorer quality jobs. The authors find that new entrants to the labour market and workers on the verge of retirement are more likely to have lower job quality jobs in comparison to workers in age groups in the prime working ages. The quality of jobs in agricultural activities is found to be on average lower than other activities. On the other hand, real estate activities tend to have higher job quality ratings than other sectors, especially in 2007.

Stier and Yaish (2014) analyses the extent to which women's concentration in certain occupations might explain gender differences in the subjective assessment of job quality, using data for 27 countries[1], including South Africa, from the *International Social Survey Programme* (ISSP)—an international collaborative survey programme with annual modules on a topic important for social science research. Similar to Alhawarin and Salamat (2012), the study finds that women lag behind men on most dimensions of job quality. However, the gender gap has narrowed across most job quality dimensions as women's relative share in occupations has grown.

Santero-Sanchez et al. (2015) define and construct a composite index of job quality for the tourism industry in Spain from a gender perspective in 2011. They find that women hold lower quality jobs than

[1] Australia, Belgium (Flanders), Bulgaria, Canada, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungrary, Ireland, Island, Japan, Latvia, New Zealand, Norway, Portugal, Russia, Slovenia, South Africa, Spain, Sweden, Switzerland, Taiwan and the USA.

men and that the gender gap widens with age. Results also show a double adversity for women: a lower job quality in management positions they have not traditionally held, and a wider quality gap in clearly feminised, lower skilled positions.

Ficapal-Cusí et al. (2016) investigates the multi-dimensional determinants (direct effects) of gender-related job quality in Spain. The research revealed four main results. First, despite the economic crisis, job quality in Spain had improved over the period of analysis. Second, the improvement in job quality during the crisis was more favourable to men than it was to women. Third, the gender differences in the explanation of job quality during the crisis increased considerably in favour of men. Fourth, this increase in gender difference in job quality in favour of men is explained by a worsening of four of the five explanatory dimensions thereof: intrinsic job quality; work organisation and workplace relationships; working conditions, work intensity and health and safety at work; and extrinsic rewards. Only inequality in the work-life balance dimension remained stable from 2008 to 2010.

In terms of skills, Stier (2015) investigated the skills divide in job quality using the 2005 ISSP module on work orientations for 28 countries, including South Africa. The paper examines four job quality measures: job achievement, job security, job flexibility and job content. The study found that low skilled workers lag behind those with higher skills in every aspect of their employment. They have lower job security, inferior job content, and less flexibility, and their jobs provide fewer opportunities for achievement.

Huneeus et al. (2012) adapt the multidimensional poverty methodology to study job quality dynamics using a unique household survey panel for Chile. They found higher job quality among larger and unionised firms. In contrast, Stier (2015) found that time flexibility and job security tend to be lower—with a negative impact on job quality—for union members. Brummund et al. (2016) also determines the factors that correlate with job quality and its link to poverty. They found that better quality jobs tend to be located in the public, utilities, and finance sectors, whereas workers in agriculture and fishing sectors have relatively low job quality.

Arranz et al. (2019) compare non-wage aspects of job quality of younger and older workers across European countries during the period 2005‑2015. They find that older workers fare better than younger workers, that employment quality is higher for employees working in countries where the wage-bargaining system is more coordinated or centralised and the employment protection for regular workers is stricter, and that these institutions tend to favour the job quality of older workers over younger ones.

Table 1 summarises the dimensions, unit of analysis and the approach taken by a number of authors. It is clear that, although there is significant variation in the structure of different indices, they tend to include a broadly consistent set of indicators.

2.3. Previous Measurements of Job Quality in South Africa

South African studies of job quality have typically been qualitative in nature, of limited coverage, and do not construct a composite index (Beer et al., 2014; Webster et al., 2015; Roncolato & Willoughby, 2017). Instead, they have looked at factors that are believed to determine job quality. Most recently, however, a composite index of job quality has been constructed using quantitative data by Yu (2020).

De Beer et al. (2014) use a mixed methods approach to examine work conditions of South African tourist guides in Gauteng and Mpumalanga in 2010. The study analysed a range of issues surrounding job security, income and benefits of registered tourism guides and finds that the majority of South African tourist guides work in unprotected and precarious work environments.

Webster et al. (2015) constructed an index of decent work in the farming, hospitality and security industries in Gauteng. The study conducted qualitative interviews and used nine indicators to measure

decent work, namely: employment opportunities; stability and security at work; adequate earnings and productive work; decent hours of work; combining work, family and personal life; equal opportunity and treatment; safe work environment; social security and promotion of social dialogue. They found that security workers scored the lowest on decent hours of work; combining work, family and personal life; and equal opportunity and treatment compared to their counterparts. In contrast, those in farming scored lowest on social security; adequate earnings; stability and security at work; and social dialogue. By contrast, hospitality workers were better off than their counterparts in the other two industries in terms of safety, and did not have the lowest score on any of the indicators assessed.

Reddy (2014) focusses on various individual indicators of job quality but has no overarching measure. The study discusses job quality indicators and how the individual indicators have changed between 2001 and 2011. The paper finds that more workers had increased access to employment benefits. The share of workers with written contracts increased from 54.9 percent in 2001 to 79.7 percent in 2011, while access rates to paid leave, medical aid and UIF also increased. In contrast, the share of workers contributing to pension decreased from 51.6 percent in 2001 to 48.5 percent in 2011.

Mncwango (2016) presents the general public's perceptions and views of the labour market on important aspects of the job. The study evaluated eight aspects relating to work values on a five-point scale, ranging from very important to not important. The paper found that job security was rated as very important more often than any other characteristics. Although the public sees a need for occupational growth, intrinsically satisfying jobs and good income, security of tenure is what makes a job 'good' compared with other job conditions and financial benefits.

Roncolato and Willoughby (2017) draw on feminist and Marxist traditions to develop a framework for analysing job quality, which incorporates context, social relations, and power. Job quality among small business owners in low-income communities surrounding Cape Town is analyzed using data from semi-structured, time-intensive interviews. The results reveal a complicated story of self-employment being a means of expressing creativity, forming identity and community, while simultaneously being characterized by insecurity and harsh constraints.

Table 1. Examples of Dimensions, Numbers of Indicators and Approaches to Weighting Measures of Job Quality

Author	Dimensions (Number of indicators)	Level of Observation	Weighting approach
Brisbois (2003)	Health and well-being (2); Skills development (3); Reconciliation of working and non-working life (3); Career and employment security (2); Satisfaction with working conditions (1)	Micro and macro	Focuses on individual indicators with no overall job quality measure
Cazes et al. (2015)	Earnings (2); Labour market security (4); Quality of the working environment (4)	Micro	Weighted average
Charlesworth et al. (2014)	Working-time autonomy (4); Job security (2); Job control (2); Workload (1); Skill development (1); Access to work-life provisions if needed (5)	Micro	Equal weighting within dimensions; equal weighting of dimensions
Crespo et al. (2017)	Pay (1); Physical working conditions (12); Intensity (3); Autonomy (4); Job security (1); Health (1); Promotion prospects (1); Learning (1); Work-life balance (1); Interpersonal relations (1); Intrinsic rewards (2)	Micro	Equal weighting within dimensions; equal weighting of dimensions
Eurofound (2012)	Earnings (1); Prospects (1); Intrinsic job quality (4); Working time quality (1)	Micro	Weighted average
Holman & McClelland (2011)	Work organisation (2); Wage & payment system (1), Security & flexibility (2); Skills & development (1); Engagement & representation (1)	Micro	Weighted average
Huneeus et al. (2012)	Income (1); Contracts and social protection (1); Tenure (1); Training (1)	Micro	Weighted average
Huneeus et al. (2015)	Earnings (1); Formality (2); Job tenure (1)	Micro	Equal weights
Leschke et al. (2008)	Wages (2); Non-standard forms of employment (2); Working time and work-life balance (4); Working conditions and job security (4); Skills and career development (2); Collective interest representation (3)	Micro, multiple country-specific datasets	Indicators weighted within dimensions; equal weighting of dimensions
Santero-Sanchez et al. (2015)	Job security (2); Employment income and other emoluments (1); Working hours and work-life balance (5); Skills and training (6); On-the-job safety and gender equality (4)	Micro	Principal component analysis
Webster (2015)	Employment opportunites (3); Stability and security at work (3); Adequate earnings (2); Decent hours of work (2); Combining work, family and personal life (1); Equal opportunity and treatment (3); Safe work environment (3); Social security (8); Social security (8); Social dialogue (2)	Micro	Principal component analysis
Yu (2020)	Wage level (1); Employment security (4); Income security (3); Social benefits (3); Skills (1); Work hours and flexibility (4); Participation and dialogue (2)	Micro	Indicators equally weighted in overall job quality measure (no dimension scores)

A recent study that constructs a nationally representative job quality measure in South Africa is by Yu (2020). Yu (2020) derives a composite, multidimensional employment quality index by taking 18 indicators from seven dimension into consideration, with each of the 18 indicators weighted equally within the index. Essentially, given that each of the dimensions does not include the same number of indicators, this implies unequal weighting of the dimensions within the overall index. The study finds highly educated, white male workers aged at least 35 years, who lived in urban areas of the Western Cape and Gauteng, and were involved in high skilled occupations in the formal, public sector enjoyed significantly better employment quality.

3. Data and Methodology

3.1. Methodology

Due to its inherently multidimensional nature, the conventional approach to measuring job quality is the use of indices. There are, however, a number of methodological choices to be made when quantifying job quality. The starting point for the choice of methodological approach in constructing this job quality index for South Africa is the objective that this index be updated on an ongoing basis as new data is published by Statistics South Africa. The immediate implication of this is that a data-driven calculation of weights—such as principal components analysis—is not practical. A second consideration is the need to describe job quality according to individual characteristics in order to track differences and inequalities in job quality across groups and locations. This is an important restriction in that it means that the usefulness of aggregate or national-level measures of job quality, potentially derived from other data sources, is limited; instead, the index is constructed purely from the survey microdata.

We therefore adopt a simple transparent methodology to combine information on various aspects of job quality, in line with the approach followed by Crespo et al. (2017). In order to construct the index, we undertake the following steps:

Step 1: Define dimensions of job quality in accordance with literature.

Step 2: Identify indicators of job quality in line with available data.

Step 3: Normalise each indicator to range between zero and one in order to eliminate differences in units of measurement.

Step 4: Apply weights—in our case equal weights—to indicators within each dimension and aggregate to create a score for the dimension.

Step 5: Aggregate each dimension score into a composite indicator, again using equal weights.

The job quality measure that we propose has six dimensions: (i) wages; (ii) non-standard forms of employment; (iii) work-life balance and working time; (iv) working conditions; (v) access to training and career advancement; and (vi) collective interest representation and voice/participation.

Wages. This is an important component of every job: workers supply labour to earn a wage. According to Leschke et al. (2008), what is important for the worker's welfare is the purchasing power of the wage earned. In general, the higher the wage, the greater the purchasing power and the easier it is for workers to support themselves and their households. Wages are frequently incorporated in some form in measures of job quality (e.g. Cazes et al., 2015; Crespo et al., 2017; Eurofound, 2012; Huneeus et al., 2012, 2015). Instead of using actual wages, however, the indicator for this dimension expresses wages relative to the January 2019 National Minimum Wage (NMW) of R20 per hour. As indicated in Table 2,

an individual will score zero if their wage is below the NMW, rising to a score of one if the wage is at least eight times the NMW.

Benefits and employment security: This dimension addresses the security of employment and the benefits to which workers are entitled. The dimension includes eight indicators, namely permanent position, and written contract, and entitlements to unemployment insurance contributions, pension contributions, medical aid contributions, paid leave, paid maternity/paternity leave, and paid sick leave. These types of indicators are used in measures by various authors, including Cazes et al. (2015), Ficapal-Cusí et al. (2016), and Yu (2020). Greater access to non-wage employment benefits is interpreted as greater job quality, resulting in a higher score for this dimension. This dimension may also include indicators such as the individual's subjective perception of likelihood of losing the job in the next 6 months (Leschke and Watt, 2013), although such information is not available in nationally representative South African household surveys.

Working time and work-life balance: Excessive working hours may have adverse effects on workers' health (Leschke and Watt, 2014) and their general well-being. At the same time, the involuntary limitation of hours of work at low levels is also indicative of poor quality employment. This dimension consists of four indicators, namely standard hours of work, weekend work, time-related underemployment, and job satisfaction. Following Statistics South Africa's (2008) definition, time-related underemployment exists where an individual who worked fewer than 35 hours per week during the reference period is willing and available to work additional hours. This means that workers that usually work more than 40 hours a week, those who work on weekends, and those who are underemployed will score lower in this dimension. Based on our scoring for standard hours of work, working more than 40 hours is interpreted as poorer job quality, resulting in a lower score for this dimension. As is clear from Table 12 in the appendix, large proportions of employees who work fewer than 40 hours per week indicate that they would like to work more hours, while the proportion is substantially lower amongst employees above or just below 40 hours. For example, while over 40 percent of workers who work 20 hours per week or less wish to work longer hours, this is true of just six percent of those who work 36-40 hours per week.

Working conditions: A key set of factors influencing job quality relate to the actual working conditions under which the worker is expected to perform. This includes, for example, the physical working conditions, such as exposure to noise or extreme temperatures, physical exertion, and dangerous machinery or substances. Other aspects of working conditions include the ability (or not) to direct one's own work effort (work autonomy), work intensity, and even aspects of organisational culture or norms. Somewhat surprisingly, South African labour force surveys are completely silent on the issue of working conditions and do not include questions related to any of the abovementioned indicators. This is clearly a significant gap in the surveys and in our understanding of the nature of employment in South Africa. What this means is that, while we recognise working conditions as a key dimension of job quality, our job quality indices are unable to account for this dimension.

Skills and career development: This dimension covers the extent to which jobs provide workers with opportunities to develop their skills and build their human capital and, further, the extent to which they promote workers' access to other job opportunities through which they are able to advance their careers. This dimension might include indicators such as whether workers had access to or participated in education or training opportunities, or whether the worker felt that their current job provided opportunities for further career advancement. Unfortunately, none of South Africa's national labour market surveys include these types of indicators and it is therefore not possible to include this dimension in our measure of job quality.

Representation and voice: Workers sense of inclusion in their working environment is also an important aspect of job quality. There are various indicators that might be included as part of this dimension. For example, Leschke and Watt (2014) originally included trade union density and collective bargaining

coverage in their measure, but highlight items included more recently in survey data around, for example, whether there are management meetings at which workers can express their views as potentially useful indicators. In our measure of job quality, two indicators are included. The first is membership of a trade union or other worker organisation, while the second relates to the way in which workers' salary increases are determined. In terms of these indicators, workers that belong to unions or other workers organisations and those with representation in determining their salary increases have a higher score.

In essence, while we identify six key dimensions of job quality, data constraints mean that it is not possible to find individual-level indicators within each of these dimensions. Further, changes to the survey questionnaires over time mean that it is not possible to consistently track each indicator from 2000 to 2017. As a result, we construct six job quality indicators (or JQI sets) that are consistent over different time periods. Our main JQI, for example, which is the most comprehensive in terms of its constituent indicators and which will be used to track job quality going forward, only has values for 2015 and 2017 at this point. In contrast, the index referred to as JQI-5 is the 'lowest common denominator' across the 18 years of Labour Force and Quarterly Labour Force Surveys, providing a limited measure of job quality between 2000 and 2017. Table 2 presents the six identified dimensions of job quality, the chosen indicators within each dimension, and the associated scoring methods. In addition, in the appendix, Table 9 details the availability of data for each of the chosen indicators in the Labour Force Surveys, the Quarterly Labour Force Surveys, and the Labour Market Dynamics datasets between 2000 and 2017; and Table 10 details the composition of six variations of the job quality index in terms of which indicators are included and which are excluded for each.

While a number of procedures are in place for weighting indicators, there is no consensus on a single method being the optimal method. Further, our view is that there is insufficient evidence available to justify weighting either indicators or dimensions differently within the index. This study will adopt a simple weighting approach for aggregation, equally weighting indicators to calculate scores for dimensions, and equally weighting dimensions to calculate an overall score. In this sense, we remain in the logic of Tangian (2005) who showed that equal weighting is the most used option in the literature. For each of the N dimensions within our job quality index, we calculate a score by equally weighting the values for each of that dimension's M indicators. In other words, the score for a given dimension (D_n) is calculated as $\frac{1}{M}\sum_{m=1}^{M} z_m$, where z_m is the value (between 0 and 1) of indicator m. Similarly, the overall score is calculated as $\frac{1}{N}\sum_{n=1}^{N} D_n$. While each indicators is equally weighted within each dimension, and each dimension is equally weighted within the overall index, it is important to note that this implies that, where the number of indicators within each dimension differs, the indicators themselves are not equally weighted within the overall index.

Table 2. Dimensions, Indicators and Scoring for the Job Quality Index

Dimension	Indicators	Score	
Wage	Wage	0.00 0.25 0.50 0.75 1.00	Less than the NMW At least 1, but less than twice the NMW At least 2, but less than 4 times the NMW At least 4, but less than 8 times the NMW 8 or more times the NMW
Benefits & Employment Security	Permanent position	0.00 1.00	No Yes
	Written contract	0.00 1.00	No Yes
	UIF contributions	0.00 1.00	No Yes
	Pension contributions	0.00 1.00	No Yes
	Medical aid contributions	0.00 1.00	No Yes
	Paid annual leave	0.00 1.00	No Yes
	Paid maternity/paternity leave	0.00 1.00	No Yes
	Paid sick leave	0.00 1.00	No Yes
Working Time & Work-Life Balance	Standard hours of work	0.00 0.20 0.40 0.60 0.80 1.00	61+ hours 56-60 hours 51-55 hours 46-50 hours 41-45 hours 0-40 hour
	Weekend work	0.00 1.00	Yes No
	Underemployment	0.00 1.00	Yes No
	Job satisfaction	0.00 1.00	No Yes
Working Conditions	No indicators due to lack of data in labour force surveys		
Skills & Career Development	No indicators due to lack of data in labour force surveys		
Representation & Voice	Membership of trade unions, other workers' organisation	0.00 1.00	Not a member of a trade union Member of a trade union
	Determination of salary increment	0.00 0.50 1.00	Employer only; No regular annual salary increase Negotiation between union and employer; Bargaining council or other sector bargaining arrangement Negotiation between myself and employer; Other

Our measure differs from that published by Yu (2020) in a number of ways. First, Yu's index is equally weighted at the level of the indicator. In other words, he does not aggregate indicators to the scores for separate dimensions. Thus, while we consider each *dimension* to contribute equally to the measure of job quality, Yu considers the contribution of each *indicator* to be equal. Second, unlike Yu, we do not consider tenure or firm size as indicators of job quality. Finally, we employ slightly different cutoffs for scoring indicators such as wages and hours of work. Nevertheless, our results are broadly consistent with his.

3.2. Data

The underlying data for this study are drawn from a number of nationally representative household surveys that are focussed on the South African labour market. Specifically, these are the Labour Force Surveys (LFS) and Labour Market Dynamics (LMD), which comprise the four Quarterly Labour Force Surveys (QLFS) conducted within a given calendar year. The LFSs were conducted bi-annually in February/March and September each year between 2000 and 2007, covering approximately 30 000 households—roughly 70 000 individuals—in each wave. In 2008, the LFS was replaced by the Quarterly Labour Force Survey. These surveys are conducted continuously over a given quarter, and cover approximately 30 000 households per quarter (roughly 70 000 individuals).

The introduction of the QLFS constitutes an important break in the time series of labour market data for two reasons. First, the questionnaire was redesigned and aimed to fill in some of the gaps in the LFS. For example, where the LFS asked those who were not employed but wanted work whether they had actively sought work in the reference period, the QLFS also asked whether they had actively tried to start a business. The redesign also entailed a number of changes to earlier definitions. Incidentally, this redesign of the questionnaire also entailed the removal of questions on earnings and union membership, which were subsequently reintroduced after an outcry from data users, thus resulting in gaps in time coverage for these variables. Second, whereas the LFS was conducted in a given month, the QLFS was designed as quarterly survey, with the sample split across each of the three months within the quarter.

While the earnings questions were reintroduced in 2010, the earnings data is not released as part of the QLFS. Instead, the data is published as part of the Labour Market Dynamics datasets, which pool the four QLFS datasets conducted in a given calendar year. Unfortunately, the LMD datasets are typically published significantly after the collection of the QLFS data, making timeous analysis of wage data impossible. For example, at the time of the data analysis for this research, the latest published LMD dataset was for 2018.

The LFS and LMD contain coarse earnings data, which consists of a mixture of bracket responses, missing values and point values, making it difficult to construct a continuous money-metric measure of workers' welfare (Vermaak, 2012). To address this problem, we have utilised the Post-Apartheid Labour Market Series (PALMS) data, compiled by Kerr, Lam and Wittenberg (2019), which combines all the labour market surveys conducted in South Africa in the post-apartheid period. The PALMS data has two important advantages from the perspective of this research. First, to address inconsistencies and gaps in the earnings data, it includes multiple imputations of earnings that are constructed in a consistent way across datasets. Second, it includes a set of cross-entropy population weights that have been adjusted to be consistent with the *Mid-Year Population Estimates* published annually by Statistics South Africa. PALMS also includes a number of variables that have been cleaned and made consistent across surveys.

For this research, we make use of the PALMS from 2000 onwards. We also restrict our sample to those aged 15 to 64 years at the time of the survey and who report working for someone else for pay (i.e. employees).

4. Results

4.1. Overview of the Job Quality Index

The most comprehensive version of the job quality index (which we will refer to as the JQI) is made up of the four dimensions, namely: (i) Wages; (ii) Benefits and employment security; (iii) Working time and

work-life balance; and (iv) Representation and voice. Table 3 provides an overview of the JQI and its dimensions for 2011 and 2017. The indicator suggests that job quality for employees in the South African labour market decline between 2011 and 2017, with the JQI decreasing by 0.8 percent per year. This statistically significant decline was driven by a deterioration in the wage dimension (-4.0 percent per annum) and the representation and voice working time and work-life balance dimension was not statistically significant, the score on the benefits and employment security dimension rose by 0.3 percent per annum.

Table 3. Overview of the Job Quality Index (JQI), 2011-2017

	2011	2017	Ave. Annual Change
	Index Value	Index Value	%
Job Quality Index	105.1 [104.729; 105.472]	100.0 [99.661; 100.339]	-0.8 *
Wage	127.1 [126.211; 128.067]	99.7 [98.831; 100.506]	-4.0 *
Benefits and employment security	97.1 [96.607; 97.621]	99.1 [98.629; 99.558]	0.3 *
Working time and work-life balance	99.7 [99.420; 99.912]	100.0 [99.770; 100.216]	0.1
Representation and voice	112.2 [111.040; 113.268]	98.6 [97.536; 99.630]	-2.1 *

Source: *Own calculations using LMD (2011, 2017) and Kerr et al. (2019).*

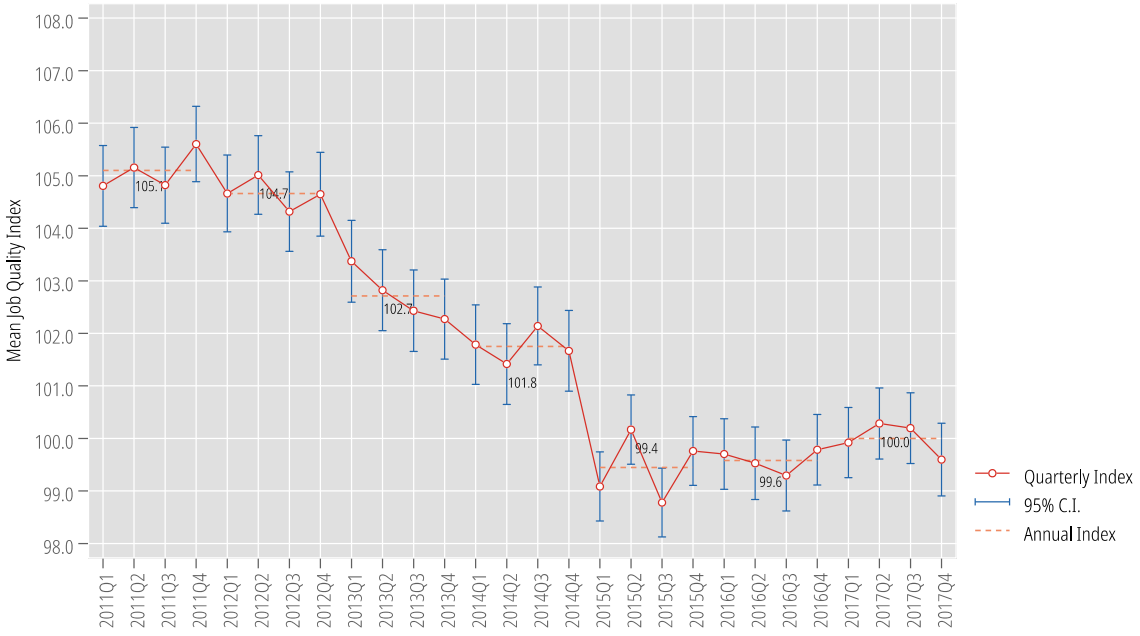
Note: *An asterisk denotes statistically significant changes at the 95 percent confidence level. Sample is restricted to employees aged 15-64 years.*

As Alhawarin et al. (2011) note, macroeconomic shocks and labour market dynamics may result in changes in the quality of jobs over time, whether this occurs through changes in the quality of the jobs being created or through (either negative or positive) changes in the quality of existing jobs. Figure 1 presents the changes in the JQI measure between 2011 and 2017, with estimates presented on both a quarterly and an annual basis (the latter indicated by the horizontal dotted lines). Using this measure of job quality, the data suggests that, although initially stable at around 105, job quality followed a weakening trend between 2012 and 2015. However, having reached an average of 99.4 for 2015, the index stabilised at roughly this level. Nevertheless, based on this measure, employees in South Africa in 2017 held jobs that were of significantly lower quality than had been the case six years earlier.

Figure 2 provides a basis for understanding this decline in job quality over the period by presenting annual scores on the JQI measure alongside those for the four dimensions. The scores for each dimension, as well as the overall JQI, are rebased so that the 2017 values equal 100. This rebasing at the level of the dimensions means that the overall value of the job quality index can not be calculated as the average of the dimension scores presented here.[2]

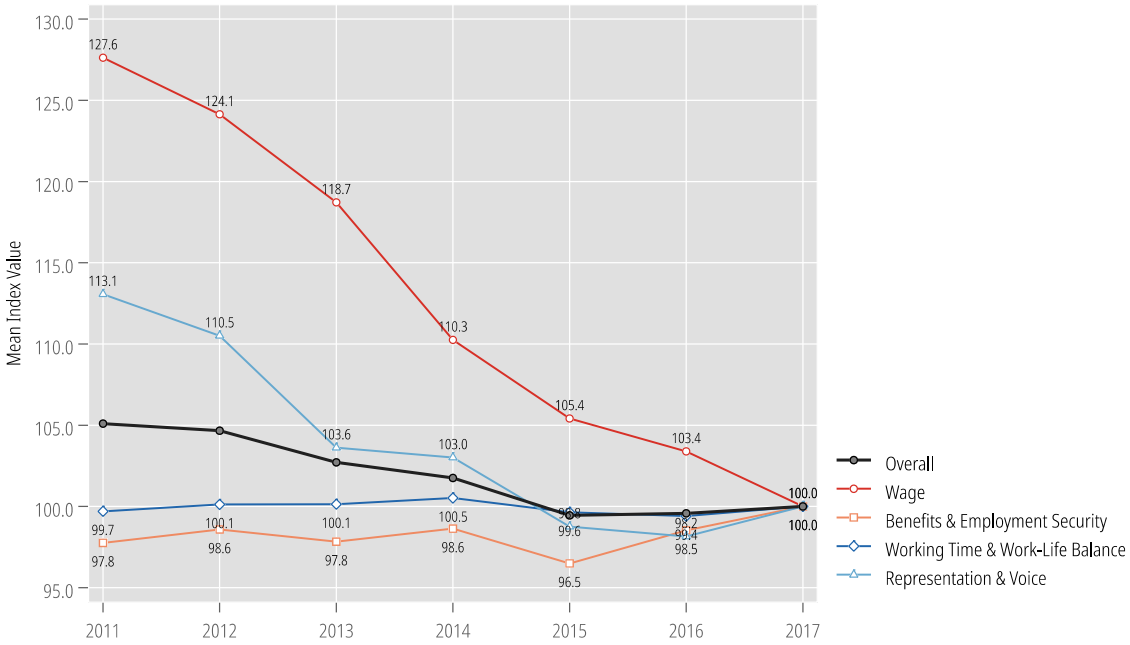
[2] Original and rebased indices for the overall JQI index and its dimension are presented in Table 11 in the appendix.

Figure 1. Trends in Job Quality as Measured by the Job Quality Index, 2011-2017



Source: *Own calculations using LMD (2011-2017) and Kerr et al. (2019).*
Note: *Sample is restricted to employees aged 15-64 years.*

Figure 2. Trends in the Dimensions of Job Quality, 2011-2017



Source: *Own calculations using LMD (2011-2017) and Kerr et al. (2019).*
Note: *Sample is restricted to employees aged 15-64 years.*

As noted, the decline in job quality observed over the 2011-2017 period can be explained by declines in the scores for both the wage dimension and the representation and voice dimension. The score for the wage dimension declined from 127.6 in 2011 to 100.0 in 2017, with the deterioration observed

throughout the period. Similarly, the score for representation and voice also declined over the period from 113.1 to 100.0, although this obscures the fact that 2017 marked a slight recovery in the score relative to 2016. In contrast, the scores for the benefits and employment security and the working time and work-life balance dimensions ended 2017 marginally higher than in 2011.

The decrease in the overall wage dimension is explained by falling proportions of employees in the higher real earnings categories and a relatively strong increase in the proportion of employees reporting earnings below the national minimum wage. Table 13 in the appendix presents the distribution of employees across the categories of the wage dimension over the period, with the categories defined as multiples of the national minimum wage. The proportion of workers in all categories declined over the period, with the exception of those earning less than the national minimum wage. This indicate that the rapid decline in the wage dimension is a result of the increasing number of workers earning less than the national minimum wage. It is important to note that this is not a issue of a rising real value of the minimum wage, since the currency values of the cutoffs in each year are determined with reference to the level of national minimum wage that was introduced in January 2019.

4.2. Trends in Job Quality Over Time

4.2.1. Job Quality by Demographic Characteristics, 2011-2017

Table 4 presents estimates of the mean JQI across various demographic categories between 2011 and 2017. There is a clear gender gap in terms of job quality, with men enjoying better job quality (higher JQI scores) than women. In 2017, male employees had an average score of 101.3 compared to 98.4 for females, a difference of 2.9 index points. This advantage for males is in line with their advantages observed across various other labour market outcomes, including labour force participation rates, unemployment rates, and wages (see, for example, Republic of South Africa, 2015). Male employees have higher scores across all but the working time and work-life balance dimension, where they scored 97.7 compred to 102.7 for women. While job quality declined for both men and women, the decline was marginally larger for women, with the result that the gap widened slightly in absolute terms over the six years between 2011 and 2017.

White employees hold a significant advantage over other groups in terms of job quality. In 2017, the mean score for Whites was 129.2, followed by Asians (117.0), Coloureds (106.1) and Africans (93.7). In 2017, White employees scored highest on three of the four dimensions, with the gap particularly pronounced on the wage and, to a lesser extent, the benefits and employment security dimensions. While African employees scored an average of 80.6 on the wage dimension in 2017, Asian employees scored 162.0 and White employees 197.5. Africans perform better than any of the other groups on the representation and voice dimension (102.2 compared to 89.8 for Coloureds, 88.2 for Asians, and 99.0 for Whites, although the gap between the scores for Africans and Whites is not statistically significant). All four groups, however, experienced deteriorations in job quality over the six-year period. These declines were largest in absolute terms and most rapid for Asians and Whites, resulting in a slight narrowing of the differential in job quality between Africans and Whites.

Table 4. Scores on the Job Quality Index by Demographic Characteristics, 2011-2017

	2011	2017	2011-2017	
			Change (index points)	Ave. Annual Growth (%)
Overall	**105.1**	**100.0**	**-5.1**	**-0.8 ***
Gender				
Male	106.2	101.3	-4.9	-0.8 *
Female	103.7	98.4	-5.3	-0.9 *
Race				
African	96.9	93.7	-3.2	-0.6 *
Coloured	109.6	106.1	-3.5	-0.5 *
Indian/Asian	126.9	117.0	-9.9	-1.3 *
White	136.9	129.2	-7.8	-1.0 *
Age				
15-24 yrs	83.1	78.2	-4.9	-1.0 *
25-34 yrs	100.2	94.6	-5.6	-1.0 *
35-44 yrs	110.5	104.1	-6.4	-1.0 *
45-54 yrs	113.7	107.8	-5.9	-0.9 *
55-64 yrs	114.4	110.6	-3.8	-0.6 *
Years of Education				
0-7 yrs	75.6	72.0	-3.6	-0.8 *
8-11 yrs	87.1	80.4	-6.7	-1.3 *
12 yrs	111.3	104.8	-6.5	-1.0 *
13-14 yrs	141.7	128.0	-13.7	-1.7 *
15+ yrs	153.4	144.1	-9.2	-1.0 *

Source: Own calculations using LMD (2011, 2017) and Kerr et al. (2019).
Note: Sample is restricted to employees aged 15-64 years.

Job quality is found to increase with age. Job quality amongst youth cohorts—those under the age of 35 years—is below the national average. For the youngest cohort within the labour market, those aged 15-24 years old, the JQI in 2017 was just 78.2 (i.e. nearly one-quarter lower than the national average), while for 25-34 year olds it was 94.6. In contrast, the mean index value rises to 104.1 for 35-44 year olds, 107.8 for 45-54 year olds, and 110.6 for 55-64 year olds. This wide variation is explained by large differences in the scores for each of the four dimensions. For example, 15-24 year olds score just 44.6 on the representation and voice dimension, compared to 124.0 amongst those aged 55-64 years. The correlation between wages and age also means that there is a range of more than 46 points between the values on the wage dimension for 15-24 year olds (68.8) and 55-64 year olds (115.3). Scores for these two groups on the benefits and employment security dimension are 74.5 and 108.6, while those on the working time and work-life balance dimension are 95.0 and 106.1 respectively.

Higher educational attainment is associated with better job quality in South Africa, with large gaps observed on most dimensions between those with the least and those with the most years of education. Employees with less than 12 years of education had mean JQI scores below the national average in both 2011 and 2017: in 2017, the JQI score for those with no secondary education (i.e. 0-7 years) was 72.0, while those with 8-11 years of education scored 80.4. In contrast, the mean score for employees with at least 15 years of education was 144.1 in 2017, roughly twice the score for those with 0-7 years of education. The range of scores for individual dimensions was even great: for the wage dimension, mean scores ranged from 34.8 for those with 0-7 years of education to 224.7 for those with 15 or more years of education; for the benefits and employment security and representation and voice dimensions, scores ranged from 59.9 to 142.7 and from 57.6 to 155.8 respectively. In contrast, on the working time and work-life balance dimension, mean scores were much closer to the national average for all groups, ranging from 96.1 for those with 8-11 years of education to 112.1 for those with 15 years or more of education. Despite these differences, the deterioration of job quality observed over the period was experienced within each of the education categories with declines ranging between -0.8 percent and -1.7 percent per annum.

In sum, individuals with higher quality jobs in South Africa are more likely to be better-educated, older, White, and male. In contrast, individuals with lower quality jobs are more likely to have little or no education, young, African, and female.

4.2.2. Job Quality by Industry, 2011-2017

The estimates presented in Table 5 detail trends in job quality across industry and major sector between 2011 and 2017. On average, job quality as measured by the JQI index was highest in the secondary sector at 102.9 in 2017. In contrast, the mean score for employees in the tertiary sector was marginally lower than the national average at 99.8, falling to 95.0 for the primary sector. Job quality declined for employees in both the secondary and tertiary sectors: these declines—by 0.7 percent per annum for the former, and 1.0 percent per annum for the latter—were statistically significant. In contrast, however, the trend in the primary sector was marginally positive with the score rising by 1.4 index points over the period, although this was not statistically significant.

Table 5. Scores on the Job Quality Index by Industry, 2011-2017

	2011	2017	2011-2017	
			Change (index points)	Ave. Annual Growth (%)
Overall	**105.1**	**100.0**	**-5.1**	**-0.8 ***
Primary Sector	***93.6***	***95.0***	***1.4***	***0.2***
Agriculture	67.4	71.4	4.0	1.0 *
Mining and quarrying	139.4	137.9	-1.5	-0.2
Secondary Sector	***107.4***	***102.9***	***-4.5***	***-0.7 ****
Manufacturing	116.1	111.7	-4.3	-0.6 *
Utilities	135.8	142.0	6.1	0.7
Construction	87.0	84.7	-2.3	-0.4
Tertiary Sector	***105.7***	***99.8***	***-5.9***	***-1.0 ****
Wholesale and Retail Trade	92.4	87.2	-5.2	-1.0 *
Transport, Storage, Communication	101.5	97.1	-4.4	-0.7 *
Financial and Business Services	113.5	107.1	-6.4	-1.0 *
CSP Services	131.6	120.3	-11.3	-1.5 *
Private Households	61.8	57.6	-4.3	-1.2 *

Source: *Own calculations using LMD (2011, 2017) and Kerr et al. (2019).*
Note: *Sample is restricted to employees aged 15-64 years.*

That the primary sector did not see a statistically significant decline in job quality over the period is due to improvements in job quality in agriculture, where the mean JQI score rose by 1.0 percent annually from 67.4 in 2011 to 71.4 in 2017. This was driven by improvements in the benefits and employment security, and working time and work-life balance dimensions, which countered a decline in the wage dimension. Importantly, mean scores for employees in agriculture ended the period closer to the national averages in all four dimensions. This relatively strong performance balanced out weakness in mining and quarrying, although the 1.5 index point decline was not statistically significant. Within the secondary sector, manufacturing saw a statistically significant decline of 0.6 percent per annum, although neither of the changes observed in utilities or construction were significant. Industries within the tertiary sector, however, all saw statistically significant declines in their mean JQI scores, ranging from -0.7 percent per annum in transport, storage and communication to -1.5 percent per annum within community, social and personal (CSP) services.

In terms of mean job quality within specific industries, two stand out as having particularly high scores: mining and quarrying, which was ranked first in 2011 and second in 2017 with scores of 139.4 and 137.9 respectively; and utilities, which saw its score rise from 135.8 in 2011 to 142.0 in 2017. These were followed by CSP services with a score of 120.3 in 2017, down sharply from 131.6 in 2011, and manufacturing (111.7). Job quality as measured by the JQI index was lowest within private households (57.6 in 2017), agriculture (71.4), construction (84.7), and wholesale and retail trade (87.2).

In terms of the four dimensions of job quality covered by the JQI measure, private households score particularly poorly on the wage dimension (28.6 in 2017, second only to agriculture at 26.4), the benefits and employment security dimension (27.0, compared to construction with the second-lowest score of 69.6), and representation and voice (23.1, with agriculture having the second-lowest score of 36.7). It is clear, therefore, that private households are failing to provide quality employment across a broad range of indicators. Employees in wholesale and retail trade score lowest on the working time and work-life balance dimension (85.8 in 2017), followed by those in transport, storage and communication (91.4). In contrast, utilities and mining and quarrying scored highest on the wage dimension (168.5 and 148.6 in 2017 respectively). These two sectors were also ranked second and first respectively on the benefits and employment security dimension with scores of 144.7 and 150.6, and on the representation and voice dimension (198.6 and 233.0). Employees in utilities also rank first in terms of working time and work-life balance with a score of 111.7 in 2017, followed by community, social and personal services (107.5), and manufacturing (106.5).

4.2.3. Job Quality by Occupation and Skill Level, 2011-2017

While knowing the extent of job quality across economic sectors is important, it is equally important to know which occupations are characterised by better job quality. Table 6 presents estimates of job quality by occupation and skill level for 2011 and 2017. As would be expected, skill level and job quality are correlated: high skilled jobs score much higher than low skilled jobs on the JQI index, with scores of 142.4 and 74.3 respectively in 2017. Skilled occupations occupy the middle ground with a mean score that is much closer to the national average in both years. Importantly, the decline in job quality observed nationally and across a wide range of subgroups was not observed for high skilled occupations as a group, with the index value virtually unchanged between 2011 and 2017. In contrast, scores for skilled employees and for low skilled employees fell 1.1 percent and 0.6 percent annually over the six years, with both changes being statistically significant.

Table 6. Scores on the Job Quality Index by Occupation and Skill Level, 2011-2017

	2011	2017	2011-2017		
			Change (index points)	Ave. Annual Growth (%)	
Overall	**105.1**	**100.0**	**-5.1**	**-0.8**	*****
High Skilled	***142.5***	***142.4***	***-0.1***	***0.0***	
Managers	140.0	136.1	-4.0	-0.5	*
Professionals	145.1	149.4	4.3	0.5	*
Skilled	***111.1***	***103.7***	***-7.3***	***-1.1***	*****
Technicians	138.5	125.3	-13.2	-1.7	*
Clerical	121.5	115.7	-5.8	-0.8	*
Service and Sales	93.3	89.0	-4.3	-0.8	*
Skilled Agricultural	69.3	63.6	-5.7	-1.4	
Crafts and Related Trades	101.0	97.8	-3.2	-0.5	*
Operators and Assemblers	102.6	97.9	-4.7	-0.8	*
Low Skilled	***77.2***	***74.3***	***-2.8***	***-0.6***	*****
Elementary	82.9	79.6	-3.3	-0.7	*
Domestic Workers	62.9	58.1	-4.8	-1.3	*

Source: *Own calculations using LMD (2011, 2017) and Kerr et al. (2019).*
Note: *Sample is restricted to employees aged 15-64 years.*

While there is a strong link between skill level and job quality, the link at the occupational level is slightly weaker. Job quality as measured by the JQI measure is highest for professionals (149.4 in 2017), followed by managers (136.1), technicians (125.3) and those in clerical occupations (115.7). The lowest levels of job quality are observed amongst domestic workers (58.1 in 2017), and those in skilled agricultural (63.6), elementary (79.6), and service and sales (89.0) occupations. In line with the national-level decline in the JQI index value, statistically significant deteriorations in mean job quality are

observed across all but two occupation, ranging between declines of 0.5 percent per annum amongst managers and crafts and related trades occupations and 1.7 percent per annum amongst technicians. The two exceptions are professionals, where the index value increased by 0.5 percent per annum over the period, and skilled agricultural occupations, where the decline of 1.4 percent per annum was not statistically significant.

More skilled occupations are most likely to rank in the top positions in terms of their scores on each of the four dimensions of job quality included in the JQI index. Professionals are top ranked on the wage dimension (253.2 in 2017) followed by managers (227.0); professionals are also top ranked on the working time and work-life balance dimension (113.3) and the representation and voice dimension (162.7). Professionals are followed by technicians on both the working time and work-life balance dimension (107.2) and the representation and voice dimension (146.5). Managers are top ranked on the benefits and employment security dimension (142.4). Domestic workers, in contrast, are the lowest ranked occupation across all dimensions except working time and work-life balance, where service and sales occupations score 85.8, followed by skilled agricultural occupations (91.8) and operators and assemblers (92.7).

The results from both the occupational and industrial disaggregations seem to point to the importance of collective bargaining and unionisation in underpinning certain aspects of job quality. While unionisation and collective bargaining have a direct bearing on the value of the representation and voice dimension, they also are linked to higher wages, greater access to benefits and greater job security. Thus, for example, the job quality index is very high in highly unionised sectors like mining, utilities, and manufacturing, and is relatively high in occupations that are more likely to be unionised such as operators and assemblers when compared to similarly skilled occupations.

4.2.4. Job Quality by Location, 2011-2017

Differences in the industrial and occupational structure of employment across South Africa's provinces contribute to differing mean job quality at the provincial level. However, this is by no means the only explanation for such variation. Job quality varies substantially by location, whether one is talking about provinces or area type (Table 7). The Western Cape and Gauteng stand out as the provinces with relatively high job quality scores. In 2017, mean JQI scores for employees in the Western Cape and Gauteng were 107.4 and 107.6, respectively. In contrast, the lowest ranked provinces were the Eastern Cape (89.8), Limpopo (91.4), the Free State (96.7) and KwaZulu-Natal (91.8). Job quality in the Eastern Cape, KwaZulu-Natal and North West decrease rapidly at an annual average of 2.1, 1.5 and 1.3 percent, respectively. In short, the Free State and those provinces that are considered more rural (i.e. Limpopo, KwaZulu-Natal and the Eastern Cape) have the lowest job quality compared to their counterparts[3].

[3] According to FFC (2018), the "Constitution does not classify provinces as urban or rural, and there is no common understanding of what constitutes a rural province. As a consequence, policy-makers and the general public tend to describe the provinces that historically formed part of the homelands and Bantustans as rural (in particular Eastern Cape, KwaZulu-Natal and Limpopo). These provinces are perceived to be highly under-developed and contain vast spaces of sparse settlements and land under traditional authority."

Table 7. Scores on the Job Quality Index by Location, 2011-2017

	2011	2017	2011-2017	
			Change (index points)	Ave. Annual Growth (%)
Overall	**105.1**	**100.0**	**-5.1**	**-0.8** *
By Province				
Western Cape	110.2	107.4	-2.8	-0.4 *
Eastern Cape	101.8	89.8	-12.0	-2.1 *
Northern Cape	99.3	97.0	-2.3	-0.4
Free State	96.2	96.7	0.5	0.1
KwaZulu-Natal	100.5	91.8	-8.7	-1.5 *
North West	107.9	99.9	-8.0	-1.3 *
Gauteng	112.7	107.6	-5.1	-0.8 *
Mpumalanga	97.0	93.8	-3.2	-0.6 *
Limpopo	91.1	91.4	0.3	0.1
By Area Type				
Urban	110.2	104.5	-5.7	-0.9 *
Non-Urban	84.8	84.6	-0.2	0.0

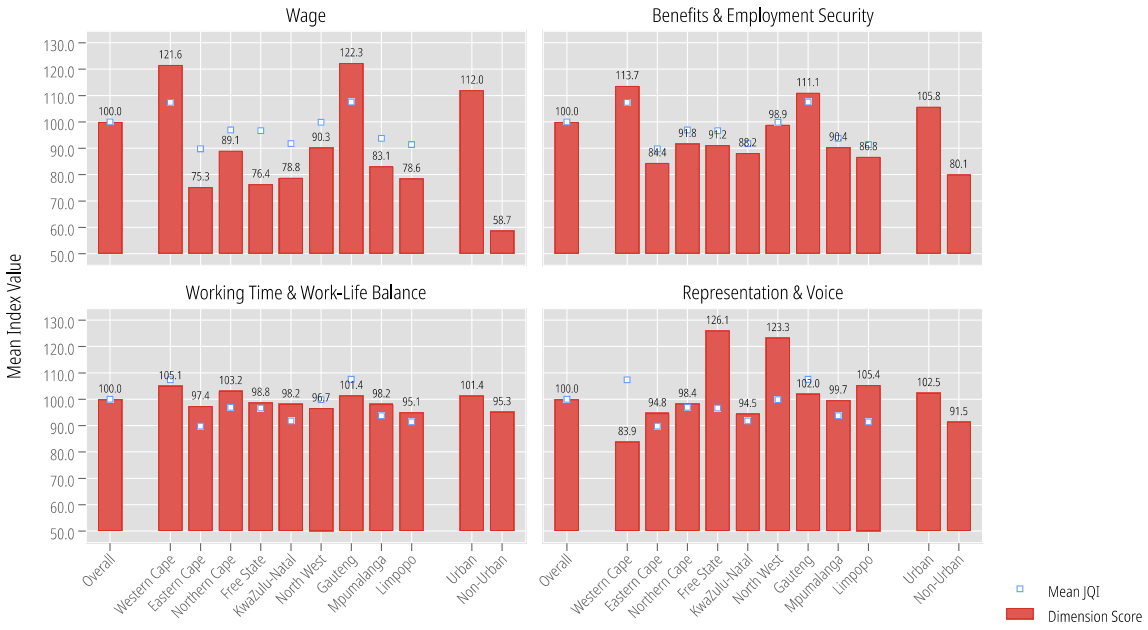
Source: *Own calculations using LMD (2011, 2017) and Kerr et al. (2019).*

Note: *Sample is restricted to employees aged 15-64 years. Results for area type are not strictly comparable between 2011 and 2017 due to changes in the questionnaire. The 2011 data codes area type as one of four options: urban formal, urban informal, tribal areas, or rural formal; the 2017 data classifies area type as: urban, traditional, farms, or mining areas.*

Declines in job quality appear to be concentrated within urban as opposed to rural areas of the country. The job quality index for urban areas is estimated to have declined by 5.7 points over the six-year period, or by 0.9 percent per annum. In contrast, in non-urban areas the index ended the period virtually unchanged from 2011. Nevertheless, job quality remains substantially higher in urban areas: at 104.5 in 2017, the JQI for urban areas is 20 points higher than that of non-urban areas (84.6). It is, however, important to bear in mind that the coding of the area type variable changed in 2014, and that this might have impacted the estimates. Indeed, given the high estimates of job quality for employees in the mining industry, it seems possible that the separate classification from 2014 onwards of mining areas, many of which would be previously have been viewed as located in urban areas, would simultaneously have lowered urban job quality and raised non-urban job quality.

Table 7 demonstrated the extent of variation in the overall job quality index across locations in South Africa. Figure 3 considers scores across the provinces for each of the four dimensions. What is immediately evident from the figure is the wide variation between locations in terms of the wage dimension. There is a range of more than 40 index points or more between the provinces with the highest scores on the wage dimension (Gauteng and the Western Cape) and those with the lowest scores (Eastern Cape and Free State). Similarly, the score on the wage dimension for employees in urban areas is more than 50 points higher than that of non-urban areas. This should not be too surprising given the extent of spatial inequalities and wage differentials in South Africa.

Figure 3. Dimensions of Job Quality by Province, 2017



Source: *Own calculations using LMD (2017) and Kerr et al. (2019).*
Note: *Sample is restricted to employees aged 15-64 years.*

In contrast, there is little spatial variation in terms of scores on the working time and work-life balance dimension. Employees in the Western and Northern Cape score highest on this dimension (105.1 and 103.2 respectively), followed by Gauteng (101.4). However, the Western Cape's score is only 10 points higher than that of Limpopo, which has the lowest provincial score on this dimension at 95.1. Similarly, the mean score amongst urban employees on this dimension is 101.4, compared to 95.3 for non-urban employees.

There is moderate spatial variation in the scores on the benefits and employment security, and representation and voice dimensions. The Western Cape and Gauteng are the best performers in terms of benefits and employment security, and the only provinces with scores above the national average. All other provinces, except North West, have scores of between 84 and 92 points. Perhaps somewhat surprisingly, the gap between urban and non-urban employees for this dimension is more than 25 points, despite the fact that the mining sector performs very well on this dimension. This suggests deficits for employees in non-urban areas in terms of benefits and employment security beyond those observed in the agricultural sector.

Despite having the highest or second highest score amongst all the provinces across the wage, benefits and employment security, and working time and work-life balance dimensions, employees in the Western Cape score lowest by a large margin on the representation and voice dimension, with a score of just 83.9. Instead, the Free State (126.1) and North West (123.3) score substantially higher than the national average, again by a substantial margin ahead of Limpopo and Gauteng at 105.4 and 102.0 respectively.

4.2.5. Job Quality by Employer Characteristics

Table 8 presents estimates of mean job quality across three sets of employer characteristics, namely the employer sector (or formality), employer size, and employer type. Employees within formal enterprises hold jobs that are of substantially better quality than their counterparts in both the informal

sector and private households: in 2017, the mean JQI for those in the formal sector was 109.2, compared to 55.3 and 57.6 for those in the informal sector and private households.

Table 8. Scores on the Job Quality Index by Employer Characteristics, 2011-2017

	2011	2017	2011-2017	
			Change (index points)	Ave. Annual Growth (%)
Overall	**105.1**	**100.0**	**-5.1**	**-0.8** *
By Employer Sector				
Formal	114.8	109.2	-5.6	-0.8 *
Informal	58.8	55.3	-3.6	-1.0 *
Private Households	61.8	57.6	-4.3	-1.2 *
By Employer Size				
1 employee	61.9	56.0	-5.9	-1.7 *
2-4 employees	73.3	65.5	-7.8	-1.9 *
5-9 employees	92.0	81.6	-10.5	-2.0 *
10-19 employees	107.2	97.8	-9.4	-1.5 *
20-49 employees	114.8	108.9	-5.8	-0.9 *
50+ employees	122.8	118.4	-4.4	-0.6 *
By Employer Type				
Private Sector	96.5	92.0	-4.5	-0.8 *
Public Sector	141.7	131.1	-10.6	-1.3 *

Source: Own calculations using LMD (2011, 2017) and Kerr et al. (2019).
Note: Sample is restricted to employees aged 15-64 years.

The data also indicates a strong positive correlation between job quality and employer size, with employees in larger employers enjoying better quality jobs. For employees in the largest firms (those with 50 employees or more), the mean index value was 118.4, compared to 108.9 for those in firms with 20-49 employees and 97.8 for those employed in firms with 10-19 employees. Employees within the smallest firms—with either one or 2-4 employees—the job quality index falls to just 56.0 and 65.5 respectively. Interestingly, within the formal sector, employees in the smallest firms have some of the highest JQI values. For example, for formal sector employees within employers with just one employee, the mean JQI value was 115.3 in 2017; for their counterparts in firms with 2-4 employees the mean score was 110.4. However, these represent a small fraction of total employees, numbering just 27 000 and 210 000 respectively, out of almost 14 million employees nationally. That said, the positive correlation between firm size and job quality is at least partly explained by the changing proportions of formal employers, informal employers and private households within the size categories: amongst employers with only one employee, private households—where job quality is low—dominate (accounting for 81.0 percent of all employees within this size category). In contrast, once the number of employees reaches five or more, formal sector employees account for more than 99 percent of the total.

Employees in the public sector are found to enjoy higher levels of job quality than their counterparts in the private sector. The mean JQI score for public sector employees in 2017 was 131.1, compared to 92.0 in the private sector. In both public and private sectors, smaller size is associated with lower quality jobs. However, the key difference is that even in the smallest employers in the public sector, mean job quality is either above or not statistically different from the national average (ranging from 99.5 to 136.5). In contrast, amongst private sector employees, mean scores range from 55.6 for those in the smallest firms, to 111.5 for those in the largest firms. Restricting the sample even further to those in formal private sector employees and ignoring the smallest employers due to the tiny sample, these relationships between employer size and job quality and between employer type and job quality hold.

Over the period, the data illustrates that mean job quality has declined across all sub-groups and that all of these declines were statistically significant. The most rapid declines occurred amongst those employed in private households (-1.2 percent per annum), those in enterprises with fewer than 10

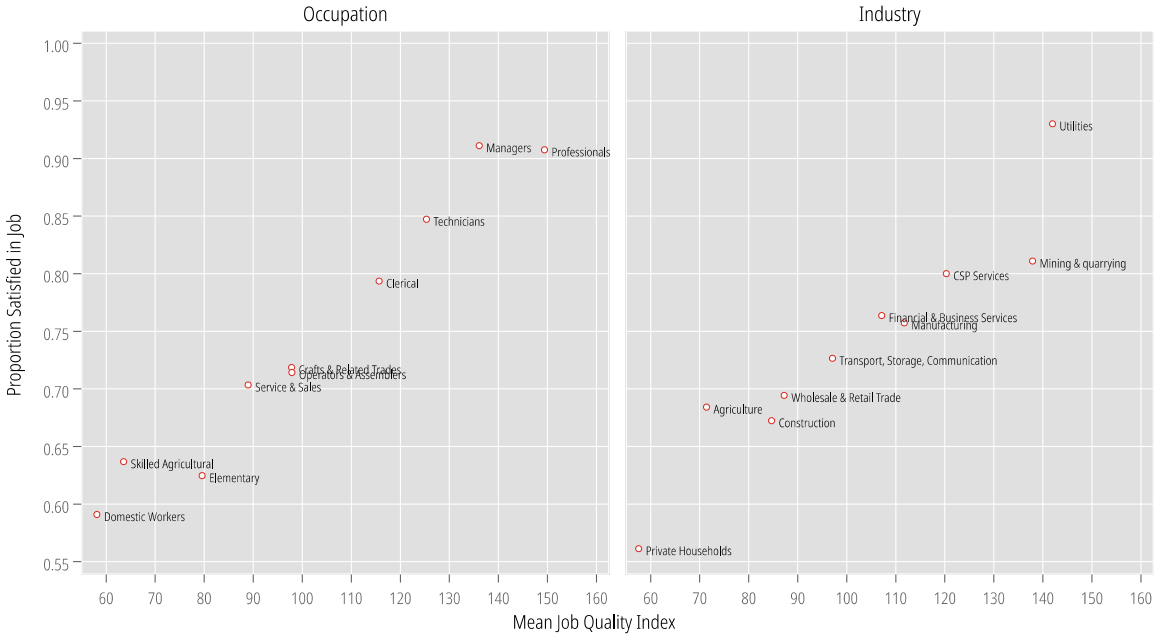
employees (declines of -1.7 percent to -2.0 percent per annum), and those in the public sector (-1.3 percent per annum).

4.2.6. Job Quality and Job Satisfaction

As has been noted, the quality of jobs may have important implications for employers through its effect on workers' job satisfaction and productivity, amongst other factors. While this is not the focus of this paper, we explore the relationship between the job quality index and job satisfaction amongst employees in South Africa in 2017.

The question on job satisfaction is a recent addition to the *Quarterly Labour Force Survey* and simply asks respondents whether they are satisfied in their main job. This is a binary yes-no question, which means that it is not possible to distinguish differences in the *level* of satisfaction between individuals. However, it is possible to use the responses to this question to calculate the proportion of individuals within a given group who indicate that they are satisfied (or not) in their main jobs. Figure 4 presents estimates of the proportion of employees who indicate that they are satisfied in their main jobs across occupational and industry categories, and compares that to the mean job quality index within those categories.

Figure 4. Job Quality and Job Satisfaction by Occupation and Industry, 2017



Source: *Own calculations using LMD (2017) and Kerr et al. (2019).*
Note: *Sample is restricted to employees aged 15-64 years.*

It is clear from the figure that there is a strong positive relationship between job quality and the proportion of satisfied employees across both occupation and industry. In other words, occupations and industries characterised by better quality jobs are associated with higher proportions of satisfied employees, while the opposite is true for those characterised by lower quality jobs. It is important to note, however, that this correlation does not imply that higher job quality necessarily causes employees to be more likely to be satisfied. Nevertheless, it is an interesting relationship worth further attention.

Given the correlation between job quality and satisfaction, one can observe occupations or industries where job satisfaction is high or low relative to what one might expect. For example, although job quality is high for both the utilities and mining and quarrying industries, job satisfaction is relatively

higher than one might expect in the former industry. Similarly, job satisfaction within private households appears relatively low compared to that in agriculture given the differences observed in mean job quality.

5. Conclusion

In monitoring labour market trends, the quantity of jobs—or employment—receives considerable attention. The level of employment is a key macroeconomic variable for policymakers and is one of the metrics according to which a government's performance in the area of economic management is gauged. However, it is clear that jobs differ significantly across a broad range of characteristics, including benefits, working conditions and wages, amongst others. Thus, while each job may be treated equally when measuring employment, they differ qualitatively. This paper has focused on this qualitative difference between jobs in order to provide an aggregate measure of job quality in South Africa.

The multidimensionality of the notion of job quality means that measurement is challenging and can follow one of several different approaches. At the same time, the aim was to construct a measure of job quality that could be updated on an on-going basis over time as new data becomes available. We have, therefore, taken a simple approach, identifying six dimensions of job quality (of which we are able to measure four) and selecting indicators from labour force surveys to construct an aggregate measure for each dimension and for job quality overall. Indicators are weighted equally within each dimension, and each dimension is weighted equally within the overall index.

Based on nationally representative labour force survey data, we find that job quality has declined over the 2011-2017 period. This decline was driven by deteriorations in the average scores on the wage dimension and the representation and voice dimension, despite a gradual improvement in the benefits and employment security dimension over this period. Based on annual and quarterly estimates, it is evident that this weakening of job quality really occurred within the first four years of the period, with job quality stabilizing from the first quarter of 2015 and remaining within a narrow range from then until the fourth quarter of 2017.

Differences in job quality across groups of employees defined according to demographic characteristics reflect well-established patterns of disadvantage in a variety of labour market outcomes in South Africa. On average, women experience lower job quality than men, Africans and Coloureds have lower quality jobs than Asians and Whites, the youth have lower job quality than older cohorts, and those with the least education trail those with the most education by a considerable margin. Similarly, those in more highly skilled occupations have higher job quality than those in lower skilled occupations, as do those in urban areas relative to those in non-urban areas.

Mean job quality is also found to be correlated with characteristics of the employer. Formality and larger size are associated with higher scores on the job quality index, while job quality is higher in the public sector than in the private sector. Even within the formal private sector, these relationships between employer size and job quality and between employer type and job quality hold. In contrast, no systematic relationship is found between job quality and whether the industry is part of the primary, secondary or tertiary sectors. Of the top three industries in terms of mean job quality, one is in the primary sector (mining and quarrying), one is in the secondary sector (utilities), and one is in the tertiary sector (CSP services). Similarly, each sector is represented amongst the three industries with the lowest scores on the job quality index (agriculture, construction, and private households).

The decline in job quality at the national level is also observed across almost all of the subgroups considered as part of this analysis: all groups defined by demographic characteristics and all groups defined by employer characteristics saw deteriorations in job quality over the six-year period. There

were, however, important exceptions. Job quality within agriculture improved over the period by a statistically significant margin, although it remains far below the national average. A statistically significant improvement in job quality was also observed for professionals. At the same time, observed changes were not statistically different for mining and quarrying, utilities, and construction; and for employees in skilled agricultural occupations.

While not the focus of the current research, we find a strong positive correlation between mean job quality and the proportion of employees who report being satisfied in their jobs across occupations and industries. This suggests scope for further research to better understand the link between job quality—and aspects of job quality—and job satisfaction.

However, it is clear that this research is constrained by the available data. While the *Quarterly Labour Force Survey* collects a wealth of information on basic employment benefits and protections, it neglects areas of importance such as working conditions, access to training, or prospects for career advancement. Thus, two of the six dimensions of job quality identified here have no indicators. Furthermore, even for the dimensions of working time and work-life balance and voice and representation, indicators are relatively sparse. It is clear that to properly understand job quality in the South African labour market and to track it over time will require expansion of the QLFS questionnaire to address some of these omissions.

Looking forward, the intention of this research is to establish an index that can be easily updated to track job quality on an ongoing basis. However, delays in the release of wage data mean that updating the index is constrained. To mitigate the impact of this problem, changes in job quality will first be monitored at the level of the three other dimensions for which there would be quarterly data releases, namely benefits and employment security; working time and work-life balance; and representation and voice. These three dimensions could be combined to calculate a partial index of job quality. Once the wage data is released, the full job quality index will be calculated.

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Appendix One

Table 9. Availability of Indicators in the Labour Force and Quarterly Labour Force Surveys and Labour Market Dynamics Datasets, 2000-2017

Dimension	Indicator	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Wage	Hourly wage relative to minimum wage	✓	✓	✓	✓	✓	✓	✓	✓	×	×	✓	✓	✓	✓	✓	✓	✓	✓
Benefits & Employment Security	Permanent position	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Written contract	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	UIF contributions	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Pensions contributions	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Medical aid contributions	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Paid annual leave	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Paid maternity/paternity leave	×	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓
	Paid sick leave	×	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓
Working Time & Work-Life Balance	Standard hours of work	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Weekend work	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Underemployment	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Working Conditions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Skills & Career Development	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Representation & Voice	Membership of trade unions, other workers' organisations	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	✓	✓	✓	✓	✓	✓	✓
	Determination of salary increment	×	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓

Source: Own compilation using LFS (2000-2007) and LMD (2008-2017.

Table 10. Composition of the Job Quality Index (JQI) and Other Potential Historical Job Quality Indices

Dimension	Indicator	Job Quality Index (JQI)	JQI-2	JQI-3	JQI-4	JQI-5
		2011-2017	2010-2017	2008-2017	2000-2007 2011-2017	2000-2017
Wage	Wage	✓	✓	×	✓	×
Benefits & Employment Security	Permanent position	✓	✓	✓	✓	✓
	Written contract	✓	✓	✓	✓	✓
	UIF contributions	✓	✓	✓	✓	✓
	Pension contributions	✓	✓	✓	✓	✓
	Medical aid contributions	✓	✓	✓	✓	✓
	Paid annual leave	✓	✓	✓	✓	✓
	Paid maternity/paternity leave	✓	×	×	×	×
	Paid sick leave	✓	×	×	×	×
Working Time & Work-Life Balance	Standard hours of work	✓	✓	✓	✓	✓
	Weekend work	✓	✓	✓	×	×
	Underemployment	✓	✓	✓	✓	✓
Working Conditions	-	-	-	-	-	-
Skills & Career Development	-	-	-	-	-	-
Representation & Voice	Trade union membership or other workers' organisation	✓	×	×	✓	×
	Determination of salary increment	✓	×	×	×	×

Table 11. Job Quality Indices over Time, 2000-2017 (2017=100)

Year	Job Quality Index (JQI)	JQI-2	JQI-3	JQI-4	JQI-5
2000					92.7
2001					93.6
2002					95.4
2003					97.5
2004					99.1
2005					96.9
2006					98.1
2007					99.3
2008			95.0		95.8
2009			96.9		97.8
2010		104.3	98.7		98.8
2011	105.1	104.5	99.5	103.9	99.7
2012	104.7	104.4	100.2	104.1	100.2
2013	102.7	103.2	100.0	102.7	99.9
2014	101.8	102.2	100.5	101.7	100.3
2015	99.4	99.9	98.7	99.1	98.8
2016	99.6	100.0	99.2	99.6	99.4
2017	100.0	100.0	100.0	100.0	100.0

Source: *Own calculations using LMD (2015-2017) and Kerr et al. (2019).*
Note: *Sample is restricted to employees aged 15-64 years.*

Table 12. Share of employees who would like to work more hours, by hours usually worked, 2000-2017

Year	0-5 hours	6-10 hours	11-15 hours	16-20 hours	21-25 hours	26-30 hours	31-35 hours	36-40 hours	41+ hours	Unspec.
2000	41.6	45.2	36.5	45.0	41.4	28.4	22.4	15.6	14.8	10.7
2001	48.4	37.8	40.2	42.1	35.3	26.8	15.1	11.3	10.4	5.4
2002	54.5	47.1	42.9	44.1	36.8	25.7	13.1	10.2	9.4	10.1
2003	33.5	47.7	38.5	45.6	36.3	27.5	13.2	9.3	10.0	21.7
2004	54.2	50.7	37.3	39.4	37.3	25.2	14.8	10.1	10.1	11.9
2005	39.7	41.7	42.5	41.9	33.6	26.6	13.5	9.7	10.7	5.4
2006	45.1	48.1	44.6	38.3	37.4	22.1	16.2	12.9	13.0	3.6
2007	48.7	39.2	41.2	34.4	31.7	23.2	16.6	11.0	12.4	10.0
2008	44.8	49.4	38.9	40.9	34.8	27.0	16.0	10.2	11.6	18.1
2009	42.0	48.3	40.6	46.3	36.5	29.6	15.5	8.5	10.7	23.2
2010	40.9	46.4	35.9	40.7	36.0	28.4	12.3	7.3	9.4	22.4
2011	41.9	47.2	37.2	38.0	29.4	26.0	11.0	7.1	8.3	21.3
2012	34.0	42.1	48.7	41.2	33.9	21.7	11.3	6.1	7.4	20.0
2013	38.7	47.9	40.4	41.7	30.6	20.1	14.2	6.0	7.1	20.2
2014	40.4	40.4	36.6	39.6	32.6	25.1	10.8	5.9	7.3	16.5
2015	36.7	45.9	40.7	38.3	34.4	30.6	13.5	8.0	8.2	23.4
2016	43.5	44.5	39.7	41.4	34.5	28.9	12.8	6.3	7.1	23.5
2017	43.3	47.4	39.7	43.7	32.1	29.2	13.1	5.7	6.8	25.2

Source: *Own calculations using LMD (2015-2017) and Kerr et al. (2019).*
Note: *Sample is restricted to employees aged 15-64 years.*

Table 13. Distribution of Employees across Categories of the Indicator for the Wage Dimension, 2011-2017

Year	Less than the National Minimum Wage %	At least once, but less than twice the National Minimum Wage %	At least twice, but less than four times the National Minimum Wage %	At least four times, but less than eight times the National Minimum Wage %	At least 8 times the National Minimum Wage %	Total Employees '000s
2011	29.9	24.9	18.4	15.2	11.5	12 038
2012	31.3	24.4	18.4	15.2	10.7	12 291
2013	34.2	23.8	17.2	14.3	10.5	12 738
2014	36.4	24.6	17.0	13.3	8.6	13 194
2015	39.0	24.3	16.0	12.0	8.6	13 646
2016	40.1	23.4	16.3	12.5	7.8	13 581
2017	41.8	22.1	16.7	12.7	6.6	13 862

Source: *Own calculations using LMD (2015-2017) and Kerr et al. (2019).*
Note: *Sample is restricted to employees aged 15-64 years.*

Table 14. JQI and Dimension Scores by Employee and Employer Characteristics, 2017

	Job Quality Index		Wage		Benefits & Employment Security		Working Time & Work-Life Balance		Representation & Voice	
	Index Value	95% c.i.	Index Value	95% c.i.	Index Value	95% c.i.	Index Value	95% c.i.	Index Value	95% c.i.
Overall	**100.0**	**[99.638; 100.362]**	**100.0**	**[99.085; 100.915]**	**100.0**	**[99.503; 100.497]**	**100.0**	**[99.771; 100.229]**	**100.0**	**[98.907; 101.093]**
By gender										
Male	101.3	[100.810; 101.826]	106.7	[105.391; 107.968]	102.2	[101.529; 102.911]	97.7	[97.420; 98.072]	104.3	[102.817; 105.862]
Female	98.4	[97.886; 98.954]	92.0	[90.641; 93.343]	97.3	[96.605; 98.072]	102.7	[102.386; 103.019]	94.8	[93.212; 96.383]
By race										
African	93.7	[93.274; 94.120]	80.6	[79.626; 81.549]	91.3	[90.705; 91.875]	97.5	[97.265; 97.808]	102.2	[100.961; 103.484]
Coloured	106.1	[105.199; 107.087]	107.9	[105.505; 110.324]	112.4	[111.013; 113.692]	106.1	[105.600; 106.696]	89.8	[86.676; 92.938]
Asian	117.0	[115.150; 118.892]	162.0	[156.194; 167.866]	124.9	[122.542; 127.314]	103.9	[102.624; 105.272]	88.2	[81.891; 94.565]
White	129.2	[128.269; 130.094]	197.5	[194.283; 200.657]	136.3	[135.097; 137.403]	108.7	[108.022; 109.284]	99.0	[95.546; 102.497]
By age										
15-24 years	78.2	[77.128; 79.291]	68.8	[66.029; 71.611]	74.5	[72.704; 76.204]	95.0	[94.183; 95.865]	44.6	[41.774; 47.378]
25-34 years	94.6	[93.965; 95.245]	91.4	[89.839; 93.037]	95.6	[94.722; 96.510]	96.8	[96.372; 97.215]	89.0	[87.137; 90.905]
35-44 years	104.1	[103.425; 104.782]	106.7	[104.985; 108.499]	105.6	[104.721; 106.542]	100.5	[100.035; 100.872]	109.1	[107.001; 111.147]
45-54 years	107.8	[107.007; 108.636]	111.3	[109.159; 113.438]	106.2	[105.103; 107.265]	104.4	[103.953; 104.872]	118.3	[115.848; 120.845]
55-64 years	110.6	[109.348; 111.797]	115.3	[111.942; 118.671]	108.6	[106.926; 110.187]	106.1	[105.398; 106.713]	124.0	[120.225; 127.802]
By years of education										
0-7 years	72.0	[71.178; 72.852]	34.8	[33.227; 36.389]	59.9	[58.528; 61.344]	99.0	[98.330; 99.595]	57.6	[55.067; 60.126]
8-11 years	80.4	[79.843; 80.939]	54.2	[53.088; 55.366]	76.7	[75.873; 77.622]	96.1	[95.671; 96.501]	69.4	[67.687; 71.059]
12 years	104.8	[104.169; 105.341]	104.9	[103.348; 106.354]	111.6	[110.800; 112.398]	98.4	[98.018; 98.841]	108.9	[106.907; 110.856]
13-14 years	128.0	[127.040; 128.914]	160.8	[157.925; 163.620]	132.3	[131.231; 133.400]	105.1	[104.478; 105.781]	152.3	[148.720; 155.957]
15+ years	144.1	[143.334; 144.957]	224.7	[221.713; 227.598]	142.7	[141.864; 143.556]	112.1	[111.589; 112.623]	155.8	[152.236; 159.361]
By industrial sector										
Primary sector	95.0	[93.785; 96.204]	70.0	[67.230; 72.862]	99.6	[97.845; 101.264]	97.0	[96.291; 97.759]	106.9	[103.188; 110.534]
Secondary sector	102.9	[102.123; 103.690]	103.1	[101.052; 105.133]	101.4	[100.253; 102.530]	106.1	[105.696; 106.555]	96.0	[93.569; 98.452]
Tertiary sector	99.8	[99.328; 100.209]	102.7	[101.631; 103.859]	99.6	[99.053; 100.236]	98.6	[98.324; 98.889]	100.3	[98.993; 101.599]
By industry										
Agriculture	71.4	[70.375; 72.402]	26.6	[24.369; 28.891]	71.3	[69.402; 73.123]	98.6	[97.768; 99.505]	37.2	[34.439; 40.044]
Mining	137.9	[136.532; 139.266]	149.0	[144.079; 153.833]	151.0	[149.446; 152.508]	94.1	[92.768; 95.422]	233.4	[227.931; 238.867]
Manufacturing	111.7	[110.766; 112.713]	111.5	[108.740; 114.359]	118.6	[117.287; 119.826]	106.5	[105.934; 107.091]	112.8	[109.386; 116.193]
Utilities	142.0	[139.084; 144.821]	168.5	[158.435; 178.550]	145.0	[142.019; 148.000]	111.6	[110.112; 113.169]	200.0	[189.217; 210.864]

	Job Quality Index		Wage		Benefits & Employment Security		Working Time & Work-Life Balance		Representation & Voice	
	Index Value	95% c.i.	Index Value	95% c.i.	Index Value	95% c.i.	Index Value	95% c.i.	Index Value	95% c.i.
Construction	84.7	[83.505; 85.835]	81.8	[78.874; 84.656]	70.4	[68.495; 72.320]	104.8	[104.107; 105.495]	57.2	[54.051; 60.442]
W&R Trade	87.2	[86.448; 88.024]	81.5	[79.441; 83.536]	98.3	[97.144; 99.460]	85.8	[85.167; 86.367]	73.1	[70.632; 75.476]
Transport	97.1	[95.346; 98.807]	109.1	[105.236; 113.037]	98.8	[96.406; 101.117]	91.3	[90.196; 92.501]	97.4	[92.814; 101.957]
Finance	107.1	[106.302; 107.953]	121.9	[119.375; 124.483]	119.8	[118.785; 120.810]	99.6	[98.985; 100.201]	84.7	[82.015; 87.428]
CSP Services	120.3	[119.540; 121.054]	131.6	[129.497; 133.626]	115.0	[114.094; 115.911]	107.6	[107.184; 107.997]	159.6	[157.241; 161.978]
Private HHs	57.6	[56.948; 58.159]	28.0	[26.432; 29.496]	27.0	[25.880; 28.161]	101.6	[100.895; 102.279]	22.8	[21.081; 24.585]
By skill level										
High skilled	142.4	[141.681; 143.217]	239.5	[236.995; 242.021]	141.9	[141.019; 142.683]	109.6	[109.018; 110.126]	135.7	[132.379; 139.102]
Skilled	103.7	[103.284; 104.211]	101.5	[100.348; 102.580]	108.8	[108.161; 109.397]	97.5	[97.231; 97.866]	114.4	[112.885; 115.889]
Low skilled	74.3	[73.817; 74.853]	36.9	[35.929; 37.864]	64.8	[63.872; 65.655]	100.6	[100.248; 101.020]	56.5	[54.860; 58.064]
By occupation										
Managers	136.1	[135.021; 137.144]	227.0	[223.399; 230.620]	142.4	[141.306; 143.543]	106.2	[105.334; 107.033]	111.1	[106.554; 115.613]
Professionals	149.4	[148.328; 150.467]	253.2	[249.724; 256.577]	141.2	[139.984; 142.467]	113.3	[112.597; 113.944]	162.7	[157.755; 167.554]
Technicians	125.3	[124.315; 126.339]	149.5	[146.471; 152.516]	128.8	[127.573; 130.044]	107.2	[106.583; 107.912]	146.5	[142.691; 150.405]
Clerical	115.7	[114.776; 116.558]	122.3	[119.897; 124.685]	126.7	[125.629; 127.713]	104.2	[103.591; 104.799]	119.0	[115.650; 122.250]
Service & Sales	89.0	[88.103; 89.810]	69.7	[67.699; 71.618]	97.4	[96.256; 98.592]	85.8	[85.206; 86.480]	101.6	[98.769; 104.362]
Skilled Agricultural	63.6	[58.116; 69.014]	30.9	[17.278; 44.468]	56.4	[45.240; 67.602]	91.8	[86.344; 97.257]	28.5	[15.051; 41.991]
Craft & Related Trades	97.8	[96.759; 98.888]	98.4	[95.839; 100.872]	93.3	[91.687; 94.939]	102.3	[101.649; 102.942]	93.5	[90.145; 96.774]
Operators & Assemblers	97.9	[96.655; 99.123]	81.8	[79.443; 84.186]	101.9	[100.225; 103.652]	92.7	[91.883; 93.611]	123.3	[119.500; 127.197]
Elementary Occupations	79.6	[78.951; 80.195]	40.6	[39.460; 41.803]	76.1	[75.068; 77.127]	100.2	[99.731; 100.622]	67.4	[65.412; 69.389]
Domestic Workers	58.1	[57.417; 58.799]	25.3	[23.775; 26.877]	29.7	[28.338; 30.967]	102.1	[101.277; 102.825]	22.6	[20.611; 24.542]
By province										
Western Cape	107.4	[106.583; 108.216]	121.6	[119.430; 123.774]	113.7	[112.515; 114.843]	105.1	[104.574; 105.582]	83.9	[81.237; 86.595]
Eastern Cape	89.8	[88.555; 91.020]	75.3	[72.595; 77.986]	84.4	[82.734; 86.103]	97.4	[96.608; 98.197]	94.8	[91.289; 98.314]
Northern Cape	97.0	[95.138; 98.809]	89.1	[84.615; 93.564]	91.8	[89.238; 94.318]	103.2	[102.185; 104.213]	98.4	[92.817; 103.890]
Free State	96.7	[95.157; 98.201]	76.4	[73.078; 79.693]	91.2	[89.120; 93.248]	98.8	[97.854; 99.707]	126.1	[121.582; 130.566]
KwaZulu-Natal	91.8	[90.848; 92.692]	78.8	[76.703; 80.931]	88.2	[86.955; 89.477]	98.2	[97.603; 98.812]	94.5	[91.815; 97.279]
North West	99.9	[98.345; 101.421]	90.3	[86.769; 93.763]	98.9	[96.797; 101.054]	96.7	[95.725; 97.597]	123.3	[118.748; 127.948]
Gauteng	107.6	[106.936; 108.219]	122.3	[120.495; 124.167]	111.1	[110.207; 111.927]	101.4	[100.997; 101.838]	102.0	[99.936; 104.057]
Mpumalanga	93.8	[92.429; 95.089]	83.1	[80.066; 86.202]	90.4	[88.611; 92.239]	98.2	[97.386; 99.009]	99.7	[95.692; 103.627]
Limpopo	91.4	[90.083; 92.747]	78.6	[75.681; 81.420]	86.8	[84.951; 88.591]	95.1	[94.209; 95.927]	105.4	[101.706; 109.076]

	Job Quality Index		Wage		Benefits & Employment Security		Working Time & Work-Life Balance		Representation & Voice	
	Index Value	95% c.i.	Index Value	95% c.i.	Index Value	95% c.i.	Index Value	95% c.i.	Index Value	95% c.i.
By area type										
Urban	104.5	[104.061; 104.872]	112.0	[110.935; 113.066]	105.8	[105.248; 106.348]	101.4	[101.121; 101.632]	102.5	[101.212; 103.743]
Non-Urban	84.6	[83.902; 85.387]	58.7	[57.201; 60.291]	80.1	[79.006; 81.128]	95.3	[94.771; 95.766]	91.5	[89.335; 93.633]
By sector type										
Formal sector	109.2	[108.816; 109.572]	113.1	[112.101; 114.162]	115.2	[114.689; 115.631]	101.3	[101.057; 101.548]	115.9	[114.606; 117.107]
Informal sector	55.3	[54.499; 56.085]	48.3	[45.860; 50.756]	29.5	[28.237; 30.701]	85.6	[84.653; 86.484]	27.1	[25.064; 29.178]
Private households	57.6	[56.948; 58.159]	28.0	[26.432; 29.496]	27.0	[25.880; 28.161]	101.6	[100.895; 102.279]	22.8	[21.081; 24.585]
By firm size										
1 employee	56.0	[55.292; 56.713]	32.5	[30.646; 34.313]	24.5	[23.360; 25.738]	97.0	[96.141; 97.765]	26.1	[24.201; 28.075]
2-4 employees	65.5	[64.506; 66.546]	54.2	[51.599; 56.825]	46.8	[45.198; 48.474]	91.6	[90.724; 92.496]	39.2	[36.678; 41.687]
5-9 employees	81.6	[80.424; 82.708]	77.1	[74.131; 80.139]	75.7	[73.995; 77.461]	95.1	[94.207; 95.919]	57.5	[54.405; 60.554]
10-19 employees	97.8	[96.811; 98.762]	96.1	[93.600; 98.668]	99.1	[97.806; 100.388]	99.5	[98.888; 100.185]	91.2	[88.180; 94.126]
20-49 employees	108.9	[108.129; 109.766]	112.8	[110.495; 115.010]	113.8	[112.795; 114.733]	102.8	[102.272; 103.307]	112.9	[110.241; 115.620]
50+ employees	118.4	[117.847; 118.927]	124.6	[123.021; 126.185]	127.5	[126.851; 128.095]	102.5	[102.116; 102.821]	140.6	[138.685; 142.500]
By employer sector										
Private sector	92.0	[91.606; 92.377]	89.5	[88.489; 90.486]	93.3	[92.751; 93.901]	97.3	[96.990; 97.521]	75.2	[74.064; 76.316]
Public sector	131.1	[130.341; 131.848]	140.6	[138.341; 142.768]	125.9	[125.047; 126.752]	110.7	[110.270; 111.032]	196.7	[194.312; 199.066]

Source: Own calculations using LMD (2015-2017) and Kerr et al. (2019).

Table 15. Job Quality Index and Dimension Scores, 2011-2017

	Job Quality Index		Wage		Benefits & Employment Security		Working Time & Work-Life Balance		Representation & Voice	
	Index Value	95% c.i.	Index Value	95% c.i.	Index Value	95% c.i.	Index Value	95% c.i.	Index Value	95% c.i.
Original Indices										
2011	0.523	[0.521316; 0.525244]	0.385	[0.382030; 0.388081]	0.588	[0.585072; 0.591521]	0.824	[0.821808; 0.825955]	0.296	[0.292859; 0.298915]
2012	0.521	[0.519098; 0.523085]	0.375	[0.371475; 0.377610]	0.593	[0.590089; 0.596409]	0.827	[0.825348; 0.829398]	0.289	[0.286167; 0.292237]
2013	0.511	[0.509384; 0.513407]	0.358	[0.355061; 0.361327]	0.589	[0.585526; 0.591937]	0.827	[0.825460; 0.829527]	0.271	[0.268138; 0.274186]
2014	0.507	[0.504636; 0.508587]	0.333	[0.329538; 0.335767]	0.594	[0.590339; 0.596779]	0.831	[0.828597; 0.832696]	0.270	[0.266516; 0.272657]
2015	0.495	[0.493394; 0.496890]	0.318	[0.315307; 0.320782]	0.581	[0.577764; 0.583588]	0.823	[0.821526; 0.825244]	0.258	[0.255726; 0.261198]
2016	0.496	[0.493985; 0.497594]	0.312	[0.309166; 0.314721]	0.593	[0.589926; 0.595887]	0.821	[0.819520; 0.823367]	0.257	[0.254026; 0.259703]
2017	0.498	[0.496082; 0.499688]	0.302	[0.298948; 0.304467]	0.602	[0.598788; 0.604765]	0.826	[0.824473; 0.828253]	0.262	[0.258833; 0.264556]
Rebased (2017=100)										
2011	105.1	[104.038; 105.576]	127.6	[126.622; 128.628]	97.8	[97.224; 98.296]	99.7	[99.449; 99.951]	113.1	[111.909; 114.223]
2012	104.7	[103.933; 105.393]	124.1	[123.124; 125.158]	98.6	[98.058; 99.108]	100.1	[99.877; 100.367]	110.5	[109.352; 111.671]
2013	102.7	[102.593; 104.152]	118.7	[117.684; 119.761]	97.8	[97.300; 98.365]	100.1	[99.891; 100.383]	103.6	[102.462; 104.773]
2014	101.8	[101.030; 102.544]	110.3	[109.224; 111.289]	98.6	[98.099; 99.170]	100.5	[100.270; 100.766]	103.0	[101.842; 104.189]
2015	99.4	[98.428; 99.743]	105.4	[104.507; 106.322]	96.5	[96.010; 96.978]	99.6	[99.415; 99.865]	98.8	[97.719; 99.810]
2016	99.6	[99.033; 100.374]	103.4	[102.472; 104.313]	98.5	[98.031; 99.021]	99.4	[99.172; 99.637]	98.2	[97.070; 99.239]
2017	100.0	[99.255; 100.589]	100.0	[99.085; 100.915]	100.0	[99.503; 100.497]	100.0	[99.771; 100.229]	100.0	[98.907; 101.093]

Source: *Own calculations using LMD (2015-2017) and Kerr et al. (2019).*
Note: *Sample is restricted to employees aged 15-64 years.*

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