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Unpaid reproductive labour and decent work in the South African labour market

Odile Mackett

A thesis submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in fulfilment of the requirements for the degree of Doctor of Philosophy

Supervisor: Professor Pundy Pillay

March, 2022

Declaration

I declare that this thesis is my own, unaided work. It is submitted in fulfilment of the requirements of the degree of Doctor of Philosophy in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in any other University.

Odile Mackett

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LIST OF ABBREVIATIONS

DWA	Decent Work Agenda
DWI	Decent Work Index
GDP	Gross Domestic Product
ILO	International Labour Organisation
LFS	Labour Force Survey
LMD	Labour Market Dynamics
NIDS	National Income Dynamics Study
OHS	October Household Survey
PCA	Principal Components Analysis
QLFS	Quarterly Labour Force Survey
TUS	Time-Use Survey
UIF	Unemployment Insurance Fund
UN	United Nations

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"For once you have tasted flight you will walk the earth with your eyes turned skywards, for there you have been and there you will long to return"

ABSTRACT

Since the 1970s, women's increased labour force participation has caught the attention of scholars, governments, labour unions and organisations such as the International Labour Organisation (ILO). The increase in female labour force participation has accompanied the globalisation and liberalisation of product and labour markets around the world. As a result, the ILO developed the 'decent work agenda' (DWA) to set a standard by which to measure the labour market vulnerability of workers. The DWA is an aspirational statement about the sort of work that ought to define the lives of all who work and who want to work. Unpaid reproductive labour, which is performed outside of the productive labour market and predominantly by women, has proven to be a major constraint for women's advancement in paid work. Furthermore, despite gender equality in the workplace being listed as one of the main objectives of the DWA, in instances where unpaid labour has not intersected with the productive labour market, it has largely been ignored. This study empirically investigated whether the ILO's DWA is conceptualised in a way that reflects a commitment to real gender equality in the labour market by demonstrating a link between work performed unpaid in service of the household and the quality or 'decency' of wage work. Using Labour Force Survey and Time-Use Survey data, the results showed that the more time an employed individual spent on unpaid reproductive labour, the worse the quality of their paid job. However, this relationship was only significant for women and only during a period when the government undertook a contractionary fiscal approach. The findings of this study demonstrate important links between the household and the public sector and the extent to which women, through their household labour, keep the economy running when government and business are unable to do so.

INTRODUCTION

Since the 1970s, women's increased labour force participation has caught the attention of scholars, governments, labour unions and organisations such as the International Labour Organisation (ILO). The increase in female labour force participation has accompanied the globalisation and liberalisation of product and labour markets around the world. It also saw the intensification internationally of discussions relating to the gendered, racial, and class dimensions of precarious labour (Barchiesi, 2010, 2011; Barchiesi & Kenny, 2008; Benería, 2001; Benería & Floro, 2004; Kalleberg, 2009; Kenny, 2016; Sefalafala, 2012; Sefalafala & Webster, 2013; Stewart & Stanford, 2017; Webster, Joynt, & Sefalafala, 2016). These developments have been no different in the South African labour market where women's increased labour force participation, and the reasons for it have been well documented (Casale, 2003; Ntuli, 2007; Ntuli & Wittenberg, 2013).

As a result of these changing characteristics in the labour force, particularly as it relates to growing precariousness in the labour market, the ILO developed the 'decent work agenda' (DWA) to set a standard with which to measure labour market vulnerability. The DWA aims to achieve labour market and economic stability, through the democratisation of work and fostering a shared understanding between workers and employers, in terms of what decent work is. It additionally aims to increase the well-being of individuals (Findlay, Kalleberg, & Warhurst, 2013; Langan, 2014). The South African government has identified the promotion of decent work as a strategic policy objective, firstly because of its inclusion in the United Nations Sustainable Development Goals, and secondly, to be in line with the African Union's inclusion of decent work in its Agenda 2063 as a development imperative (African Union, 2015). In addition, South Africa also signed the Decent Work Country Programme in 2010 at the National Economic Development and Labour Council (Webster, Budlender, & Orkin, 2015).

The DWA "is based on the understanding that work is not only a source of income but more importantly a source of personal dignity, family stability, peace in [the] community, and economic growth that expands opportunity for productive jobs and

employment" (Cohen & Moodley, 2012, p. 320). Decent work is further defined as "an aspirational statement about the sort of work that ought to define the lives of all who work and who want to work" (Blustein, Olle, Connors-Kellgren, & Diamonti, 2016, p. 1). These definitions and statements indicate that workers should be in a position where they have adequate bargaining power to avoid exploitation by other stakeholders in the labour market, such as government and business.

In its framework, the ILO has identified indicators with which to measure decent work. These 11 indicators are employment opportunities, adequate earnings and productive work; decent working time; combining work; family, and personal life; work that should be abolished; stability and security at work; equal opportunity and treatment in employment; a safe work environment; social security; social dialogue, worker and employer representation; and the economic and social context of decent work (ILO, 2013).

Numerous studies have been undertaken on the decent work framework, although many of these tend to be commissioned by the ILO or published in the ILO's International Labour Review journal[1] (Chant & Pedwell, 2008; Fields, 2003; Floro & Meurs, 2009; Ghai, 2006; Standing, 2002; Tomei & Belser, 2011). One such study, conducted by Webster, Budlender and Orkin (2015) presented the results of a questionnaire developed by the authors using the ILO's indicators. Their survey was administered in three South African industries and in their paper, they present their results disaggregated by sector as well as gender.

Webster et al. (2015) note that there are generally no patterns which demonstrate a clear difference between the decent work indices of men and women; with the exception of the 'adequate earnings' indicator and the 'decent hours' indicator. The authors go on to state that "indicators exhibit variations in industry-specific gender gaps that favour women in some cases and men in others. This finding highlights the need to caution against facile generalizations about the nature of gender disparities at work" (Webster et al., 2015, p. 139). This is despite the fact that they attribute a more

[1] This is confirmed in a study published in 2014 which did a systematic review of papers on decent work (Burchell et al., 2014).

favourable ‘decent hours’ indicator for women (i.e. women working fewer hours) to the disproportionate distribution of unpaid labour between men and women; resulting in an overrepresentation of women in part-time work. In addition, they also find that women score poorly on the ‘adequate earnings’ indicator, even after controlling for other variables, such as hours worked, work experience, and the level of education.

Furthermore, the authors collected information on the number of hours spent on housework and found that women carry a heavier burden of this type of work compared to men, but chose to exclude this from their analysis due to “the difficulty of converting them into binary measures” (Webster et al., 2015, p. 139).

While the purpose of Wester et al.’s (2015) study was not to investigate decent work in relation to women’s unpaid reproductive labour, it raises a common problem which feminist economists have identified in relation to economic analyses and the methodologies employed by analysts. Paula England refers to this as “androcentric biases” which is the act of rendering economics as a male-centric discipline and viewing economic problems as bound to the productive sphere of the economy. In this vein, “[c]ontributions typically made by women are often rendered invisible in the theory” (England, 1993, p. 38). In this context, Webster et al. (2015) do render women’s unpaid labour invisible by excluding it on the basis of it not being a ‘convenient fit’ for their index and through treating women’s overrepresentation in part-time work as a positive contributor to their index. The study thus lacks more critical analysis of the gender disaggregated results, but also excludes the possible role which reproductive labour may be having on their results.

Reproductive labour has been an important issue in the feminist literature and through its commitment to having gender equality as a central goal of decent work, the ILO does recognise the reproductive labour of women and its contribution to women’s vulnerability in the labour market (ILO, 2007a, 2009). Bakker (1999, p. 85) defined reproductive labour as “the work of managing a household, cooking, cleaning, keeping home, clothing and domestic equipment in good repair, and caring for family members and friends and neighbours”.

This reproductive labour is defined in two respects. It firstly refers to domestic labour and care work which is *paid* for. Secondly, there is *unpaid* reproductive labour which is often performed by individuals who form part of the household, at no charge to the household. Thus, paid labour "refers to time contracted out that received remuneration", and unpaid labour[2] "includes all non-remunerated work activities" (Antonopoulos, 2009, pp. 2–3).

Although it is customary to view these unpaid activities as 'women's work', debates around the dichotomous sexual division of labour[3] and traditional gender roles which views women as primarily responsible for housework and men as responsible for wage work have evolved as female labour force participation increased (Bakker, 1999; Browne & Misra, 2005; Gronau, 1977; Rosenfeld & Birkelund, 1995; Schultz, 1985; Weeks, 2011). Fragmented families, increasing divorce rates, falling marriage rates, decreased fertility, and growing incidence of anti-discrimination labour laws have all been identified as factors driving women's increased labour supply resulting in a more complex discussion of these traditional gender roles (Benería & Floro, 2005; Lewis, 2010; Madden, 1981; Seguino, 2000, 2007; Standing, 1999; Waldfogel, Higuchi, & Abe, 1999). These complexities have become evident in literature related to the feminisation of the labour force[4] and the increasing commercialisation (or 'outsourcing') of housework. However, despite these developments, women remain primarily responsible for reproductive labour, whether it is paid or unpaid.

Unpaid reproductive labour often does not allow women to take full advantage of the conditions set out by the ILO, or other similar labour market policies which advocate for gender equity (such as the Employment Equity Act in South Africa). Issacharoff and Rosenblum (1994, p. 2155) wrote that "the scholarly and activist literature addressing the quest for women's equality in the workplace has focused most clearly on formal obstacles to admission to traditionally male pursuits, rather than on the need to accommodate the particular obstacles faced by women already in the workforce".

[2] Unpaid work is also referred to as non-market or non-wage work.

[3] Literature on unpaid labour, particularly from a liberal feminist perspective, is vast and has found that historically women were engaged in unpaid (non-wage) work, while men engaged in paid (wage) work; this has come to be known as the *sexual division of labour*.

[4] The feminisation of the labour force refers to the increase in the share of women in the labour force (Casale & Posel, 2002).

The “unequal division of unpaid domestic work” has proven to be a major constraint to women’s advancement in the workplace (Fapohunda, 2012, p. 104).

These developments have been no different in the South African labour market, where women’s labour force participation, employment probabilities and employment growth are limited by their responsibilities for childbearing and rearing and the cultural expectations which accompany a particular marital status (Dinkelman & Pirouz, 2011; Ntuli, 2009; Ranchhod, 2010). Furthermore, women have borne the bulk of the brunt which accompanied South Africa’s high unemployment rates, precarious labour, and challenges relating to the working poor (Casale, 2004; Rogan, 2013).

Although increased female labour force participation was viewed, as it is in many other countries, as a positive contributor towards women’s economic empowerment, women were also at the receiving end of the consequences of informalisation and casualisation (Bezuidenhout, Khunou, Mosoetsa, Sutherland, & Thoburn, 2003; Kenny, 1998). Barchiesi (2010, p. 69) has noted that “unemployment is a primary determinant of poverty and, consequently, access to waged jobs is a necessary, albeit not always sufficient, condition for effective social inclusion”. Rogan and Reynolds (2015) have extended this argument by postulating that adequate wages need to accompany employment to avert challenges of the working poor. It is these types of arguments on which the ILO bases the need for the DWA.

Problem statement

While the ILO has made a noble effort in constructing the DWA, it is not clear that the DWA is designed in a way which truly shows a commitment to achieving gender equality in the workplace. The ILO has made provisions for women in its DWA, mostly related to the prevention of discrimination related to pregnancy – through its maternity leave convention (ILO, 2003a). However, in instances where unpaid labour has not “[intersected] with the productive labour sphere”, it has largely been ignored (Charlesworth, 2010, p. 156).

Recognising women’s increasingly prevalent roles in both paid and unpaid labour is thus of vital importance when relating the DWA to aspirations related to gender

equality. In addition, the increasing popularity of time-use data has revealed that the feminisation of labour has not changed the fact that women remain primarily responsible for unpaid labour as compared to men, furthermore, they have additionally increased their overall working time during the day (Valodia & Devey, 2005). This is even more evident in developing countries, where poorly developed public infrastructure and social security systems put an increased amount of pressure on private households. In this respect, women's unpaid labour within the home becomes a pivotal element to the functioning of the broader economy and society.

Furthermore, the overarching rationale behind addressing issues related to decent work, specifically as it relates to gender inequalities, warrants a value judgement about the motivations and reasons for pursuing gender equality, something which traditional economists avoid. A rights-based equity rationale refers to "the need to address the discrimination women face in the world of work, as a matter of fundamental human rights and justice", while an economic efficiency rationale "argues that women can play a critical role as economic agents capable of transforming societies and economies" and in this vein it also becomes vital to make a value judgement about the ILO's DWA (ILO, 2009, p. 5). While the ILO acknowledges gender equality from both a "rights-based equity rationale" and an "economic efficiency rationale" (ILO, 2009, p. 5), the elements of the Decent Work Index (DWI) (both macro and micro measurements, as will be demonstrated in this study) tend to be skewed in favour of economic efficiency outcomes rather than rights-based outcomes, which views women's empowerment as an end in itself (Duflo, 2012).

In addition, the ILO has emphasised well-being as a key outcome of decent work. Power (2004) advocates for the inclusion of well-being as a central economic outcome when implementing and designing economic policies. While the DWA does attempt to address the broader socio-economic outcomes of workers, these are once again closely related to outcomes for the productive economy rather than ensuring positive outcomes for workers as an end in itself. It also does not consider how women's unpaid reproductive labour might affect the well-being which they derive from their paid labour or how well-being derived from work might differ between men and women.

Although the ILO does recognise the importance of well-being, this is discussed in the context of work "as a source of dignity, self-fulfilment, identity and recognition, as well as material well-being" (ILO, 2006a, p. 1) for the purposes of ensuring "productiveness and motivation" (ILO, 2013, p. 104). Although increased well-being, according to the ILO, alludes to the positive outcomes workers should derive from their work, they are aimed at ensuring the reproduction of the productive economy,[5] and are also not attended to in the formally recommended measures of the ILO's DWI (ILO, 2013).

Consequently, policies or initiatives aimed at improving labour market practices, like the DWA, are likely to be biased in favour of activities which are considered 'productive' and the types of workers who are predominantly employed in such occupations – usually men (Albelda, 1986; Gradín, Del Río, & Alonso-Villar, 2014; Salardi, 2012). This is often exacerbated by the narrow interests of bodies which are mandated to further the interests of workers when the design and implementation of policies are discussed. In the case of unions in South Africa, Bezuidenhout and Tshoaedi (2017, p. 9) refer to this as the "narrow conception of trade union democracy which is often biased towards the hegemonic interests of heterosexual able-bodied men".[6]

The core issue is that in a capitalist system, the right to live a life of dignity is linked to the resources which one can extract from the labour market where work is performed in exchange for a wage. Thus, the labour market and organisation therein become exceptionally important. In a country where socioeconomic problems such as poverty and inequality are exacerbated by the unjust organisation of the labour market, labour market analyses are pivotal to addressing those broader societal ills. In this vein, it is important that bodies which generally set the international agenda for policy frameworks, such as the ILO and the UN, take a more egalitarian view to addressing issues such as gender equality.

[5] Although the feminist literature rejects the market-oriented approach to defining valuable economic activity, the 'productive economy' in this thesis refers to what mainstream economists view as the economy (Elson, 1999). The productive economy being the space where productive goods and services are produced and exchanged.

[6] Bezuidenhout and Tshoaedi (2017) do not only refer to the interests of women in this text, but also those of other marginalised groups in the labour market, such as homosexual and/or disabled men and women.

Purpose statement

The problem statement highlighted how issues affecting women extend well beyond the productive boundary of the economy, and it is these issues which fall *outside* of this boundary which are likely to have an effect on equality *within* the productive labour market. Unpaid labour responsibilities of women have received considerable attention in the feminist literature and several authors (too many to cite here) have theorised that unpaid labour should be part of the broader gender inequality debate (see, for example, Jefferson and King (2001); Floro and Komatsu (2011a); Gammage (2010); Baker (2007); Folbre (2012, 2014); and Antonopoulos (2009)). Furthermore, although many social scientists have come to acknowledge the important role which unpaid labour plays in an economy, few have been undertaken to establish how time spent on unpaid labour responsibilities affect outcomes in paid labour in a developing country context. This study thus endeavours to determine whether there is an association between time spent on unpaid reproductive labour and the quality of work an individual undertakes – using the ILO's DWA to define quality of work. This thesis only includes those who work in exchange for a wage and excludes self-employed individuals and reasons for this are provided in Chapter 2 of the document.

By doing so, the study contributes to the existing literature in a number of ways. The first contribution is methodological in nature. The study provides guidelines on building a decent work index using nationally representative, microeconomic data. Until a recent study published by Yu (2020) provided similar guidelines, decent work had only been studied at the macroeconomic level or measured with primary data, which focused only on those occupation groups which are expected to yield poor decent work outcomes. The decent work index used in this study is also weighted and includes variables included from the first labour force survey conducted in South Africa to the most recent, allowing of comparison over time.

In addition to the decent work index, the study provides important evidence related to the relationship between work in the productive and reproductive spheres. The findings highlight that differences in time-use between men and women are a key contributing factor to gender inequality in the labour market under certain economic conditions. This is an important contribution to time-use studies (Floro & Komatsu,

2011a; Floro, Valodia, & Komatsu, 2008; Valodia & Devey, 2005), which have focused historically on women's reproductive time-use more generally and labour market studies (Dinkelman & Pirouz, 2011; Mackett, 2016; Mlatsheni & Leibbrandt, 2001; Ntuli & Wittenberg, 2013), which have had to limit analyses to 'proxies' for time-use based on traditional gender roles; such as marital status or the number of children in the household.

Outline of the thesis

This thesis is structured as follows: Chapter 1 provides a review of labour-related literature describing how various schools of thought have theorised women's subordinate position in the labour market, how these schools of thought have interacted with one another in the literature, and their various strengths and limitations in describing women's work. This chapter also provides a brief discussion of the strengths and weaknesses of the ILO's DWA, how it has broadened the debate in the quality of work literature, but also how it falls short in relation to unpaid reproductive labour.

Chapter 2 then describes the process by which the DWI was constructed, which is then used as a proxy for quality of work, in the last two chapters. This chapter describes how the results presented in chapters 3 and 4 were obtained as well as the limitations presented by the methods and the data. The chapter starts with a discussion of the strengths and limitation of the DWI and how the time-use data and labour force survey data are compatible for answering the research question. This is followed by how the DWI was constructed.

Chapter 3 provides an overview of the South African economy and how the macroeconomy relates to the labour market outcomes of workers. This chapter also provides an overview of the legal framework for decent work and a summary of recent developments in the South African labour market. In addition, the decent work indicators by occupation group and the composite index by occupation group are presented. The analysis is continued in chapter 4 which studies the composite DWI in relation to various socio-demographic characteristics of workers in the South African labour market.

Chapter 5, which is the second methodology chapter, describes how the time-use survey data used in the thesis was utilised to produce the results presented in chapters 6 and 7. This chapter also highlights the strengths and limitations of time-use surveys and how these data complement the data described in chapter 2. The chapter starts with a brief description of how time-use surveys emerged, how the various time-use activities were coded, and how the quality of work variable was re-constructed using the time-use survey.

Chapter 6 then provides an overview of the time-use patterns of workers in the South African labour market, both in and outside of the labour market, while chapter 7 presents the results which endeavour to achieve the overarching purpose highlighted in the purpose statement.

CHAPTER 1: A REVIEW OF THE LITERATURE

"Somebody who goes out and works for a living is more important than somebody who doesn't. What they do is very important in the business world. What I do is only important to five people. I don't like putting a housewife down, but everybody has done it for so long. It's sort of the thing you do. Deep down, I feel what I'm doing is important. But you just hate to say it, because what are you? Just a housewife?"

Therese Carter, Housewife (Turkel, 1974)

Introduction

For centuries, the importance of employment has oscillated within society – depending on who you asked and where you were at the time. However, the most prosperous members of society have always been those who had access to the labour market, whether it be as an employee or an employer. Furthermore, what constitutes important work and who gets to perform it has also been widely debated, although in this review, labour is viewed on a continuum. When considering this from the viewpoint of social reproduction and feminist theorists, both unpaid reproductive labour and paid reproductive labour form part of the same continuum.

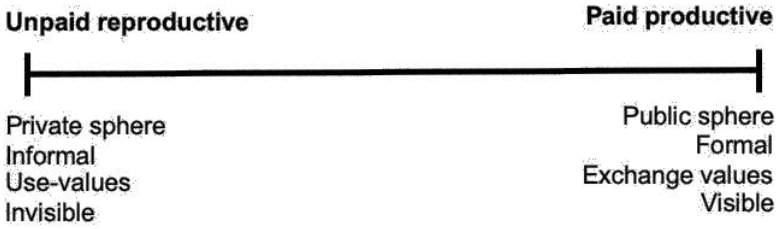
Luxton (2006, p. 37) stated the following:

> Starting from the premise that in capitalist societies the majority of people subsist by combining paid employment and unpaid domestic labour to maintain themselves and their households, this version of social reproduction analyzes the ways in which both labours are part of the same socio-economic process. They are interdependent processes of production and consumption that in combination generate the household's livelihood.

The labour continuum depicted in Figure 1-1 provides a useful way of thinking about labour and is a useful depiction for highlighting shortcomings in the decent work debate as well. When assuming that all capitalist production form part of a continuum that includes the labour of reproductive *and* productive workers, one is able to merge two polar opposites. On the far left of Figure 1-1 is unpaid reproductive labour. There are many characteristics which accompany this type of labour, although only a few are outlined in the Figure. This labour takes place in the household which is considered

an informal[7] space; it primarily takes place for use within the household; and is generally private and invisible.

Figure 1-1: The work continuum



When considering the continuum, paid reproductive labour activities would also fall towards the left of the curve, although not as far left as unpaid reproductive labour. These types of activities will differ from unpaid reproductive labour in a few ways, such as being performed for exchange rather than use, but they also share some similarities with unpaid reproductive labour, such as taking place in the household, being invisible, and being considered as informal labour. Paid reproductive labour, depending on the work, may however, take place outside the household in a more formal setting. Other activities may similarly fall somewhere along the continuum, such as a temporary worker contracted to a formally registered business.

The work continuum should not be confused with the traditional labour market where work is performed in exchange for a wage. This market certainly exists as part of the labour market, although the continuum serves to expand the idea of work and what is considered work within society. The literature has also shown that women are mainly found on the far left of the labour continuum and, until recently, men were found on the far right (Assaad, 2004; Klasen, 2019; Osterreich, 2019; Standing, 1989). How this order has come about and the changing nature of this order has also been the subject of discussion in recent decades (Bentley, 2004; Bodibe, 2006; Breman, 2002; Chang, 2009; Chen, 2008; Devereux, 2020; Kenny, 1998).

[7] 'Informal' here refers to the same way in which an informal space is defined in relation to the paid labour market. This is generally a space which is 'unregulated' in which the protections of labour law do not apply. Similarly, the household is considered an informal space in relation to labour, as work done in the household (unpaid) is not regulated by the laws of a country.

Even though women gradually moved to the right side of the labour continuum, their work in paid labour has still remained largely undervalued. Theorists have diverged in their accounts of why this has been the case, but evidence has shown that women are primarily responsible for both paid and unpaid reproductive labour (Duffy, 2005; Glenn, 1985, 1992; Hall, 2016; Moss, 2002; Rakovski & Price-Glynn, 2010; Weeks, 2011). This literature review will explore the various views on the labour continuum, how different groups within society have found themselves at various points within the continuum and how these positions are maintained.

1.1 The traditional view of the labour market

Classical and neoclassical economists (hereafter referred to as mainstream or orthodox economists) have written about the choices individuals have between leisure and work time, and how they choose to divide their hours in the day between these activities in the labour-leisure model (Gahramanov & Tang, 2016; MacDonald, 1984; Mincer, 1962). In the labour-leisure model, there exists a trade-off between work and leisure, with the decision to work being based on the wage rate which can be earned in return for work and the decision to take on leisure being based on the wage which will be foregone, should the time have been used for work instead (Van Der Stoep, 2008). This decision is thus based on the opportunity cost of engaging in each activity (work versus leisure). If the potential wage in the labour market is high, this could lead to an 'income effect' where higher wages decrease the labour supply, as workers are able to work fewer hours and maintain their earned wages. However, a higher wage could also increase the opportunity cost of leisure and resultantly increase the supply of labour by inducing workers to work more hours (substitution effect) (MacDonald, 1984). This 'substitution effect' means that leisure time becomes too great a sacrifice when considering the wage that could be earned had the time been spent working instead.

Mainstream economic analyses have centred around a strong market-oriented approach and an individualistic culture. The labour-leisure model is no exception – hence the wage rate is presented as a central element in *choice*. This is the foundation on which marginal utility theory has been built, where workers and producers in the labour market aim to maximise their utility, via wages and profits. Jefferson and King

(2001) state that the marginal utility theory is key in theorising how prices are allocated to market work. To mainstream economists, the prices of goods and services, as well as labour, are determined by the forces of demand and supply in the free market. The premise of the model is that individuals are rational (an individual is considered rational if "he makes decisions consistently in pursuit of his own objectives" (Sen, 1994, p. 385)), self-interested and selfish, and make decisions aimed at maximising their utility (Sen, 1994). To mainstream economists, work thus only exists on the right-hand side of the labour continuum – work which is performed in exchange for a wage.

A central component of these analyses relates to time constraints. Just as budget constraints exist for consumers, time constraints exist for those needing to decide between supplying their labour to the market or spending leisure time. The wage earned from labour will determine whether the opportunity cost of one (labour) is greater than the other (leisure), and a worker will thus engage in the activity which is most utility maximising, given time as a finite resource (Smith, 1976).[8] Individuals thus face a trade-off between the choices they make in relation to time and the returns which they earn when they make such decisions. However, despite this simplistic trade-off which individuals face, women and men have behaved differently in relation to their labour force participation; women often labouring in the home and men labouring in the wage market. The difference in this behaviour is explained by the human capital theory which postulates that women and men's unique skill sets (women being caring and nurturing and men being more technically inclined) is what drives the sexual division of labour.[9]

Noting that these decisions are not made in a vacuum, but rather with the consideration of other household members in mind, Becker (1965) expanded on this theory. In his model, households which consist of more than one individual will allocate their time according to which household members can earn the greatest returns from productive labour; in the interest of maximising the household's shared utility. In this instance, the individual utility curve is thus replaced with a household utility curve, and

[8] Important to note in the mainstream tradition is that work is generally associated with disutility while workers derive utility from consumption and leisure. Workers will thus aim to minimise disutility and maximise utility.

[9] Becker also expands on this explanation for the sexual division of labour in his theory on the allocation of time and his work on the economics of discrimination (Becker, 1965, 1971).

time-use is split three ways: work, leisure, and home production (Van Der Stoep, 2008).

An important addition to this three way split was in relation to the estimation of home production – the value of the labour used in this production and the value of the products (and their inputs) produced in the home (Becker, 1965). However, although Becker opened up a debate about home production as an important consideration in labour supply decisions, he still treated a woman's labour force decisions as a negotiation between herself and her spouse, based on the differences in market productivity between the two (Mincer, 1962).

The aim of Becker's model was nonetheless to maximise the utility of the household, which is in the interest of all household members. If a day's time consisted of work time, housework, and consumption time (or leisure), these were negotiated based on the relative comparative advantage or earnings of men and women in the wage market relative to their productivity in household production. This was articulated by Becker (1965, p. 512):

> Members who are relatively more efficient at market activities would use less of their time at consumption activities than would other members. Moreover, an increase in the relative market efficiency of any member would affect a reallocation of time of all members towards consumption activities in order to permit the former to spend more time at market activities. In short, the allocation of the time of any member is greatly influenced by opportunities open to other members.

As men would tend to have a higher relative comparative advantage compared to women in wage labour, they would behave differently in relation to how they engage with the labour market. How household members decide to spend their time would thus influence labour supply decisions of individuals and would determine where they are situated on the work continuum. They can either be found towards the right, where they are recognised by mainstream economists as value creating agents, or towards the left, where they would be invisible according to the assumptions which mainstream

economists utilise. However, positioning on the continuum would also be affected by other market participants from the demand-side.

Becker (1985), who championed the human capital theory drawing on the postulates of orthodox economics, argued that employers will hire labourers which allow them to maximise their profits, and that producers who have a 'taste for discrimination' will drive up their production costs and be outperformed by producers who have a non-discriminatory approach in their hiring practices. It is thus not in the best interest of producers to discriminate based on gender, race, or any other social attribute. Becker (1985, p. S35) went a step further and attempted to justify women's relatively lower earnings by stating:

> If childcare and other housework demand relatively large quantities of "energy" compared to leisure and other nonmarket uses of time by men, women with responsibilities for housework would have less energy available for the market than men would. This would reduce the hourly earnings of married women, affect their jobs and occupations, and even lower their investment in market human capital when they worked for the same number of market hours as married men.[10]

Despite Becker's attempt to recognise that work exists outside the formal labour market (left end of the work continuum) which will affect performance in the wage market, he still linked his arguments to the assumptions of a nuclear family and the simplistic demand/supply model based on rational choice. However, the argument in favour of rational choice was countered by Goldin (2014, p. 342) who stated that

> …discrimination against women is motivated, in part, by the desire of men to protect their occupational status. When work took more brawn than brain, the attribute distributions of men and women were rather far apart. 'Men's work' was perceived as better than 'women's work' and observing a woman doing a

[10] Market human capital refers to skills, education and/or training which makes a labourer more valuable in the labour market.

man's job signaled that the man's job has been downgraded, possibly because of a technological shock.

This undermines the argument that aspirations for efficiency will result in less discrimination in the labour market. Although not specifically linked to women's position in the labour market, Marxist economists were not convinced by the postulates of mainstream economic theory and questioned the power differential between workers and employers.

1.2 The labour market as a site of struggle

Marxists have rejected the simple principles of mainstream economists. Rather than viewing all stakeholders in the labour market as rational decision makers on a level playing field, the labour market has been viewed as a site of a *class struggle* between capitalists and workers (Marx, 1967). Marx distinguished between the worker and his/her means of production, as the two could be removed from one another. Marx also questioned the relationship between the producer and the worker, and saw this relationship as exploitative rather than one of mutual benefit based on utility, as outlined by the mainstream economists.

Bhattacharya (2017a, p. 70) expanded on Marx's work and highlighted two processes which are ignored by viewing the economy the way mainstream economists do. This view firstly allows for the "separation between the 'political' and 'economic'" (a central feature of capitalism) and such assumptions obscure the "actual process of domination and expropriation that happens beyond the sphere of 'equal' exchange". She suggests that appropriation is obfuscated as part of the production process, rather than viewed as a social negotiation which producers and workers enter into. This "process makes invisible the act of exploitation, [and] the worker is caught in this sphere of judicial 'equality', negotiating rather than questioning the wage form" (Bhattacharya, 2017a, p. 70). The illusion of 'equal' exchange is thus perpetuated by the judicial rights of the worker, the rights of the workers often being guaranteed through political and judicial institutions, while still being exploited, as a result of exploitation being 'hidden' as a normal part of the production process. This is done with the sole objective of getting workers to produce goods and services which are

greater in value than their labour power.[11] This exploitation is also theorised in the relationship between corporate capitalism and working-class families. In doing so, both the family and the individual's sovereignty is called into question (Ciscel & Heath, 2001; Dickson & Russell, 1986).

How this exploitation takes place is also well-ventilated by Marx and his proponents: firstly, through the extension of the work day via the creation of *absolute surplus value*, and secondly through the creation of *relative surplus value*, via the introduction of technology into the production process. This only gives the worker enough time to reproduce himself for a new day's work (Marx, 1967). Marx's analysis thus sought to demonstrate the relationship between workers and employers as one of struggle between different classes in society.

Marx also provided a way of thinking about market activity within the economic system in which it operated, rather than assuming an isolated system functioning independently. The exploitation of workers, he argued, was important to ensure the sustainability of the capitalist system. Without being able to extract surplus value from the labour of workers, there would be no motivation (or adequate returns) to continue operating as a capitalist producer. Thus, according to Marx, workers were earning wages towards the right end of the work continuum, although that wage would only be enough to reproduce themselves on the left end of the continuum. However, Marx's analysis never ventured into the social relations which were apparent at the left end of the continuum.

1.3 The household as a site of struggle

Social reproduction theorists built on the work of Marx, attempting to merge the concerns of both feminists and Marxists. Many feminists have usefully applied Marxist principles to their analyses, stating that Marx's relative surplus production postulated how even more could be extracted from the worker by introducing technology into the production process. Seccombe (1974) built on Marx's relative surplus value,

[11] The value of labour power is "'the value of the means of subsistence necessary for the maintenance of its owner' (i.e. the worker). The additional value that she produces during the working day is appropriated by capital as surplus value" (Bhattacharya, 2017a, p. 71).

highlighting similarities and differences between the market and the household and the effect which technology has had on these two institutions.

Industrial production brought with it the development of technology which has been used to re-organise labour within the production process and allow for more efficiency. Technology was not only introduced in industrial production but also in household production, making household labour more efficient. Although, unlike the wage market, this was not accompanied by a re-organisation of labour within the household, as capital has no interest in organisation within the household. Seccombe (1974, p. 17) argued that "[w]hether a domestic task is completed in one hour or four has no effect on capital, [as] long as the wage worker shows up for work every shift, able and willing to work". This view was echoed by Himmelweit and Mohun (1977). Applying Marx's absolute and surplus value theorisations, creates a case for not only viewing the labour market as a site of struggle, but also viewing the household as a site of conflict (Hartmann, 1981).

Despite the useful tools of analysis provided by Marx, however, the way mainstream economists (and Marxists) view labour market relations has been termed "sex-blind" (Hartmann, 1979, p. 8), as they do not critically reflect how factors exogenous to the market might affect how value is allocated within the market. Mainstream economists, for example, treat the labour of a husband and a wife as mutually exclusive and the decision of wage work is determined by the individual who will earn the highest wage. They do not consider how the housework of the wife might be pivotal to the husband's productivity in his wage work. Marxists, on the other hand, claim that the producer pays the labourer just enough to reproduce himself and return to work, although never at any point do they engage with the details around this reproduction and whoever else might be involved in this process.

Razavi (2007, p. 7) argued that there was a "difficulty of fitting gender issues into Marxist analytical categories that frame men and women essentially as "workers" – there was little room within this analytical frame for caring as a distinct set of activities, which many would argue has a different rationality from other kinds of work (because the person doing the caring is inseparable from the care given) nor, indeed, any space for the analysis of sexuality".

Social reproduction theorists drew attention to the fact that the reproduction of workers mainly take place within the household and is the domain of women (family or kin) (Briskin, 1985; Vogel, 2000). The biological reproduction takes place through the regeneration of the future working class (bearing and rearing of children), but also through the replenishment of the existing working class (care of workers). These functions have been identified as the "sources of women's oppression" under the capitalist system (Bhattacharya, 2017a, p. 73). Marxist feminists thus contributed by highlighting not only the class struggle which women experience in society (the Marxist element), but also saw patriarchy as a system disadvantaging women (the feminist element).

Social reproduction theorists thus highlight the class struggles which emerge from oppression and postulate that the supposed blindness of capitalism to issues of gender is a dualist approach to thinking about the social relations. Bergeron (2016, p. 188) argued that claiming that the capitalist system is sex-blind "is at odds with feminist perspectives on capitalism as dependent in its very existence upon the unpaid care work of women in households".

Such dualist approaches have often resulted in the prioritisation of different forms of oppression, prioritising gender in the household and class in the market. This approach has also been criticised by intersectional theorists who viewed different forms of oppression as acting simultaneously and resulting in a cumulative disadvantage (Brewer, Conrad, & King, 2002; Guinea-Martin, Mora, & Ruiz-Castillo, 2015; Veenstra, 2011; Walby, 2007). Bergeron (2016, p. 188) further argued that women's "role as carers undertaking relational work in a world that only values detached exchange" changed, and so did the debates about domestic labour after the 1980s. This was accompanied by the growth of the services sector which "blurred the distinctions between the production of commodities and the production of people" (Bergeron, 2016, p. 189). The nuclear, male-breadwinner family also became undone in some countries with migration and an increase in female labour force participation.

Bhattacharya (2017a) further emphasised that this social reproduction is not only the domain of the household, but can also be performed by other public institutions. These

include public schools, health care facilities, and pension benefits for the elderly provided by the government. She specifically points out that "[s]lavery and immigration are two of the most common ways in which capital has replaced labor within national boundaries" (Bhattacharya, 2017a, p. 73). When public provision is cut, it is women who become providers of last resort through both paid and unpaid labour (Elson & Cagatay, 2000). However, when this labour takes placed in the home it is not done in exchange for a wage, thus highlighting the importance of paid reproductive work.

The benefits of performing reproductive work for pay are that public institutions can ameliorate gender inequalities in the labour market through labour legislation (to which public institutions will most certainly be bound). When these benefits and services become privatised in a capitalist system, these gains can be undone – as was the case with the privatisation of the Canadian healthcare sector (Cohen & Cohen, 2006). Bergeron (2016) also illustrated the devastating effects a cut in public expenditure can have, when governments rely on the assumption that this tab will be picked up by private households. Bergeron referred to this as the "exhaustion solution".

> The 'exhaustion solution' often results in women working a double or even triple day, thus depleting reproductive labour. The household's ability to supply a productive labour force to the market is threatened by this depletion, and declining health, educational attainment, and nutrition result in an erosion of human capital that can interfere with capitalist efficiency and profitability (Bergeron, 2016, p. 190).

Social reproduction theorists thus view the work continuum as being shaped by social relations with capitalism and patriarchy serving as interlocking systems for the exploitation of women in society.

1.4 Women's competing interests and motivations

Feminist economists share many of the sentiments of social reproduction theorists, with a full view of the work continuum (i.e. considering unpaid reproductive labour *and* paid labour) being one common factor. Social reproduction theorists do take a more radical approach in how they view class relations, as mainstream feminist economists

do not assign class relations the same degree of importance as social reproduction theorists do. Similarly, social reproduction theorists have placed greater emphasis on care and the household, versus the articulations of productuib abd reproduction in capitalist economies, which had traditionally been the concern of mainstream feminist economists. *Here*, however, the criticisms of feminist economists are discussed in relation to the views of mainstream economists; they also share many similarities with the institutional economists discussed in the next section.

The focus in this section on the work of feminist economists relate to the 'decisions' which are intrinsically linked to the motivations and aspirations of an individual. As previously discussed, orthodox economists diverged on whether the individual acts in his/her own interest or that of the household, although they agreed that these are utility maximising (competitive) and ultimately rational. This further included the assumption that a shared household utility function exists, with a unitary family system consisting of men, women, and children who are allocated different roles in the household (Marshall, 1920).

Thus, unlike the wage market, where workers compete with one another, there is no competition between household members as they share the same interests and a collective utility function, according to the orthodox economists. Everyone in the household thus acts in the best interest of the collective utility function of the family. Folbre (1994) and England (1982) have, however, specifically questioned how it is possible for individuals to switch between their selfishness in the public sphere, and their altruism in the private sphere. They also question the bargaining power which individuals in the nuclear family hold, given that the individual who wields the most financial resources (breadwinner, often male) is also likely to have the most power over intra-household resource distribution.

Miller (2016) described the characteristics associated with the two spaces (Table 1.1) and also indicated the types of labour performed and the types of production which take place in each. The public sphere is associated with masculinity, paid labour, and a space where people are visible. On the other hand, the private sphere is considered a space in which people are 'invisibilised', work is unpaid and is considered a

feminised space. These characteristics are similarly applicable within the work continuum.

Table 1.1: Gender socialisation in the public and private spheres

Public sphere	Private sphere
Masculine	Feminine
Production of goods and services	Reproduction – childbearing
Paid labour	Unpaid labour
Leaders	Followers
Visible	Invisible

Source: Miller (2016, p. 284)

Unpaid reproductive labour has been performed via the social and economic conditioning of men and women over decades and the feminisation and invisibility of the private sphere is pertinent to maintaining men and women's social positions. The undervaluation of household production has been pivotal to maintaining a delicate and orderly ecosystem.

Himmelweit and Mohun (1977, p. 16) argued that housework "plays an important reproductive role with respect to ideology. For the family has a crucial stabilising function through the allocation of socially-defined roles, both in the conditioning of children and in the maintenance of [a] docile, disciplined [and] divided working class. The family is one of the most important units for the socialisation of individuals in capitalist society". They further argued that "[a]uthoritarian relationships in social production (capitalist to worker) are facilitated through their previous observation and acceptance in the home (parents to children and husband to wife)" (Himmelweit & Mohun, 1977, p. 16). Similar sentiments have been shared in the recently drafted 'White Paper on Families' in South Africa (Department of Social Development, 2013). This labour which women primarily perform is thus not just in service of the family they reside with, but indeed plays a crucial role in maintaining a social order within society, an essential criterion for the continuation of a functioning capitalist system.

Given that the home itself is a site of production, this 'allocation' is not merely made based on society's desire to provide women with more leisure time (as early orthodox economists viewed the use of time outside of the wage market), but rather a way in which women's availability for wage labour becomes more limited. The allocation of household labour thus automatically becomes the responsibility of women, who either dedicate their time to performing this labour, leaving them more time-poor than men,

or pay (and manage) someone else to perform this labour, leaving them more money-poor. These limited choices have been interpreted as women's 'preferences' by orthodox economists in order to explain their 'lack of commitment' and consequent subordinate positions in the wage market (Becker, 1965; Smith, 1976).

Commodities which women typically produce in their homes have been viewed as possessing 'value in use' (Buckley, 1986). Marxists and Adam Smith (1976), in particular, has highlighted the difference between commodities with 'value in use' and 'value in exchange'. Commodities with value in 'use' are those that only create value for the individual who produces the commodity, and commodities with value in 'exchange' are commodities which provide value for the producer when exchanged with another individual (Marx, 1967; Smith, 1976). The distinction between use-values and exchange-values is pivotal to determining value in the traditional economic system.

Adam Smith postulated that commodities "which have the greatest value in use, have frequently little or no value in exchange; and, on the contrary, those which have the greatest value in exchange, have little or no value in use" (Smith, 1976, p. 26). An exchange-value is thus determined by how much the individual who has an interest in purchasing it can pay.

Using Smith's definition of the difference in the value between commodities, commodities with use-values lose value outside of the home (Himmelweit & Mohun, 1977). This market-oriented approach to determining the value of commodities has largely resulted in the undervaluation of work which is performed by workers outside of the wage market. Although some mainstream economists have attempted to look at how women's time-use might be useful in determining the value of their labour; particularly when considering home production. Authors have built on the work of Becker (1965, 1985), estimating the value of housewives' time and also incorporating joint production into models.

Gronau (1973a), for instance, critiqued the labour-leisure model arguing for individual utility functions (rather than a single household utility curve), and a three-way split in women's time – wage work, leisure, *and* home work. Although he expanded Becker's

model, in Gronau's (1973a) application, the productivity between husband and wife in terms of their returns from home and market production is still determined by the market, through wage rates. Graham and Green (1984, p. 277), on the other hand, did not change the underlying assumptions of Gronau, but they did allow for joint production, where "time devoted to home production simultaneously serves as leisure". Graham and Green (1984) allowed for joint production in their analysis, which was lacking in both Becker and Gronau's models, although their analysis was restricted to white families only.

A further limitation in models which treat components of time-use as mutually exclusive (such as those used by Solberg and Wong (1992)) is that they do not allow one to estimate the time-use of those who require 'more' than 24 hours in a day, due to engaging in joint production. This joint production also does not necessarily constitute a combination of leisure and wage work, but could be a combination of home work as well as market work.

While the simplistic models utilised in these studies attempt to provide an uncomplicated view of the decisions between men and women's time-use, they do not explain why men have an increased probability of obtaining employment and also earn a wage premium in the labour market when married, while the same is not true for women (Casale & Posel, 2010a).

The reason housework has always been more likely to become the responsibility of women could be related to the social pressure which society places on men and women. A man is a 'provider' for his family with a woman being a good 'homemaker'. These roles are inscribed in society's rules and Kalabamu (2006, p. 238) has referred to them as "culturally constructed rules on marriage, inheritance, work, social status and participation in politics and other extra-domestic activities".

While Brookes and Hinks (2004, p. 587) did not undertake a gender disaggregated analysis in their study, they found that there exists a possibility that "marriage signals individual stability and loyalty that are likely to be attributes [sought] after by prospective employers". However, the implications of cultural gender differences in

the home are that women likely free up time for men by performing the bulk of housework; allowing more time for men to participate in wage employment.

Regardless of the marital status of individuals within a household, households generally serve to produce *value in use* goods and services, and women are the primary labourers in the household. Thus, it is expected that the value of their labour will be largely undervalued. This, according to feminist economists, is why the most economically valuable contributions made in society are made towards the right end of the work continuum. Similar evidence is also forthcoming in the many studies which have attempted to estimate the value of work which takes place in the household, particularly the work of housewives (Allen, 2004; Gronau, 1973b; Hunt & Kiker, 1979).

The need for valuation of activities in an economy comes from a desire to measure progress – often defined by economic growth. However, a problem which arises from valuation of economic activity is that methods traditionally employed in mainstream economic studies are unable to allocate values to *all* areas within the economy. Despite orthodox economists claiming that the economics discipline is value free, value judgments about what is valuable are often implicit in the methods adopted (for example, the enumeration in census data of women who work as housewives or subsistence workers as inactive (Chen, Sebstad, & Connell, 1999; Saunders & Dalziel, 2017; Weeks, 2011)).

A further issue relates to the fact that even where economic growth is evident, development is often not an automatic outcome, nor are gains from economic growth equally distributed amongst market participants (Clarke, 1995; Machacha, 2015; Seguino, 2000).[12] According to 'degrowth' scholars this approach is not sustainable, from an environmental standpoint either (Alcott, 2013; Kallis, Kerschner, & Martinez-Alier, 2012; Sekulova, Kallis, Rodríguez-Labajos, & Schneider, 2013).[13] Accounting for the value of reproductive labour in the economy requires greater ingenuity in data

[12] The relationship between economic growth and inequality is contested, although in South Africa, evidence generally suggests that increases in economic growth have not reduced inequality (Ahmed, 2003; Clarke, 1995; Francis & Webster, 2019; Seguino, 2000).

[13] Degrowth scholars advocate from a focus away from economic growth to more sustainable and environmentally considerate ways of viewing economic production. This includes a reduction in excessive production and consumption and a design in economic policy which emphasises longevity of the environment rather than an expansion of wealth.

collection and this is part of why household production (not produced for exchange) is still not considered in national accounting statistics (Budlender & Brathaug, 2002).

The feminist economists thus challenge the 'free-market' assumptions of the mainstream economists, but also the flawed ways in which value is allocated within the market. This value allocation, they argue, is achieved by placing individuals in certain roles which are performed in pre-defined spaces. The institutional economists, on the other hand, provided a useful way of studying how everyone in society is 'kept in their place'.

1.5 Institutionalising identities and motivations

Although the institutional school did not develop directly as a result of the concerns of feminist economists, many feminist scholars have made use of the tools of institutional economists to explain disparities both within the traditional labour market and outside of it. Feminist economists believe that women within the market are able to and do make choices (as per the rational choice theory of mainstream economists), although they do so within the "limits imposed by the structural distribution of rules, norms, assets, and identities…in their societies" (Kabeer, 2012, p. 12). These limits are referred to as 'structures of constraint' by Folbre (1994) and they appear both formally and informally, in different ways, in different regions of the world. Some structures are legislated in certain countries, while others are more implicit in the form of prejudice (Kabeer, 2012; Razavi & Turquet, 2016). Feminist economists thus consider these when analysing women's positions in the labour market and identify these constraints as central to gender inequality within the labour market (Kabeer, 2012; Samson, 2010).

As the mainstream economists have postulated, unpaid labour takes place 'in exchange' for the financial support of a male breadwinner in the home, to the benefit of all household members. All individuals within the household have it in their best interest to maximise household returns, and people will choose roles which best suit their relative intrinsic abilities (Becker, 1974). Some choose to work in the wage market (public sphere) and others choose the home (private sphere), although the 'choice' to

occupy each space is a source of socialisation or the result of a cultural institution (such as the family), which is associated with different characteristics.

The separation of the two spaces (as depicted in Table 1.1), feminist economists have argued, is a major contributing factor to the disadvantaged positions in which women find themselves in society (Mayhew, 1999). These spaces are more than just locations through which the labour market has allocated value, based on the demand and supply forces of the market (as the orthodox economists claim). These spaces are locations in which people have culturally and historically been 'allocated' in society to add value, based on their gender, and very often, race.

Institutional economists postulated that institutions rather than markets alone play a role in an economy and the decisions which individuals and groups make in the economy and society (Folbre, 1994; Van Staveren, 2010a). They include an element of culture and question how this culture serves to contribute to the subordination of women's social status, and the choices which women make (Elson, 1999; Jennings, 1993; Mayhew, 1999; Seiz, 2017).

Institutional theorists also question the relevance of the market as the primary source of allocation and while they agree with many of the postulates of the feminist economists, they have criticised them for persisting in their approach with the market as the central point of analysis (Jennings, 1993; Mosomane, 2014).[14] Fine (1998, p. 16) argued that institutional theorists recognise that "the market cannot exist in a vacuum and, consequently, must be analysed in conjunction with its non-market complements". It is thus vital to include other non-market actors in analyses related to the labour market, such as trade unions, political actors and others (Fine, 1998). In addition to a broader view of labour market actors, institutional theorists also provided ways of better understanding inequalities within the paid market and why workers may have trouble moving further towards the right-end of the work continuum. These included the labour market segmentation and dual labour market theories.

[14] The insistence of allocating market-allocated wage values to the work of housewives is one such example.

The labour market segmentation theory developed in opposition to orthodox views of the labour market (such as the human capital theory) and recognised that, despite the competitive market-oriented approach in economics, not all areas within the labour market are equal. Segmentation of the labour market takes places in a number of ways: by race, by gender, and even the division of the labour market into primary and secondary sectors (Reich, Gordon, & Edwards, 1973).[15]

While the orthodox economists, using their rational choice theory, postulated that workers make choices which maximise their returns in the labour market, the institutional economists claimed that workers are restricted in the choices they have in the labour market (Rumberger & Carnoy, 1980), and as a result structural inequalities within the labour market tend to exacerbate this segmentation. In many instances, this segmentation takes place with no rational explanation; it is simply based on the prejudices of producers, governments, trade unions, and in certain instances networks of patronage amongst workers engaging in exclusionary practices.

Dual labour market theory, on the other hand, posited that the economy is divided into the formal economy, where minimum wage legislation is observed and job security exists, and the informal economy, where workers who fall outside of the regulatory framework participate (Heintz & Posel, 2008; Uys & Blaauw, 2006).[16]

The types of occupations which are available to individuals in different segments of the labour market also vary according to factors such as differential wages, access to job benefits, and yields on education (Rumberger & Carnoy, 1980). Women's access to formal, primary sector jobs have often been restricted and they are consequently left to compete in the secondary and/or informal economy (Casale, 2004). This contributes to the low paying, insecure jobs which they have access to.

[15] The primary sector is characterised by good jobs which pay adequate wages, and has low staff turnover, whereas secondary sector jobs are usually low paying jobs with little to no protection for workers, and where the required skills needed are minimal (Uys & Blaauw, 2006).

[16] The Segmented Labour Market Theory was preceded by the Dual Labour Market Theory. There are debates within these theories themselves, such as the Dual Labour Market Theory which is split into the Doeringer and Piore approach and the Reich, Edwards and Gordon approach – although these two approaches simply consist of different lenses with which to critique orthodox approaches to the labour market. The Segmented Labour Market Theory, on the other hand, is a demand-supply model of the labour market which takes a more critical view of what the Neoclassical school views as demand and supply factors, while also critiquing the Dual Labour Market theorists for their lack of engagement with supply-side factors in the labour market. This is a simplified version of the historical development of these theories, but both form an important part of institutional economics (Fine, 1998; Ntuli, 2009).

Women's invisibility was structurally maintained in South Africa, particularly during the pre-democracy period, through the undercounting of female workers. For instance, Casale (2002) reported that in census surveys, conducted between 1950 and 1970, discrepancies existed between the classification of work of women in the Bantustans (former homelands), compared to men in the Bantustans or women in other parts of the country undertaking subsistence activities. Black women working as agricultural labourers in the Bantustans were classified as 'housewives', while men doing the same type of work were classified as 'employed'.

Women's movement outside the home has resulted in many positive outcomes, although in many instances, this just resulted in undervalued and underpaid labour. This is evident in global value chains, where women have been exploited by subcontractors of large transnational corporations (primarily in developing countries which adopted export-oriented growth strategies), for low wages and were subject to poor working conditions (Hauf, 2015; Ozler, 2000; Seguino, 2007). This is also apparent in the South African labour market where women have often been crowded into 'low status' occupations in the formal economy or into the informal economy (Casale, 2004; England, Budig, & Folbre, 2002).

In the formal economy, the workplace for women has been characterised by vertical occupational segregation. Studies have identified that women tend to hit 'glass ceilings', characterised as unsuitable for high managerial posts, or jobs which require 'rational' decision-making or leadership potential (Naidoo & Kongolo, 2004; Posel & Todes, 1995; Van Staveren, 2012). Others have identified a 'sticky floor', where gender wage gaps tend to be larger at the bottom of the income distribution (Bhorat & Goga, 2013; Ntuli, 2009), indicating that women at the top end and the bottom end of the occupational spectrum face challenges relating to inequality.

The South African informal economy, which is also a space many are *pushed* into to make a livelihood (Groenmeyer, 2011a). The informal market makes it particularly difficult for workers to benefit from the protection of labour market legislation. For women, their vulnerability extends beyond the lack of a fixed labour arrangement; "street vendors, the majority of whom are women, also face challenges of personal

security and are vulnerable to physical and sexual violence and robberies in the markets and streets at night" (Ossome, 2015, p. 10).

This 'informal' workplace also includes formal places of work where workers labour under precarious arrangements. This includes subcontracted or outsourced work – the sites where the informalisation of the labour force has taken place. This pattern of informalisation (accompanied by trade liberalisation) of the female labour force has been observed in the South African textiles, clothing and footwear industries, where workers became increasingly casualised in the 1990s, and union density in the industry declined (Mosoetsa, 2001; Nattrass & Seekings, 2019; Yamazaki, 2012).

Women's invisibility has also been exploited through society itself. The home has played an important role in society, as it has often carried the burdens of the public sphere in times of economic downturns and economic policy change. For instance, when governments chose to adopt neoliberal economic policies and employ strategies of minimal government intervention both in the product and labour markets, this provided a space for firms to decrease their commitment to their workers though cost cutting measures (Miraftab, 2004). This has also served to decrease the bargaining power of trade unions, as formal sector jobs become more flexible and the informal economy expanded (Ahikire, Musiimenta, & Mwiine, 2015) – a challenge for decent work aspirations. As a result, private households have experienced an increased burden of responsibility for individuals with no social security benefits and also unemployed workers (Benería & Floro, 2005). In South Africa, this is also evident in the number of unemployed individuals who live with recipients of social grants (Van Der Berg & Siebrits, 2010; Klasen & Woolard, 2009; Mosoetsa, 2004).

The misplacement of the public sector's burden has also reared its head through the 'added-worker effect', which drives other household members into the labour market when primary breadwinners lose jobs or take pay cuts (Fernandes & De Felicio, 2005).[17] In addition to this, households have been responsible for the care and supervision of old and sickly household members, with this labour often being

[17] The public *sphere* refers to that which happens in the public domain, outside the household, such as in a place of work, whereas the public *sector* refers to the government or the state.

performed by female household members. In pre-democracy South Africa, this function was fulfilled by households in the Bantustans, where workers employed in urban centres would retreat to if they fell ill, were no longer able to work, or lost their jobs (Wolpe, 1972). In this manner, private sector firms and the government extracted surplus value from these households, as per the postulates of the social reproduction theorists.

For *paid* reproductive labourers, undervaluation of their labour relates to the fact that many of these workers are located in the secondary and informal economy, which is often outside the reach of labour legislation and government regulation (for example, domestic workers, personal service workers, and health care workers) (Gama & Willemse, 2015; Webster & Omar, 2003).

Just as unions struggle to mobilise increasingly casualised workers, women are vulnerable as their work often takes place in invisible spaces, as the feminists and the institutional economists postulate. Furthermore, despite the work performed in households becoming largely 'outsourced' or commodified by households who are able to afford this type of labour (domestic servants, private nurses, etc.) it still remains largely invisible.

Such care work is characterised by high occupational sex-segregation, and is highly racialised (this is evident in the high incidence of black domestic workers in South Africa (Ally, 2011; Gaitskell, Kimble, Maconachie, & Unterhalter, 1983)). This phenomenon has been attributed to the 'crowding hypothesis' which postulates that women tend to be overconcentrated in low quality occupations due to barriers to entry to occupations of a higher quality (Gama & Willemse, 2015). Given the institutional or structural nature of discrimination within the secondary and informal economies, men employed in these economies would also be disadvantaged by the location of their work.

No group of workers can thus be seen as a homogenous group. The various segments of the labour market and broader society serve to ensure that people remain in their allocated spaces. A further level of analysis can thus assist in understanding the

experiences of people located in different spaces despite similarities in their identities, such as belonging to the same race or gender.

1.6 Intersecting identities as sources of disadvantage

The institutional theorists postulated about the quality of jobs individuals were likely to be in, in different parts of the labour market, but also indicated that access to certain parts of the market were restricted for certain individuals and where they would also have reduced agency (characterised by gender, race, class, age and so forth). This creates pockets within the labour market which may be deemed more valuable than others as structures in the labour market *impose* value. This argument not only challenges the rational choice arguments, given that workers will often find their choices limited, but also shows that there may be room for other actors (other than the producers) in the labour market to engage in exclusionary practices.

'Workers' encompass complex identities as individuals and groups. This is emphasised by intersectional theory which Power (2004, p. 5) encourages in economic analyses by stating that "feminist economists [should] incorporate considerations of class, race-ethnicity, and other factors into their research, recognizing the limits of theorizing 'women' as a homogenous category". Others, such as Hancock (2007, p. 67), have argued that "enhancing women's rights, must contend with ethnic and cultural differences that can thwart even the best intentions in research, development programs, and politics".

Intersectional theorists, who form part of the feminist tradition, rejected the notion of gender binaries as units of analysis. In contrast to earlier feminist theorists, they argue for a more complex view of people's identities in order to explain their lived experiences. Collins (1998, p. 27), for instance, argued that "any location where such systems meet or intersect generates a distinctive group history or experience"; the systems referred to in her text include gender, race, and social class, amongst others. However, there are many other categories which can be added to these which complicate the notion of these systems themselves.

An intersectional analysis is “characterized by an analytical shift away from the dichotomous, binary thinking about power” (AWID, 2004, p. 3). Gender as a category is also related to sexual orientation and thus includes an implicit assumption about sexual orientation which allows one to view gender binaries as a notion in which power relations are easily analysed (Winker & Degele, 2011).

Intersectional theorists, however, postulate that gender should not be viewed as a binary category, but other aspects of an individual’s identity, such as sexual orientation, should also be considered. In this vein, a large number of categories can be created beyond the ‘male/female’ identifiers. While these intersectional postulates are valid, Miller (2016, p. 283) noted that despite these complexities with which the intersectional theorists challenge gender binaries “the social reproduction of daily life still takes place within these broad binaries”, regardless of sexual orientation. This occurs as a result of society restricting women to certain spaces which also contributes to assigning “power in society” (Miller, 2016, p. 282).

This is evident in the fact that women have constituted the majority of unpaid and paid reproductive workers, despite norms relating to sexual orientation changing within our society. In fact, women’s vulnerabilities were highlighted recently in relation to the degree to which they lost their jobs and shouldered an increased domestic burden in their households during the COVID-19 pandemic (Andrew et al., 2020; Casale & Posel, 2020). One instance in which intersectionality does make a valuable contribution as an analysis tool is in relation to race in South Africa.

Many of the structural inequalities which were created by the colonial and apartheid governments persist today in the form of race. However, given the growth of the black middle class, some have argued that class may be a more important unit of analysis when undertaking labour market analyses on South Africa (Pons-Vignon & Di Paola, 2014). Although the ‘class versus race’ debate has proved valuable in explaining the increased intra-racial inequality which has characterised the post-apartheid period (Mohautse, 2004; Moolman, 2013; Nattrass & Seekings, 2001), having to contend with race, class, and gender has been described as a ‘triple burden’ for women of colour (Lockett, 1990). In addition, women’s issues have often taken a backseat to issues of

race (specifically in workers organisations), given the long history of racial oppression within South Africa (Hassim, 1991; Tshoaedi, 2017).

Aimed at grouping people according to their various 'characteristics', Standing's (2011, p. 59) description could usefully be applied in the South African context to explain the differential burdens of white women and women of colour.

> Among women, the 'grinners' include those with partners in the salariat, who can treat a job as a sideline; the 'groaners' include single breadwinners and those facing the triple burden of having to care for children and elderly relatives, while needing to take a paid job.

Historically, white women could be considered 'grinners' while women of colour could be seen as 'groaners', although, the growth of intra-racial inequality has complicated this categorisation. Within the 'women of colour' category in South Africa, in many respects, the experiences of African, Coloured, and Indian individuals also differ – a continuance of apartheid-era segregation (Whitehead, 2013). When adding class to the debate, the categories of analysis become even more complex. However, the purpose of an intersectional approach is not to create an infinite number of unmanageable categories of analysis, but rather to be mindful of how the experiences of a group in a society should not be conflated by treating that group as a homogenous category. For women in particular, their experiences and outcomes along the work continuum, as well as the degree to which they are able to access decent work, will consequently differ.

1.7 Decent work on the work continuum

Decent work could similarly be thought of as a continuum of 'decency' as no job in the labour market is perfectly decent. Work should thus rather be thought of as being decent to a certain degree or decent relative to other jobs within the economy. However, varying definitions of decent work have emanated from the literature (in addition to the definitions already highlighted in the introduction of this thesis). These definitions are discussed and debated here, as well as the way in which the decent

work debate has shifted thinking about quality of work. Lastly, previous empirical literature related to women's work in the South African labour market is discussed.

1.7.1 Defining and debating decent work

Many writers have taken the meaning of 'decent work' as understood and agreed on to focus on the application of the tools provided by the ILO (Banerjee, Galiani, Levinsohn, McLaren, & Woolard, 2006; Bob, 2019; Ernst, Hagemeier, Marcadent, & Oelz, 2012; Tomei, 2011; Tomei & Belser, 2011; Wicaksono & Priyadi, 2016). For those who have thought of decent work in a more conceptual way, a review of the literature shows the different ways in which authors have defined decent work; many have done so to suit the conditions of the context in which they write. The majority of authors used the ILO's definition of 'productive' and 'dignified' work which enhances the 'freedom' of workers, although they have also added additional terms to the definition (Bescond, Châtaignier, & Mehran, 2003; Cohen & Moodley, 2012; Duffy, Blustein, Diemer, & Autin, 2016; FAO, 2015; Fudge, 2007; Ghai, 2006; Graça et al., 2019; Hauf, 2015; Herath, 2011; Huneeus, Landerretche, Puentes, & Selman, 2015; Wang et al., 2019). The additional terms include 'equity', 'trust', 'solidarity', 'collective self-organisation', and focussing on 'well-being', amongst others.

As the literature around decent work has grown, the DWA has not been without criticism. However, the discussion here will not address the specific indicators used (this is reserved for discussion in the following chapter), but rather the conceptualisation of the DWA, its usefulness, as well as some of the criticisms waged.

Selwyn (2014, para. 1) described the ILO's efforts as an "ameliorated version of the present [rather than] a vision of a fundamentally different world". Authors have also viewed the DWA as lacking coherence and as a result the concept has not been able to take heed and reach its full potential; while for others, decent work rights have been described as 'aspirational' and 'symbolic' (Blustein et al., 2016; Ghai, 2006; Hauf, 2015).

In addition, the lack of worker engagement in the decent work literature is problematic as governments and labour unions are likely to prioritise their own interests and these

might be at odds with the interests of workers. Labour unions, for instance, need due-paying members and governments need workers who can relieve their social security burden and contribute to national revenue. Both would thus have it in their interest to define work in terms of the standard employment relationship. The development of the DWA, and the defining of what decent work means to governments, unions, and international bodies may thus carry a paternalistic element which is confined to the boundaries of the interests of these authorities. As Barchiesi (2010) has demonstrated, workers could have ideas which are at odds with what these authorities are able or willing to offer in terms of a decent work framework.

Furthermore, the entire idea of decent work has been described by Vosko (2002, p. 20) as “a skilful effort at mediating escalating tensions inside the ILO between global capital, backed by a majority of industrialized states, and an increasingly vocal group of member states, trade unions, women’s organizations and other NGOs concerned with improving the lives of marginalized workers.”

The greatest criticism of interest in this thesis, however, relates to the formal definition of work provided by the ILO. The ILO has heeded the calls of feminist advocates for the consideration of unpaid work within the formal definition and measurement of work (Amporfu, Sakyi, Frimpong, Arthur, & Novignon, 2018; Antonopoulos, 2009; Sayer, 2005), and this has accompanied a proliferation of studies attempting to quantify the value of labour which women perform in the household. Previously, this work was largely of interest in litigation when a housewife wished to separate from her husband (Pyun, 1969).

An effort has been made to move away from the standard employment relationship which Fudge and Vosko (2001, p. 273) refer to as “characterized [by] a continuous, full-time employment relationship where the worker has one employer and normally works on the employer’s premises or under his or her supervision”. This standard worker fits into the description of the rational economic man referred to in feminist economics texts (Folbre, 1994). These workers generally have work that is decent in the traditional sense.

Although the ILO has moved towards inclusion of non-standard forms of work in their *conceptual* thinking of decent work, in their *measurement* of decent work, they have continued using the traditional definition of work. The definition of 'employed persons' being (ILO, 2012a, p. 23):

> persons of working age are classified as employed if, during a short reference period such as a day or a week, (i) they did some work (even for just one hour) for pay, profit or family gain, in cash or in kind; or (ii) they were attached to a job or had an enterprise from which they were 'temporarily' absent during this period (for such reasons as illness, maternity, parental leave, holiday, training, industrial dispute). Employed persons include those persons of working age who worked for at least one hour during the reference period as contributing family workers (formerly referred to as unpaid family workers) working in a family business.

This is the definition of work performed towards the right of the work continuum. The work on the extreme left, however, is undefined in the definition provided above, given that it is not done in service of an enterprise, nor is it done in exchange for a wage. This is also the approach which has traditionally been adopted in labour force surveys. This suggests that although there has been a shift towards bringing gender equality to the 'heart of decent work', by emphasising gender equality as a cross-cutting goal in relation to its four strategic pillars (employment, social protection, social dialogue, and workers' rights) (ILO, 2009), in practice, unpaid reproductive labour remains invisible.

1.7.2 The ILO's contribution to rethinking the world of work

Despite the numerous shortcomings in the framework, the ILO has shifted the focus beyond the usual wage debate to include other issues which humanise workers outside their role as a factor of production. For instance, it has been stated that decent work "addressed work in its social context and, therefore, extends beyond the employer-employee relationship" (Bletsas & Charlesworth, 2013, p. 45) and the thinking has shifted to what workers *ought to* derive from their work, even if only at the conceptual level.

Fudge (2007, p. 10) has, for instance, argued that the term 'decent work' "involves a change in how we understand the normative basis for regulating work, a movement away from unequal bargaining power and subordination to a more amorphous, contested and contextualised understanding of the values that work regulation ought to achieve". This is evident in the recognition of work which takes place in the secondary and informal economies, although these forms of work are viewed as largely undesirable or 'indecent' (ILO, 2015; Tomei & Belser, 2011). The recognition of this work is done with the aim of shifting workers in these parts of the labour market towards the right end of the work continuum.

In many African countries, where the informal economy has become the mainstay of wage earners, taxation and the protection of workers is a challenge (Barchiesi, 2010; Luebker, 2008; Sefalafala, 2012). As initiatives such as decent work would require some degree of legislation, work should preferably be performed in areas which are within the ambit of labour law. This challenge is recognised by the ILO's Recommendation 204, where the need to transition workers from the informal to formal economy is stressed (ILO, 2015). This becomes a challenge for female workers (specifically paid reproductive workers), many of whom work in spaces which are 'invisible' or spaces where labour conditions cannot be or are not easily regulated by government, such as private households.

The ILO also recognises the importance of the informal economy in providing opportunities for workers. They postulate that in the absence of functional formal institutions in this part of the economy, social regulation amongst workers becomes important. These include "unwritten values, norms and practices that shape kinship and community patterns of exchange and reciprocity [that] affect the roles and perceptions of particular social groups in the labour market and influence the way labour is supplied and exchanged" (ILO, 2003a, p. 24). This social regulation could provide a source of cohesion amongst workers and allow them to benefit from kinship networks, while it could simultaneously serve as a basis on which to exclude workers; specifically, if kinship networks are formed along the lines of race/ethnicity, religion, or similar attributes.

In addition to arrangements in the informal economy, increasing flexibility of workers has also resulted in alternative agreements being explored in the formal economy. Edralin (2014, 2016) has, for example, focused on unionised firms and workers and found that the increasing casualisation of workers makes it difficult for unions to fulfil their mandate. Auer (2007), on the other hand, explored the issue around 'flexi-curity' to promote decent work outcomes. He refers to this as a concept where "flexibility and security are not opposed, but complementary, and the transformation of the trade-off into a complementary process [is achieved] through social dialogue" (Auer, 2007, p. 2). He further claims that work arrangements which are too tightly 'secured' provide inflexibility to the workers and thus undermines decent work outcomes, while the case for work arrangements being too 'flexible' is also made. However, as his definition of the concept states, this is highly dependent upon social dialogue. Given the power differential between workers and firms, workers would either need to find some collective voice for such a system to work (such as unions) or alternative mechanisms need to be put in place for workers to ensure that their voices will not be silenced by firms.

This issue is particularly prevalent amongst workers who are difficult to organise. These types of workers have experienced the trade-off between good employment and no employment. Webster et al. (2016, p. 210) discovered this in a study where a worker reported that "[i]t [the wage] is bad but it is better than sitting at home and bothering other people with money". This is in contrast to the neo-classical view of voluntary versus involuntary unemployment, where the unemployed are viewed as people who choose to be unemployed, as the market wage is too low (Korenman & Neumark, 2000; Magruder, 2010).

However, despite what seems to be a trade-off between good employment and unemployment – at least in the South African context – the measurement of good quality employment has evolved in the literature and across disciplines, and authors have forged ahead with finding a common set of principles which defines decent work. While, an international body, like the ILO, would have an interest in comparing indicators across countries, indicators are likely to differ substantially across national contexts (Burchell, Sehnbruch, Piasna, & Agloni, 2014). In this light, the approach by the ILO to loosely define decent work, could be seen as an advantage.

A study of immigrants in the Spanish labour market narrowly defined decent work as consisting of the type of contract, the wage level, and the duration of employment (De Pedraza, González, & De Bustillo Llorente, 2012). Despite this, the findings were generally consistent with other studies of decent work, finding that full-time work is more conducive to decent work outcomes than part-time work, but also that the earlier someone migrated to the country, the more likely they were to be in a better quality job compared to those who had migrated relatively recently. This analysis was also disaggregated by gender and showed that gender differences persist even amongst immigrants. Women are less likely to have full time employment than men, while men with children present in the home were more likely to have full-time employment; this is despite the fact that immigrants tend to have larger households. This would likely also indicate a greater need for full-time work.

In Zimbabwe, a survey of workers found that the informal economy was an important source of work, particularly for women. But these workers also did not report having workers organisations representing their interests, as did formal workers (Luebker, 2008). Furthermore, while formal workers reported low incomes as their main source of work-related problems, informal workers identified the increasing cost of goods and/or inputs as a major work-related problem. Formal employment in the Zimbabwean context did thus not automatically translate to decent wages.

Lastly, studying decent work in the South African tourism industry, De Beer, Rogerson, and Rogerson (2014) found that gender inequality plays an important role in this sector, with women often being excluded from certain jobs, based on discrimination or gender-typing of jobs. Barchiesi (2010) also undertook research on workers, and found that they have mixed views on the use of labour brokers, who might be able to offer higher wages at the cost of reduced worker benefits. He further discovered that some workers in the South African manufacturing industry preferred being paid out a severance package, as opposed to continuing to work for low wages when the choice was presented.

The decent work framework may thus allow for modification within national contexts, and the amplification of the voices of workers. Although, given the varying challenges

which exist within different contexts, comparisons between countries would remain a challenge.

1.7.3 Empirical literature on women and decent work in South Africa

Many of the factors which affect labour supply decisions and employment probabilities are likely to affect the quality of jobs workers are employed in or determine to what extent their work is considered 'decent'. This section briefly outlines these factors as many of these are used to study the correlates of the quality of work in which men and women find themselves in this study, but also help in determining the time-use patterns of employed individuals. Here, the decision to 'supply labour' should not only be seen as a trade-off between being a labour force participant or not, but should also be viewed in light of *how much* labour time can be supplied once someone has entered the labour force, specifically given the extent of their responsibilities on the left end of the work continuum.

The first factor which has been instrumental in explaining women's positioning within the labour market is educational attainment. Increased educational attainment, especially as more people were granted access to education in the post-apartheid period, was a central component of women's increased labour supply in the South African context (Casale, 2004; Ntuli & Wittenberg, 2013). Educational outcomes are related to expected outcomes in the labour market, as increased education levels will translate into increased wages (or at least the expectation thereof), and people are thus more likely to supply their labour (Becker, 1985; Jacobsen, 1999).

However, empirical evidence has demonstrated that the relationship between education and labour market outcomes is not a linear one, as the human capital theorists would like to believe. Although, studies on this subject have identified education as a particularly important variable for women – increasing their chances of labour force participation and subsequent employment probabilities significantly (Casale & Posel, 2002; Dinkelman & Pirouz, 2002; Ntuli & Wittenberg, 2013; Ranchhod, 2010; Serumaga-Zake & Kotze, 2004; Wittenberg, 2001).

The quality of education is also an important factor in South Africa, where differences in the quality of education prior to the democratisation era is still evident to a large extent in the current education system. This variable often intersects with other factors which further disadvantage those who have graduated through the 'poor' stream of the South African education system (Lam, Leibbrandt, & Mlatsheni, 2008; Van Der Merwe, 2010). In such cases, race becomes an important variable as it was primarily the African population who were the subjects of the apartheid government's Bantu education system.[18] In post-apartheid South Africa, it is unfortunately still the predominantly African and/or rural-based schools which subject students to poor quality learning experiences (Azam, Chin, & Prakash, 2013; Casale & Posel, 2010b). As such, race becomes an important consideration, not only in how it interacts with the level of education, but also in the way it influences the perceptions of people's competence as workers (Lam et al., 2008).

Studies on time-use, however, have identified education as an important variable in determining how women spend their time. Budlender (2010) reported that this effect differs by country. She found that in South Africa and Japan, the higher the education level, the less time someone is likely to spend on housework. In India, however, the relationship between education level and time spent on housework is not significant. Given that housework has become more commodified and given the positive relationship between education levels and wage growth, a higher level of education does indicate increased capacity to pay someone else to perform this type of work. However, other factors intersect with the level of education of an individual in labour supply decisions, such as fertility and the household composition of the home where an individual resides.

The presence of children in the home tends to exacerbate the poor labour market outcomes of women. This is evident in studies on labour force participation and the employment probabilities of women, which clearly show the negative correlation between the presence of children in the household and the labour market prospects of women (Dinkelman & Pirouz, 2011; Posel & Van Der Stoep, 2008; Ranchhod,

[18] The Bantu Education system "ensured that 'non-whites' receive a sub-par quality of education relative to their white counterparts. This in turn limited their potential for achievement in the labour market" (Festus, Kasongo, Moses, & Yu, 2015, pp. 1–2).

2010). This situation tends to be worse for those with children who are younger than school-going age. Hartmann (1981), who reported on 'husband-and-wife' families, found that extended work days are the norm for women with children. In households where this conventional nuclear family structure does not exist (often female-headed households), this situation is likely to be worse.

Fertility, however, has been found to be closely correlated with education, as this not only has an impact on the decision to have children, but also on the mortality of children (Adedini & Odimegwu, 2017; Gokulsing & Tandrayen-Ragoobur, 2014). Two arguments are set forth by Mlatsheni and Leibbrandt (2001) in relation to labour market decisions and children. The first is that women who have fewer children may have more time to dedicate to the labour market and this would thus result in an increase in female labour force participation. The alternative argument is that women with fewer children may have "an increase in desire for higher quality investment in these children" and a decrease in female labour force participation, also providing a possible reason for decreased child mortality (Mlatsheni & Leibbrandt, 2001, p. 4). However, many simply do not have the choice between being a worker and caregiver, and the emotional and mental consequences of having to be both have also been documented (Waterhouse, Hill, & Hinde, 2017).

However, in the South African context, it is not only the fertility or the number of biological children which is of concern when investigating women's labour market decisions and prospects, but also those of extended family members. Posel and Van Der Stoep (2008) found that co-residency of a mother is vital when considering the effect which children have on a mother's labour force participation. A sizable percentage of women do not live with their children (due to labour migration) and the study found that in this case, having a child did not have the expected negative effect on the labour force participation of those women. However, the women who do become the caregivers of these children, often extended family members, experience a strain on their ability to enter the labour force. This thus suggests that the presence of children in the household, rather than having children *per se*, may be a more accurate predictor of how children affect women's labour force participation. Arguments similar to those of having children in the household have been put forth

about the presence of other co-resident household members (Dassanayake, Luckert, & Mohapatra, 2015; Posel & Rogan, 2009).

Another aspect of living with extended family members is that of having extended family members who receive some form of income. This has been found to have an impact on the labour force supply decisions of the individuals who live in these households (Duflo, 2000). This often enables some household members to enter the labour market (often women), while it decreases the employment probabilities of other household members (often men) (Mabugu et al., 2014; Patel, 2012; Posel, Fairburn, & Lund, 2006). The effect that having other household members with access to some form of income has on the labour force participation of men has been linked to the location of such households (often households with social grant recipients), but they have also had the effect of raising the reservation wages of these individuals.

A reservation wage can be defined as the lowest possible wage at which an individual is willing to work and there are a number of factors which would impact an individual's reservation wage. Theorists have argued that married individuals (women in particular) are likely to have higher reservation wages due to the intrahousehold allocation of resources, and this argument has similarly been made for individuals who live with an employed person, as well as individuals with higher education levels (Killingsworth & Heckman, 1986; Ntuli, 2009; Verick, 2014). Reservation wages have also been found to be higher for women with children, particularly young children (Ntuli, 2009).

Reservation wages are also closely linked to productivity and education, as the human capital theorists postulate. Mlathseni and Leibbrandt (2001) wrote that an increase in the skills of a worker would not only increase productivity in the market (in other words the individual will expect a higher wage from the market), but also in the home – or in home production. Thus, "increases in the productivity of women's time in home production may in turn cause reservation wages to rise as fast as market wages" (Mlatsheni & Leibbrandt, 2001, p. 2). With this reasoning, one might begin to understand why an increase in women's education may not necessarily result in an automatic increase in their labour force participation, as this might be offset by an increase in their reservation wages.

However, reservation wages are not just influenced by people's 'preferences' in relation to additional resources which are available to them in their households, but can also be influenced by other factors, such as the location in which an individual resides.[19] If an individual lives in a rural area, and is offered a job in a nearby town which would require either travelling to and from this town each day to get to work or alternatively relocating to the town where the job is, the reservation wage would be driven, amongst other things, by one of two factors. The wage offered by that job should either be sufficient to cover the daily transport commute (as well as other living expenses) or should be sufficient to cover the cost of living (and relocating) to the nearby town.

The location where an individual resides relates to time-use and labour market decisions not only in how the location where someone is situated directly affects labour market decisions, but also in the types of services which are available in those specific locations which indirectly enables or hinders labour force participation. The location where someone lives has been identified in numerous studies, not only in relation to reservation wages of individuals who live in areas situated far from economic activity, but also in the lack of job opportunities in these areas (Walker, 2003; Wittenberg, 2001). In South Africa, this has been a particularly important factor where unemployment rates and the probability of gaining employment significantly decreases when living in a rural area. These rural-urban differences have also displayed important gender differences (Wittenberg, 2001). Despite evidence pointing to increased economic prospects in urban areas, Wittenberg (2001) has found that urban areas have higher unemployment levels compared to rural areas, a finding which is substantiated by Brookes and Hinks (2004).

Secondly, the lack of service delivery in certain areas of South Africa makes it difficult for people to make the most of labour market opportunities. These services relate not only to basic services, such as running water and electricity – which can be a hinderance to women's time-use and subsequent labour market prospects – but also

[19] This variable has also been found to be associated with job search, and is one of the many factors which account for the large discrepancy between South Africa's narrowly defined unemployed population and broadly defined unemployed population (Posel, Casale, & Vermaak, 2014).

in other public services such as access to reliable transport infrastructure and healthcare facilities within these areas. However, it must be noted that problems related to access to services are not only confined to rural areas as problems such as a lack of formal housing have also adversely affected poor urban dwellers – many of whom migrate to urban areas from rural areas in search of better labour market prospects (Casale & Desmond, 2007).

Nonetheless, access to services has a strong urban bias in South Africa with rural households lacking services such as electricity, running water in the home, and ablution facilities (Armstrong, Lekezwa, & Siebrits, 2004). The discrepancies between households with access to these services also have a strong racial bias, with African households being worse off – primarily as a result of a lack of prioritisation of this segment of the population during the apartheid era (Casale & Desmond, 2007). These are also strongly related to the well-being of individuals within these households (Bookwalter & Dalenberg, 2004).

Conclusions

This literature review was framed in relation to the work continuum presented at the beginning of the chapter. Different types of work take place in different segments of the continuum and these are performed by different people. As discussed, orthodox economic theorists completely disregard certain segments of the continuum and ascribe the positioning of people on the continuum to choices made in a free market, while Marxists highlighted the class differences that exist between workers and producers on the continuum. Institutional theorists, on the other hand, described the constraints which people experience on the continuum, while feminists sought to bring into view the notion of reproductive labour which has traditionally been invisibilised by market-oriented approaches to the labour market.

The chapter also highlighted the strengths and shortcomings in the conceptualisation of the ILO's DWA. However, these shortcomings are utilised in this thesis to demonstrate what implications invisibilising unpaid reproductive labour has on women. The next chapter will describe how the ILO's DWA is applied in this study, using South African labour force surveys.

CHAPTER 2: BUILDING THE DECENT WORK INDEX

"They can't keep the men on the tanks. We've never been able to keep a man over a week. They say it's too monotonous. I think women adjust to monotony better than men do. Because their minds are used to doing two things at once, where a man usually can do one thing at a time. A woman is used to listening to a child tell her something while she's doing something else. She might be making a cake while the child is asking her a question. She can answer that child and continue to put that cake together. It's the same way on the tanks."

Grace Clements, Felter in a luggage factory (Turkel, 1974, p. 387)

Introduction

The labour literature differs in terms of how it defines quality of work, depending on the discipline in which it is being studied (Findlay et al., 2013). A strength of the ILO's DWA is that it aims to draw together elements from the various disciplines to provide a comprehensive view of 'quality of work'. In doing so, the guidelines provided by the ILO recommend the use of both qualitative and quantitative elements (ILO, 2013). However, due to resource and time constraints, researchers are often unable to include both qualitative and quantitative elements, and where both are included, only small segments of the labour market are studied (Auer, 2006; Bescond et al., 2003; Burchell et al., 2014; Cong, 2017; Nizami & Prasad, 2017). As a result, a nationally representative study in South Africa has not been forthcoming on decent work, where the measures are applied to micro units across the labour market, with the exception of a recently published study by Yu (2020). By applying these indicators across a nationally representative study, one can obtain an overview of the entire labour market, not only the occupation groups or sectors within the economy in which decent work *deficits* are expected.

Although the construction of a DWI forms a central part of the analysis, this thesis ultimately aimed to determine whether there was a relationship between time spent on unpaid reproductive labour and the quality of occupation of a worker. The South African Labour Force Survey (LFS) has a sufficient number of variables with which to construct a DWI, although the questionnaire did not probe respondents sufficiently about their day-to-day time-use activities. A survey in which time-use of individuals are adequately fleshed out, however, is the Time-Use Survey (TUS), where a detailed

description of how individuals use their time is provided; however, the TUS does not ask enough questions of employed respondents to construct the DWI.

Given that both these datasets were collected by Statistics South Africa (Stats SA), they use the same method to code occupations in which respondents are employed (Stats SA, 2001a, 2012).[20] This study exploits this similarity to make a connection between time-use and quality of work, using the two separate surveys.

The definition of work (or what is considered an employed person) used in this study is defined according to the narrowly scoped guidelines provided by the ILO. Although this may seem counterintuitive, given the discussion in the previous chapter, this is necessary to demonstrate the relationship between activities which occur towards the left-end of the work continuum and activities which take place towards the right-end of the work continuum. It is also necessary to provide empirical evidence of the inadequacy of the ILO's formal definition of work.

In this chapter, the process by which the DWI was constructed from the LFS is described as well as the datasets which were used for this purpose. In addition, how the DWI was applied is also described and the limitations which arose in the application process. Before describing these details, though, a brief description of the ILO's DWI and its usefulness in describing quality of work in the productive sphere is provided.

2.1 The ILO's decent work index

Many organisations make use of indicators or indices to evaluate the impact of their work and the work of others. Examples of these include the Human Development Index (HDI), the Global Competitiveness Index, and the UN Indicators for Sustainable Development. Indicators are defined by Lehtonen et al. (2016, p. 2) "as 'variables that summarise or otherwise simplify relevant information, make visible or perceptible

[20] The 'employed' are defined as those who "performed *work* for pay, profit or *family gain* for at least one hour in the seven days prior to the interview or who were absent from *work* during these seven days, but did have some form of paid *work* to return to" (Stats SA, 2009b, p. 63). 'Family gain' in this definition is referred to as a "benefit to one's family as a result of working, other than pay to oneself, for example, housing or use of land" while 'work' is defined as an "activity carried out by an individual and whose product contributes to the national *output*, irrespective of whether the person doing it is paid (cash or in kind) or not paid" (Stats SA, 2009b, pp. 64, 75).

phenomena of interest, and quantify, measure, and communicate relevant information'". They further add that "indicators are based on an underlying conceptual framework, which anchors indicators in theory, establishes a logic to the selection of indicators, and provides the supporting technical definitions, metrics, and linkages, thereby situating an individual indicator within a broader network of information" (Lehtonen et al., 2016, p. 2). In the case of decent work, the ILO's DWA thus serves as the conceptual framework on which the DWI is based.

Indicators are useful for a number of reasons, including (in the case of international indicators) states holding each other accountable and the ability to make complex sets of information more useful (Kelley & Simmons, 2015). Indicators and indices are a "means of capturing complexity into easily digestible 'bits' of information and thus help non-technical minded specialists make use of complex datasets" (Bell & Morse, 2013, p. 2). It also allows those with resources to allocate them effectively (Bell & Morse, 2013; Innes, 1989). Further benefits discussed by Lehtonen et al. (2016) include using indicators for monitoring and evaluation purposes, supporting policy evaluation, raising awareness as well as ensuring control and accountability, and improving the quality of decision making. The ILO's DWA also provides some of these benefits. It is for this reason that decent work as a concept has entered into debates, it has been included in the UN's Sustainable Development Goals, as well as constituting one of the priority areas in the African Union's Agenda 2063.

2.1.1 Advantages and criticisms of the DWI

The ILO's index provides a comprehensive measure of the quality of a job, and that is what it is used for here. It is a useful way of operationalising elements, from a broad range of disciplines, which are expected to define what 'good' work is (Blustein et al., 2016). While the economics literature tends to focus on wage levels, the sociology literature on skills and autonomy, and the psychology literature on job satisfaction, decent work is a combination of these elements (Gama & Willemse, 2015).

Furthermore, consumers and suppliers can hold employers accountable if they have some measure which allows them to judge how good or bad a situation is (Kelley & Simmons, 2015). The emergence of global supply chains, for instance, which has

been one of the major drivers of exploitative labour practices have resulted in a number of initiatives. One of these is the Action Collaboration Transformation initiative, in which global manufacturers are encouraged to be transparent with their consumers about the conditions under which their products are being produced. Manufacturers can also use their leverage to influence government policy by demanding that certain labour standards be committed to before the necessary investments are made within a country (ACT, 2020). With this initiative, global manufacturers also commit to longer term investments in a country, rather than moving their business to wherever the labour standards (and wages) are lower. Having a shared understanding and commitment to decent work can thus assist in such negotiations.

The DWA also provides a framework within which governments can develop labour and related policies. Anker et al. (2003) specifically refer to strategies related to poverty reduction and the need for countries to find a balance between economic growth and social development as they engage with international markets. In order to make informed decisions on these issues, one must be able to measure decent work.

Lastly, decent work has been found to be related to other development indicators. Ahmed (2003), for instance, found that there is a negative relationship between the Human Development Index (HDI) and a decent work *deficit* index in Europe, while Bonnet, Figueiredo and Standing (2003) found a 85% correlation coefficient between their DWI and the HDI.

Although the ILO has succeeded in building a comprehensive conceptualisation of decent work, the framework has been criticised for being too broad (as discussed in the previous chapter). Although there is a view that this was deliberate, this lack of specificity has resulted in different interpretations of the term by different authors. This lack of specificity has also been noted as a contributing factor to the lack of growth in literature around the topic (Sehnbruch, Burchell, Agloni, & Piasna, 2015).

Despite this shortcoming, the ILO has managed the first two steps in the process of developing good indicators, as described by Brown (2009). In her paper, she defines five stages in developing good indicators, which are: establishing the purpose of the indicators; designing the conceptual framework; selecting and designing the

indicators; interpreting and reporting the indicators; and maintaining and reviewing the indicators.

The ILO has authored many documents in which the idea of decent work is conceptualised and the purpose of the DWA outlined (see for example ILO (1999, 2007a, 2008a)). These ILO documents satisfy the first two steps of Brown's indicator design. The ILO then goes on to provide measures which can be used to present these indicators in their two *manuals* (one an enhancement of the other) where statistical and legal indicators are discussed for measurement (ILO, 2012a, 2013). In the second version the ILO notes that as "the discussions and use of statistics on decent work evolve, the Manual will be further improved, taking on board feedback received and new standards adopted" (ILO, 2013, p. ix).

However, it is in the ILO's expectation of 'increasing discussions' that the development of the DWI has stalled. Although many researchers have used a range of methodologies to interpret and report on indicators, these debates have mainly taken place through documents commissioned by the ILO or papers published in the ILO's *International Labour Review* (Barrientos, Mayer, Pickles, & Posthuma, 2011; Fields, 2003; Ostermeier, Linde, Lay, & Prediger, 2015; Ramos, Sehnbruch, & Weller, 2015; Tomei & Belser, 2011). As such, the debate has been largely inward looking with a lack of critical voices capable of providing a richer debate on the topic.

It is in this context, i.e., the lack of a further debate, that one of the greatest criticisms of the DWA lies. Like many other indicators, decent work requires that someone decide what is 'good' and what is 'bad'. Given the notion of trade-offs which exist in economics, this type of decision will ultimately be to the benefit of some groups and to the detriment of others, and making the good/bad decision could be criticised as paternalistic (Abercrombie & Hill, 1976).

An example of such paternalism was evident in 'structural adjustment' programmes, in which debt was extended to countries in the developing world, with a number of stringent conditions relating to managing fiscal deficits and government spending (Mohan, 2009). Focusing on the aftermath of structural adjustment policies in Ghana, Hilson (2004, p. 67) found that "though macroeconomic gains made within the mining

industry under [structural adjustment programmes] have been tremendous, there is mounting evidence indicating that this growth has delivered few benefits to subsistence groups". The literature which documents the aftermath of structural adjustment programmes demonstrate the dangers of the potential paternalism highlighted in the previous paragraph (Bryceson, 2002; Fonchingong, 1999; Gerhart, Mkandawire, & Soludo, 1999).

Furthermore, Cohen and Moodley (2012, p. 336) have argued that in the context of high unemployment in South Africa, "[i]t would appear that, in the short term, a compromise between more and decent jobs may be necessary." In such instances, the pressing need to create jobs may take precedence over ensuring that the jobs which are created are good jobs. This is echoed by Fields (2003) who states that there is a school of thought which believes that costs in relation to labour need to be kept down in order for business to remain competitive in a globalised world. Fields (2003) also argued that "for a person to have a decent job, he or she must have a job". This has been evident in South Africa through initiatives such the Community Employment Programme and Expanded Public Works Programme (Leibbrandt & Mlatsheni, 2004; Taljaard, 2012), where the creation of fixed-term, low-paying jobs has been prioritised over the creation of longer term and more stable decent jobs.

Prevailing macroeconomic conditions may thus determine to what extent workers are willing to accept low-paying, insecure jobs (or the level of their reservation wages), and this will differ by country and between different workers (for instance, males and females, younger versus older workers and so forth). Thus, the first indicator in the ILO's agenda (the economic and social context for decent work) becomes pivotal to understanding the circumstances under which workers' subjective views and preferences may change with time, but this will also have a bearing on the objectively measured quality of work.

2.2 The data

Key to the analysis in this thesis is the DWI used, and the availability of data with which to build the DWI.[21] In addition, the purpose of the analysis is not only to measure decent work at a particular point in time, but also to see changes in the quality of work in the South African labour market over time. Such an analysis benefits from the rigorous and regular data collection which characterised the post-apartheid period in South Africa. The most popular datasets used in the immediate post-1994 period were the population Census data and the October Household Surveys (OHS).

The Census data are a register of the entire population, undertaken every five years, while the OHS, were nationally representative datasets, but did not include a comprehensive module on the labour market activity of respondents. The OHS was eventually replaced by two separate surveys in 2000, the LFS and the General Household Survey.

The LFS has a sufficient number of variables with which to construct a comprehensive DWI. The only other nationally representative dataset with available variables in South Africa is the National Income Dynamics Study (NIDS). However, the first wave of the NIDS survey was released in 2008 and there are currently only 10 years' worth of data available in the NIDS survey. Furthermore, the smaller sample size of this dataset presents limitations, especially when undertaking a disaggregated analysis of employed individuals.[22]

2.2.1 Matching the time-use survey and labour force survey

As noted in the introduction to this chapter, limitations in both the LFS and TUS necessitated the use of both surveys, and although Stats SA had been collecting LFS data since 2000 (first bi-annually in February and September each year, and then quarterly from 2008), to date, they have only collected and released two surveys of TUS data (2000 and 2010). Given that information from the LFS was used to further

[21] The statistical package STATA was used to analyse the data.

[22] The NIDS survey includes all the components used in this study to build a DWI, with the exception of the question which asks workers whether they would like to work longer hours (used to derive underemployment). The NIDS questionnaire does, however, include a question asking workers whether they get paid an annual bonus or 13th cheque. This is not available across all the Stats SA questionnaires.

analyse the TUS data, it was imperative to choose LFS data which could be matched as closely as possible to the periods for which the TUS data were available.

The first match was made for the 2000 TUS data. Stats SA started collecting LFS data bi-annually in 2000 and these were then released in February and September each year. To match the 2000 TUS, the use of one of the surveys released in 2000 would have been ideal; however, numerous problems exist with the 2000 February LFS, the 2000 September LFS, as well as the 2001 February LFS.

The 2000 February LFS was the first survey of this type for Stats SA and numerous problems emerged. These included the fact that a smaller sample (10 000 dwelling units versus the usual 30 000) had been drawn, but also that the first wave of the LFS acted as a pilot (DataFirst, 2014). For the 2000 September LFS, issues came up relating to the earnings data as an odd number of outliers were evident in the upper end of the earnings distribution of this LFS (Wittenberg & Pirouz, 2013). This data could not be used, given that the earnings of employed individuals form an important element of the DWI. For the 2001 February LFS, some issues had been noted with the data collection owing to the fact that a monetary incentive had been paid to fieldworkers to conduct additional interviews with self-employed individuals and employers. As such, this wave of the LFS has a dramatic increase in the number of individuals employed in the informal sector, but interviewee fatigue was also suspected (Casale, 2003; Kerr, 2015; Kerr & Wittenberg, 2015; Wittenberg & Pirouz, 2013). As this study deals with measuring the extent to which employment could be considered ‘decent’, a bias in the distribution of informally employed workers would provide unreliable results. Thus, the 2001 September LFS was used here to match the 2000 TUS.

In 2008, Stats SA moved from bi-annual data collection to a quarterly survey, and the LFS was renamed the Quarterly Labour Force Survey (QLFS). Although these data were collected and released quarterly, the QLFS did not include earnings data in its release as the LFS did. Instead, Stats SA released an annual collection of the four QLFSs collected within a particular year as a pooled cross-section which included the earnings data of workers. These annual datasets are called the Labour Market Dynamics (LMD) survey and are used in this study instead of the individual QLFSs.

The LMD data were thus made available from 2008, although in 2008, Stats SA did not ask workers about their earnings. This question was brought back in the third QLFS of 2009; however, this data were never released to the public (Wittenberg & Pirouz, 2013). In addition, the 2010 LMD data did not include information about the union membership of individuals – an element of the DWI. The best match for the 2010 TUS was the 2011 LMD survey, which is a compilation of the 2010 QLFS datasets, and thus also the closest match for the 2010 TUS in terms of the time period during which the data were collected.

In addition to the 2001 September LFS and 2011 LMD data used to match the two survey periods of the TUS data, the analysis also included the 2018 LMD survey. This was the latest available annual labour market dataset (at the time of writing) which also included wage data, and provided a more recent and updated picture of decent work in the South African labour market.

2.2.2 Description of the data

The 2001 September LFS was a rotating sample and dwelling units would be included in the sample up to a maximum of five times before being replaced by another dwelling unit. Each time a new data collection process would begin, Stats SA would replace 20% of the sample; allowing for the possibility of cross-sectional and longitudinal analysis.

However, given the challenges experienced with the first three waves of the LFS, a completely new sample was drawn for the 2001 September LFS. The 2001 September LFS used in this study consisted of 30 000 dwelling units drawn from 3 000 primary sampling units. The master sample from which the primary sampling units were drawn is the 1996 Population Census (Stats SA, 2001b). For the QLFS, Stats SA continued with the rotating sample methodology when the QLFS replaced the bi-annual LFS in 2008, although they would rotate a quarter of the sample every quarter, and a dwelling unit would remain in the sample for a maximum of four quarters. As with the LFS, the unit of observation in the 2011 LMD (compiled from the four 2010 QLFS datasets) was the household, and 30 000 dwelling units were included in each QLFS, drawn from 3

080 primary sampling units.[23] The master sample used was the 2001 Population Census. This was also the master sample used for the 2018 LMD survey (compilation of the four 2017 QLFS datasets). Similar to the other surveys, these data were based on 30 000 dwelling units per quarter and dwelling units were rotated out on a quarterly basis, as was done for the 2010 QLFS (Stats SA, 2018).[24]

Lastly, only employed individuals were included in the analyses, as they were the only respondents who had information related to their work. In addition, *self-employed* individuals were excluded from the analysis, given that they have a different relationship with their work. In the Stats SA questionnaires, they were also not asked all the questions which were asked of *employees*. For instance, self-employed individuals were not asked whether their employer contributed to the Unemployment Insurance Fund (UIF) on their behalf or provided them with vacation leave or medical aid benefits, amongst others. However, they were asked additional questions which were not asked of employees, such as whether they belonged to an association or organisation which protects their business interests. A study of self-employed individuals would thus need an alternative theoretical framework to define the nature of their working relationship with their business, their employees, and other parties within the labour market, such as the government and trade unions, where applicable.

2.3 Constructing the decent work index

The first step in the analysis of this thesis was to construct a DWI using the existing nationally representative data described in the last section.[25] There are a number of advantages to taking this approach, one such being the reproducibility of the index. As many labour force surveys have become standardised, the variables which are used in this study are likely to be available in the labour force surveys of other countries as well. This is an advantage as it allows for comparability across countries at the

[23] A household is defined by Stats SA (2009b, p. 29) as a "group of persons who live together and provide themselves jointly with food and/or other essentials for living, or a *single* person who lives alone".

[24] Stats SA (2009b, p. 46) defines a dwelling unit as a "structure or part of a structure or group of structures occupied or meant to be occupied by one or more than one *household*." It "includes structure or part of a structure which is vacant and/or under construction, but can be lived in at the time of the *survey*." A primary sampling unit, on the other hand, is a geographical area that contains a set number of dwelling units, depending on the sampling approach adopted.

[25] As part of developing the DWI used in this study, earlier versions of this index have been published in Mackett (2019) and Mackett (2020b).

micro level as comparative country analyses are largely limited to macroeconomic studies. In addition, this allows for an undertaking of a nationally representative study which includes all occupation groups of the wage employed, not just occupations in which decent work deficits are expected.

The drawback of using existing data is that all the variables needed to study decent work will not necessarily be available, and this is most certainly the case in this study where some elements of the DWI are omitted. However, an undertaking of this sort allows for the identification of missing variables which statistical agencies may consider including in future iterations of their labour force surveys.

Bescond et al. (2003) outline some advantages to using existing labour force surveys for measuring decent work. They specifically reiterate the regularity of labour force surveys which allows for ongoing measurement of decent work. They also note that the measurement of decent work using labour force surveys can contribute to the continued development of the surveys and state that “any gaps and weaknesses in measuring the characteristics of employment can be identified and addressed through experimentation and testing” (Bescond et al., 2003, p. 182).

The DWI used in this study has three layers. The first is the individual *elements* which make up the *indicators*, which are then used to compile the overall composite *index*. The terms used in this thesis are not rigid or specifically required in the broader literature, but these three terms are consistently used to distinguish between the various layers of the index. Although the elements and the indicators play an important role in the build of the composite index, the *index* (or DWI) is ultimately used in the broader analysis to answer the overarching research question.

2.3.1 Constructing the indicators

As discussed previously, the ILO provides a guide with suggestions on how to construct a DWI and which variables to consider in such an exercise (ILO, 2012a, 2013). Other authors have also made use of variables which they considered appropriate within their resource limitations (Auer, 2006; Burchell et al., 2014; Cong, 2017; Nizami & Prasad, 2017).

The 11 indicators recommended by the ILO includes (1) the economic and social context for decent work; (2) adequate earnings and productive work; (3) decent working time; (4) combining work, family and personal life; (5) work that should be abolished; (6) stability and security at work; (7) employment opportunities; (8) safe work environment; (9) equal opportunity and treatment by employer; (10) social security; and (11) social dialogue, workers' and employers' representation. However, due to data limitations, only eight of the 11 are used to construct the comprehensive DWI. The 'macro indicator' (the economic and social context for decent work), is also considered in chapter 3 to provide the macroeconomic context in which to interpret the results of the eight indicators.

Given the many similarities between the index built here and Yu's (2020) index, it is worth briefly discussing some of the differences between the indices. Many of the variables used in Yu's (2020) study are similar to the ones used in this study, although Yu only made use of QLFS data from 2010 to 2016. More updated data were not available (post 2016), but some of the variables included in the QLFS were also not available in the earlier versions of the QLFS and LFS (2000 to 2009).

Many of the same variables were used, although some were coded differently. Yu (2020), for instance, codes his wage variable in accordance with the National Minimum Wage Act. In this study, the wage variable was not used in its raw form, given the wage inequalities which have been reported in the South African labour market (Barchiesi, 2007a; Van Der Berg, 2010; Wittenberg, 2014), but the wage variable was used in the construction of other variables, such as the gender pay gap. Thus, relative rather than absolute comparisons are made in relation to wages.

Yu (2020) weights each of his variables equally (i.e. each variable included is treated as equally important) which, as described by OECD (2008), could lead to double counting if those variables are highly correlated. Failure to use an objective weighing method could similarly introduce bias into the process. This study made use of the Principal Components Analysis (PCA) to weigh the indicators.

The index used in this study and Yu's (2020) index, serve two different purposes. In this study, the aim was to measure decent work over time, using a longer time period. However, if the purpose is to build an index based on more recent data, Yu's framework can be used, given that more variables are available in the updated QLFS questionnaire. This study aimed to find similarities in the questionnaires of the LFS and QLFS. Thus, variables which were not available across the questionnaires were excluded from the analysis.

In addition, some measures were never included in Stats SA's LFS, and the measurement thereof is impossible with secondary data, regardless of whether the earliest or most recent surveys are used. Two of the indicators are thus left out in the construction of the DWI; 'safe work environment' and 'work that should be abolished'. These are excluded due to the fact that the South African labour force surveys do not include any of the suggested variables in the ILO's manual, nor does it include variables which other authors have acquired through their primary data collection.

Furthermore, also due to data availability challenges, the elements were combined into four indicators, given the small number of elements (variables) which made up each of the eight individual indicators. These indicators were combined by adding up the scores for the individual elements for each individual and then using the normalising formula. For instance, for the 'decent working time and combining work, family and personal life' indicator, each individual's score for longer hours, paid leave, and excess hours was added up. The score was then converted to reflect a value between 0 and 1 (inclusive) by using the actual value (X_{actual}), the smallest value for any individual in the sample (X_{min}) and the largest value for any individual in the sample (X_{max}) for that indicator in formula (1).

$$Combined\ X_i = (X_{actual} - X_{min})/(X_{max} - X_{min}) \quad (1)$$

Some of the elements used, also overlap in the indicator categories. For instance, working excessive hours could be a measure of decent working time as well as a worker's ability to manage work, family and personal life. This one element was thus

included under the *combined* indicator of 'decent working time and combining work, family and personal life'. These are indicated in Table 2.1.

Table 2.1: Combined DWI indicators

ILO Indicators (combined)	Elements	Name used in this text
Decent working time and combining work, family and personal life	Longer hours (i); Paid leave (i); Excess hours (i)	Time and work/life balance
Employment opportunity, stability and security at work	Employed sector (i); Informal employment rate (o); Contract type (i); Duration of employment (i); Written contract (i)	Stability and security
Equal opportunity and treatment, adequate and productive earnings	Low pay rate (o); Average earnings (o); Gender occupational segregation (o); Racial occupational segregation (o); Gender pay gap (o)	Treatment and earnings
Social security, dialogue, workers' and employers' representation	Medical aid (i); Number of workers in company (i); Pension contribution (i); UIF contribution (i); Union membership (i); Union density (o)	Dialogue and representation

Source: ILO (2012a)

Some of the included elements were measured at the individual level (indicated with (i) in Table 2.1) and others at the occupational level (indicated with (o)).[26] The process which was followed in the construction of the elements are presented in Appendix A. In addition to the construction of the elements and accompanying indicators, the PCA requires a full matrix (i.e., no observation included in the study should have missing values for any of the elements). The process by which observations were deleted or alternatively had values imputed is described in Appendix B. The combined indicators (in which the elements had no missing values for any of the observations) were then used in a PCA and standardised. These processes are described in the next two sections.

2.3.2 Principal Components Analysis (PCA)

There are various methods which are used in the design of indicators. These include PCA, factor analysis, data envelopment analysis, structural equation modelling and

[26] The South African Standard Classification of Occupations (SASCO) is used across the surveys and distinguishes between occupations as unit groups (Stats SA, 2012). This study made use of the 2-digit level code.

others (Greyling, 2013). This study made use of a PCA to combine the indicators described in Table 2.1 into a weighted composite index (DWI).

PCA is described by Kline (1994, p. 28) as a technique used to "simplify a matrix of correlations such that they can be explained in terms of a few underlying factors". The PCA is used to "summarize patterns of correlations among observed variables, to reduce a large number of observed variables to a smaller number of factors" (Tabachnick & Fidell, 2014, p. 660). In sum, the PCA is thus a process whereby correlated variables are used to weight a composite index, and the variables which explain a greater degree of variance (or have higher loadings) in the composite index are assigned higher weights.

Given that this study only used four indicators to construct the DWI, the main purpose of utilising the PCA was to obtain a *weighted* index. An unweighted index implies that all variables are equally important in explaining variation in the overall index. Not weighting could lead to the possibility of double counting, although this can be fixed by ensuring that variables which are highly correlated are not placed within the same indicator. The correlation matrices for the individual elements are presented in Appendix F where it is evident that *most* elements contained under the same indicator had a low degree of correlation.

It is required, however, that the *indicators* used in the PCA are correlated, and this was the case for the majority of the indicators. Where the correlations were not high, they were at least moderate. The suitability of the utilised indicators was also confirmed with additional diagnostics tests (see Appendix D).

After constructing the four indicators, weighted components were used to construct the composite index with the use of the PCA.[27] Taking the n correlated variables

[27] To construct the index, either the individual elements which make up the indicators, or the indicators themselves could have been used (the elements and indicators are listed in Table 2.1). However, the PCA "works best when asset variables are correlated, but also when the distribution of variables varies across cases", individuals or occupation groups in the study (Vyas & Kumaranayake, 2006, p. 461). Furthermore, "[v]ariables with low standard deviations would carry a low weight from the PCA" and would thus be of little use (Vyas & Kumaranayake, 2006, p. 461). Many of the individual elements do not necessarily vary within occupation groups (e.g. union density within an occupation group) or individuals within an occupation group (e.g. written contracts for agricultural workers). These variables would display a standard deviation of 0. The four indicators rather than the 19 elements were thus

(indicators), the PCA "created uncorrelated indices or components, where each component is a linear weighted combination of the initial variables" (Vyas & Kumaranayake, 2006, p. 460). For variables X_1 to X_n, the process can be mathematically presented as follows (Greyling, 2013; Vyas & Kumaranayake, 2006):

$$\begin{aligned} PC_1 &= a_{11}X_1 + a_{12}X_2 + \cdots + a_{1n}X_n \\ &\vdots \qquad\qquad\qquad \vdots \\ PC_m &= a_{m1}X_1 + a_{m2}X_2 + \cdots + a_{mn}X_n \end{aligned} \tag{2}$$

where a_{mn} is the weight of the m^{th} principal component on the n^{th} variable. The weights are presented by eigenvalues and the components are ordered. The first component explains the greatest amount of variation. The eigenvalues and the corresponding factor loadings are presented in Appendix D.

As a last step, to confirm the suitability of the composite index a robustness test was conducted. This included correlating the composite index with variables which would traditionally have been used to measure quality of work. In this case the wage variable was used, as well as whether someone was employed in the formal sector (dummy variable). It was expected that both these variables would have been positively correlated with the DWI, and this was in fact the case. Although these two variables might not have been the most appropriate variables for the robustness check, they were the most suitable, given the limitations of secondary data.[28] These matrices are also included in Appendix D.

2.3.3 Standardising the Index

After constructing the PCA, the composite index had both negative and positive values.[29] For ease of interpretation, the index was standardised to reflect values between 0 and 1. The standardisation process is a common method used in the

used in the calculation of the composite index. However, this also means that in the construction of the indicators, the elements were weighted equally.

[28] In a survey of primary data, one is able to include additional questions in order to have suitable variables with which to conduct the robustness check, although with secondary data one is limited to the variables available in the dataset (Greyling, 2013).

[29] These values ranged from -3.686 to 3.293 for the 2001 data, -3.988 and 3.011 for the 2011 data, and -3.844 and 3.254 for the 2018 data.

construction of indices, and is recommended by the OECD (2008). Webster et al. (2015), Standing (2002), and Nizami and Prasad (2017) undertook a similar process, using the following formula:

$$X_i = (X_{actual} - X_{min})/(X_{max} - X_{min}) \quad (3)$$

where X_i was the standardised index score for individual i, X_{actual} was the actual value assigned to individual i, X_{min} was the smallest value for any individual in the sample, and X_{max} was the largest value for any individual in the sample.

Thus, each individual had a composite index score ranging from 0 to 1; with the worst scoring individual in the sample being allocated 0, and the best scoring individual allocated 1.

2.4 Analysis using the decent work index

The DWI was then applied in the analysis of additional variables in the datasets. The first section here provides a description of these additional variables as well as the analysis techniques used to obtain the results presented in Chapters 3 and 4. Although this thesis only includes individuals who have already 'made the decision' to supply their labour, many of the factors which influence this initial labour supply decision will also affect the quality of work individuals obtain once securing employment as well as the rate at which they advance within their jobs. In the South African literature on women's labour, these supply-side covariates typically include race, gender, age, household structure (size and/or composition), location where the individual resides (rural/urban), education level, sector employed in, work experience, province where the individual resides, and marital status (Dinkelman & Pirouz, 2011; Rospabé, 2002).

2.4.1 Coding of explanatory variables

The variables described in this section are those which have been found to have implications for women's labour force participation and employment probabilities. These were also limited to the variables which were available in the labour force surveys. These include age, gender, education, geographical location, gender,

household size, employment sector, marital status, province, and race. Table 2.2 indicates how each of the variables were coded.

Table 2.2: Variable codes used for LFS and LMD data

Variable	Measurement scale	Coding
Age	Continuous	From the age of 15.
Age bracket	Ordinal	0 = 15 – 24; 1 = 25 – 34; 2 = 35 – 44; 3 = 45 – 54; 4 = 55 – 64
Education	Ordinal	0 = No Schooling; 1 = Incomplete Primary; 2 = Incomplete Secondary; 3 = Complete Secondary; 4 = Diploma/Degree
Geographical location	Nominal	0 = Rural; 1 = Urban
Gender	Nominal	0 = Male; 1 = Female
Household size	Continuous	Addition of all household members listed by the respondent (15 years and older).
Sector	Nominal	0 = Agriculture; 1 = Mining; 2 = Manufacturing; 3 = Utilities; 4 = Construction; 5 = Trade; 6 = Transport; 7 = Financial; 8 = Community; 9 = Private Household
Marital status	Nominal	0 = Married (married or cohabiting); 1 = Not married (widowed, divorced, separated, or never married)
Province	Nominal	0 = Western Cape; 1 = Eastern Cape; 2 = Northern Cape; 3 = Free State; 4 = KwaZulu-Natal; 5 = North West; 6 = Gauteng; 7 = Mpumalanga; 8 = Limpopo
Race	Nominal	0 = African; 1 = Coloured; 2 = Indian; 3 = White

Source: Own coding.

These variables were used in both the descriptive and regression analyses.

2.4.2 Analysis techniques

Each employed respondent within the surveys was assigned an index score ranging from 0 to 1, as described earlier. These index scores are presented at a more aggregated level in the chapters which follow, but the indicators which make up the composite DWI were also analysed at the occupation level.

2.4.2.1 Descriptive analyses

Before an analysis of the DWIs and their indicators are presented, chapter 3 provides an overview of the social and economic context for decent work in South Africa. This includes a summary of the legal framework as well as the macroeconomic conditions which prevailed over the period under scrutiny (2000 – 2018). This macro overview is followed by an analysis of indicator scores aggregated (and unweighted) to the level

of the occupation group; this is then followed by the (weighted) composite index scores of each occupation group, disaggregated by gender. These are presented separately for each survey period and the samples for all the surveys were limited to individuals between the ages of 15 and 64 (inclusive).

In chapter 4, the descriptive analysis continues with the composite index only. The composite index was analysed by gender, age, race, marital status, education level, age, and geographical location. The benefit of using three survey periods for this analysis was that differences *between* the various groups could be observed as well as how these differences may have changed *over time*.

2.4.2.2 Regression analyses

Two sets of regression analyses were then included; one looking at the variables which serve as correlates of the DWI and the other looking at the relationship between the DWI and the female share within an occupation. Both of these sets of analyses used the DWI as a dependent variable and the most suitable models for the analyses were fractional probit regressions.[30]

The first set of regressions were used to estimate the correlates of the DWI, where the dependent variable (DWI) was restricted to the unit interval [0,1]. The fractional regression model is recommended by Papke and Wooldridge (1996), when the dependent variable y, $0 \leq y \leq 1$, is limited to values between 0 and 1 (inclusive).

The model took on the following form (Kölling, 2012):

$$E(y_i|x_i, \varepsilon_i) = \emptyset(x'_i\beta_i + \varepsilon_i) \quad (4)$$

where y_i was the response variable, $0 \leq y \leq 1$, x'_i the vector of observed explanatory variables for individual i with corresponding parameter vectors, β_i, and $\emptyset$ the cumulative distribution function.

[30] All the analyses included here were replicated using fractional logit regressions and OLS regressions. The results for the fractional logit regressions were almost identical to the fractional probit regressions, while the OLS regressions did not produce many notable differences either. Although the OLS estimates would not be ideal given that the dependent variable used here violates the model's assumptions.

Lastly, ε_i captured the unobserved variables. The explanatory variables included gender, age, age squared, race, geographical location, marital status, household size, education, province, and sector of employment. These were estimated using pooled regressions (including both male and female respondents) as well as disaggregated by gender for each of the survey periods.

The second set of regressions aimed to estimate the effect of the share of female workers in an occupation on the DWI of the individual. The literature has shown that the feminisation of occupations is associated with a decrease in the quality of those occupations, whether it be in working conditions or the wages paid in those jobs (Ozler, 2000; Seguino, 2000, 2007; Standing, 1989). However, the purpose here was to study the association rather than to determine causality. As noted in the literature review, occupations could decline in quality as they become more feminised or women could be crowded into poor quality occupation groups when barriers of entry exist to better occupations. It was thus of interest here to determine, given the lack of literature using a composite measure of quality of work, whether the female share in an occupation group would be a factor in determining the DWI of workers.

The DWI was again used as a dependent variable in these regressions, as a result of the range of values included in the DWI and the model took on the following form (Kölling, 2012):

$$E(y_i|z_i, x_i, \varepsilon_i) = \emptyset(z_i\delta_i + x'_i\beta_i + \varepsilon_i) \quad (5)$$

where y_i was the response variable, $0 \leq y \leq 1$, x'_i the vector of observed explanatory variables for individual i with corresponding parameter vectors, β_i, $\emptyset$ the cumulative distribution function, and ε_i capturing the unobserved variables, as per the previous model.

Included here was z_i, and its corresponding parameter δ_i, which represents the share of female employees within an occupation group (calculated as the fraction of women employed in an occupation group). Individuals within the same occupation group

would thus have had the same value for z_i, although their DWIs would differ, given that the composite indicator differed at the individual level.

The same explanatory variables were included: gender, age, age squared, race, geographical location, marital status, household size, education, province, and sector of employment. These were estimated using pooled regressions as well as regressions disaggregated by gender for each of the survey periods included in the study.

As a last step, the occupation groups were ranked according to their average DWI scores, and this ranking was used in the analysis of the TUS, described in chapter 5.

2.5 Limitations

The analyses described in this chapter have a number of limitations.

The first limitation related to the building of the DWI. As indicated, secondary data present the challenge of unavailable variables with which to conduct the analysis. This has resulted in the combination of indicators. Although this had resulted in the estimation of an index which was not as comprehensive as it could have been had a questionnaire with relevant questions been designed for primary data collection, the methodology using the secondary data presents the advantage of undertaking a nationally representative study.

Secondly, self-employed individuals were excluded from the sample. As the wage data in the samples indicate (Appendix B), some of the self-employed respondents tended to be high earners, but this type of employment also brings with it another form of vulnerability (Standing, 2015). Many of the indicators introduced in the ILO's guidelines do not accommodate this type of work arrangement, and an alternative framework is thus necessary for the analysis of decent work amongst the self-employed.

As the data analysis and the data cleaning revealed (Appendix B), many variables had missing values for some agricultural workers (more missing values than any other

occupation group in the sample) which required imputation to avoid losing entire occupation groups.[31] The challenges related to enumerating agricultural workers and the estimation of the number of workers in the agriculture sector has been an ongoing challenge for data collection agencies (Casale, 2003; Pons-Vignon, 2015). Given the detailed analysis of working conditions which this thesis undertakes, the DWIs of agricultural workers should thus be interpreted with caution.

Another limitation of the study related to endogeneity or reverse causality in the regression models. This results when one is unable to determine whether causality runs from the explanatory variable to the dependent variable or whether this is the other way around. In both the regression models presented in this chapter, this poses a potential problem. An example of this is the marital status variable. The design of the current model assumes that a respondent's marital status determines the quality of his/her job, although being employed in a well-paying, stable job could arguably increase the probability of getting married, specifically given the costs associated with becoming married.

In addition, for the models including the share of female employees within an occupation group, this variable could also potentially be endogenous. There was no way of determining (with the current data) whether an individual had a certain DWI because he/she was employed in an occupation group with a large proportion of female workers, or whether the occupation group tended to attract female workers given the already established quality of the jobs within that occupation group.

This problem could be resolved with the use of alternative analysis techniques, such as an instrumental variable analysis. However, the datasets did not include suitable instruments to undertake such an estimation. The regression coefficients should thus be interpreted as correlations, rather than as indicating causality.

Further to the preceding points is that secondary data are not able to capture unobserved heterogeneity of respondents, and this could be a potential determinant

[31] The DWI was calculated without agricultural workers and this did not make any significant difference to the mean DWI scores used in the analysis. On this basis, agricultural workers were retained in the analysis.

of someone's quality of work. Someone may have a job or a better job because he/she is a highly motivated individual or has an innate ability which is valued within the labour market; this is a selection problem. If individuals who have higher innate ability or are more motivated are also more likely to have better quality jobs or have a job at all, then the sample is not random. However, as with the endogeneity problem, the methods which account for these cannot be employed with the current dataset. Thus, the results presented in this thesis should be interpreted bearing in mind the potential bias introduced by unobserved heterogeneity and sample selection.

Lastly, and additionally related to the limitations presented by secondary data, is the notion of the household and the assumed relations between household members. The conflicting dynamics and power differentials which exist between household members cannot be captured in secondary household data (Folbre, 1994). The household size variable, for instance, cannot illuminate the gendered relations which characterise household decisions around resource distribution and yet this is central to how gender inequalities are articulated in society more broadly. Although this limitation cannot be addressed in the analysis explicitly, noting the existence thereof is important.

Conclusions

This methodology chapter provided an overview of the analyses which are undertaken making use of the LFS and LMD data. This included a brief description of the theoretical framework used to determine quality of work, the data sets used in the analysis and the process through which the data were cleaned, as well as the analysis techniques used.

The next two chapters (3 and 4) will present the results of the analyses described in this chapter. This will be followed by a second methodology chapter describing the TUS data and techniques used in the analysis of those datasets. The results obtained from the analysis described here form an integral part of how the TUS data were analysed and interpreted. This chapter should thus be seen as complementary to the techniques described in chapter 5.

CHAPTER 3: DECENT WORK IN THE SOUTH AFRICAN LABOUR MARKET

"I feel the wife of an executive would be a better wife had she been a secretary first. As a secretary, you learn to adjust to the boss's moods. Many marriages would be happier if the wife would do that"
Anne Bogan, Executive Secretary (Turkel, 1974, p. 91)

Introduction

Studies on decent work have allowed us to identify sectors in which decent work deficits are the norm (Barrientos, 2007; Barrientos, Gereffi, & Rossi, 2011; Langan, 2014; Webster et al., 2016). Throughout the labour market, workers experience decent work deficits in various ways, given that no occupation is perfectly 'decent'. This chapter presents the Decent Work Index (DWI) of each occupation group in the South African labour market, first, with the individual decent work *indicators*, then using the weighted composite *index*. However, changes in the quality of work are not independent of macroeconomic circumstances or the legal framework which protects the rights of workers.

Therefore, this chapter provides a summary of the ILO's first indicator 'the economic and social context for decent work'. This indicator consists of two parts, economic indicators and legal framework indicators. These are presented separately, but they are interlinked and interdependent. Furthermore, although this study focussed on a microeconomic investigation of decent work, the background against which this work takes place allows for a contextualised discussion of the micro index and its constituent parts.

This chapter starts with an overview of the legal framework for decent work in South Africa, including a summary of the conventions and recommendations of the ILO as well as relevant South African legislative changes. This is followed by a presentation and analysis of some of the statistical indicators recommended by the ILO, to provide a picture of the macroeconomic context for work in South Africa. Lastly, the results for the DWI and its constituent parts are presented to allow for the identification of the best and worst occupation groups in the labour market.

3.1 The legal framework for decent work

Much of what is covered on paper and in practice in terms of legal frameworks for labour markets accommodates a standard employment relationship, i.e. a full-time worker (probably male), working to provide for his family (Skorupski, Hollis, & Nell, 1977). The ILO largely continued this tradition; although they have recently taken a more comprehensive view of work and working conditions, moving away from the view that all workers are male breadwinners. They have started considering alternative forms of work, but these are recognised with the aim of moving workers into the sphere of the formal economy, where the protection of workers' rights is within the ambit of the law.

The extent to which decent work objectives (as defined by the ILO) can be achieved are thus dependent on the legal framework of a country which protects workers' rights. This section provides a brief overview of some of the ILO conventions and recommendations relevant to women's work in particular and sketches a background for the context in which work takes place in the South African labour market. These will include some of the most significant labour law developments as well as recent events in the South African labour market, with a focus on the more precarious workers in the labour market.

3.1.1 The ILO's view on the legal framework

The ILO includes both statistical and legal framework indicators in its guidelines for decent work measurement. It states that "all aspects of decent work have a legal dimension and while law alone cannot bring about decent work, well drafted, inclusive and implemented labour laws are one of the preconditions for its achievement" (ILO, 2013, p. 23). Many of the legal framework and statistical indicators overlap, specifically the ones which require quantitative estimation, such as paid annual leave, unemployment insurance and minimum wages (ILO, 2012a). However, outside of these, legal framework indicators are mainly of a qualitative nature.

Furthermore, while the ILO has provided many legal framework indicators, the nature of this study focuses on gender equality as the goal of decent work and thus, the legal

framework indicators mentioned here will highlight this overarching objective of the ILO's Decent Work Agenda (DWA). It is also worth noting that there are various instruments through which the protection of workers' rights is encouraged, and given the roles that each of these instruments play, they are complementary to one another (ILO, 2020a, 2020b). Thus, South African labour law is important, although this must also be viewed in the international context which includes *binding treaties* and *non-binding guidelines*.

The ILO's binding conventions, non-binding recommendations, and declarations complement one another, and these work in tandem to realise the goals of the DWA. There is a compilation of treaties and conventions which are designed to promote gender equality in the labour market. These include the Family Responsibilities Convention, 1982 (No. 156) and the Maternity Protection Convention, 2000 (No. 183), amongst others (see ILO (2012b)). The success of the DWA is thus reliant on the implementation and adherence to the aforementioned instruments and each country's national legal framework. The framework indicators stipulated in the ILO's DWA are thus not complete, although they are still worth discussing briefly here.

The ILO's convention for workers with family responsibilities (No. 156) deals with childcare and responsibilities towards other members of the family. It takes the term 'discrimination' from another convention (ILO, 1958) where it means "discrimination in employment and occupation" (ILO, 2006b, p. 2). Although this once again suggests an approach which is biased towards the productive sphere of the economy, the convention also goes on to state that each country should educate its public on "the principle of equality of opportunity and treatment for men and women workers and the problems of workers with family responsibilities" (ILO, 2006b, p. 2). This is an important shift in the debate from equality of outcome (where people *are*) to equality of opportunity (where people *started*) (Phillips, 2004), although these only apply to limitations in respect of employment and occupation. This convention has, however, not been ratified by South Africa (ILO, 2017a).

Amongst the ILO Conventions ratified by South Africa which are relevant to the discussion in the next section include the Freedom of Association and Protection of the Right to Organise Convention (No. 87), the Right to Organise and Collective

Bargaining Convention (No. 98), Tripartite Consultation Conventions (No. 144), Workmen's Compensation Convention (No. 42), Unemployment Convention (No. 2), Minimum Wage-Fixing Machinery Convention (No. 26), and the Domestic Workers Convention (No. 189) (ILO, 2017b).[32]

While South Africa has not ratified the Family Responsibilities Convention (No. 156) and the Maternity Protection Convention (No. 183), the Basic Conditions of Employment Act does make provision for workers to enjoy benefits similar to that outlined in the ILO's conventions (Department of Labour, 2002). A positive aspect of the ILO's conventions is that, in many instances, provisions are made for countries to accommodate domestic social and cultural contexts such as Article 9 of the Family Responsibilities Convention (No. 156). In this convention it is stated that dependents and immediate family members may be determined "by laws or regulations, collective agreements, works rules, arbitration awards, court decisions or a combination of these methods, or in any other manner consistent with national practice which may be appropriate" (ILO, 2006b, p. 3).

When working with labour laws, however, it is important to determine whether workers are *de facto* covered under the law (workers covered in practice) or *de lege* covered under the law (workers who are expected to be covered in the event that they need the coverage) (ILO, 2012a). These would differ by country; although the gold standard is to ensure that most workers fall into one of these categories, it is often difficult to determine whether that is in fact the case.

3.1.2 Recent developments in the South African labour market

Historically, the South African labour market was characterised by systemic discrimination between various racial groups in relation to the economic opportunities which were available to them during the apartheid and colonial era; this was also the case for women. These disparities and the consequences thereof are well documented (see for example, Wolpe (1972), Bhorat (2004), and Freund (2013)). These labour market disparities are in large part notable in the active union movement(s) which exists in South Africa today (Azam, 2005; Bhorat, Naidoo, & Yu,

[32] For an exhaustive list see ILO (2017a) and ILO (2017b).

2014; Fine, 2011). The macroeconomic policies developed during the post-apartheid era and related global economic developments further created precarious conditions with workers who were most vulnerable during the apartheid era being most severely affected by the informalisation and feminisation of the labour force which characterises the contemporary South African labour market (Casale & Posel, 2002; Groenmeyer, 2011b; Webster et al., 2016). It is on the back of these labour market changes which policies and legislative changes have been made to create a more inclusive labour market, but the rapidly changing economic landscape has also in many respects highlighted the weaknesses which exist in this legislative framework. This section highlights some of the changes which have occurred in the South African labour market and changes which have been made in relation to changing economic conditions.

The two most important pieces of legislation concerning labour in South Africa are the Labour Relations Act and the Basic Conditions of Employment Act (BCEA) (Mzangwa, 2015), while the Constitution plays an equally important role in protecting the rights of workers. With the implementation of these laws, there has been a move to equal rights for employees, which is a departure from previous colonial and apartheid labour laws. The purpose of the Labour Relations Act, for instance, specifically states that the Act strives to "advance economic development, social justice, labour peace and the democratisation of the workplace" (Department of Labour, 1995, p. 11).

More recently, the newly enacted Minimum Wage Act, which came into effect on 1st January 2019, also forms part of the laws which govern the rights of workers. As per the requirements of the Act, the government has already published revised amendments to the overall minimum wage and sector specific wages on 17th February 2020 (Government Gazette, 2020). This is in line with "preserving the value of the national minimum wage" through annual adjustment (Republic of South Africa, 2017, p. 4).

Before the enactment of the National Minimum Wage, nine sectoral determinations covered the most vulnerable workers in the economy, including domestic workers, contract cleaning workers, workers in the hospitality and taxi industries, and farm workers, amongst others (Castel-Branco, 2016). Subsequently, it has been

determined that if a minimum wage prescribed by a sectoral determination is higher than the wage rate prescribed in the National Minimum Wage Act, the rate within the sectoral determination will take precedence and increase "proportionally to any adjustment of the national minimum wage" (Government Gazette, 2018, p. 4).[33]

Legislation protecting domestic workers has made great strides with the BCEA through the inclusion of the rights of domestic workers in 1997, domestic workers being added to the UIF in 2001, and the ILO adopting Convention 189 in 2011, which resulted in the domestic workers' summit hosted by the Congress of South African Trade Unions (COSATU) in the same year (IDWFED, 2014). At the end of 2012, domestic workers received a minimum wage increase in their sectoral determination, which differed by area, although the sectoral determination also specified increases for 2013 and 2014 (Department of Labour, 2014). Domestic workers are one of the groups in which a deviation from the national minimum wage is permitted, and this wage level is below that of the national minimum wage (Department of Labour, 2018a). A similar arrangement is outlined in the National Minimum Wage Act for agricultural workers (referred to as farm workers in the Act; forestry workers have a separate sectoral determination) (Department of Labour, 2018a).

As a collective, agricultural workers benefitted from renewed legislation in the post-apartheid era, although the sector suffered as the government liberalised the industry and removed the support mechanisms traditionally extended to farmers during the apartheid era (Pons-Vignon, 2015). This resulted in an increase in the wages workers received since 1993, although there was also a sharp decline in the number of wage workers in this industry – from over 1 million employees in 1993 to 796 806 workers in 2007 (Pons-Vignon, 2015). In 2012 it was estimated that 603 000 workers were employed in this industry (SAHO, 2015). Many of the workers in the industry are seasonal or casual workers who get paid below the minimum sectoral wage, and many are not organised due to the geographical dispersion of these workers (Pons-Vignon & Anseeuw, 2009; SAHO, 2015). However, despite this difficulty with organising, farmworkers in the Western Cape (where the majority of agricultural workers in the

[33] The Department of Labour does not provide a rationale for sectoral wages which deviate from the National Minimum Wage, however the ILO (2022) provides an overview of the arguments for and against sectoral or regional minimum wages which differ from a national determined minimum wage.

country are located), managed to stage a crippling industry strike in 2012 demanding a higher wage, pay for workers on days that they are unable to work due to adverse weather conditions, decent working hours, and paid maternity leave for female workers (Devereux, 2020). In the aftermath of the strike, it had been reported that workers had secured a 52% increase in their average wage rate, maternity benefits which could be claimed through the UIF, and a sectoral minimum wage for farm workers. However, these gains were also met by an increase in seasonality, mechanisation of farm labour, and evictions of farm labourers and their families (Maregele, 2019).

A sectoral determination also exists for wholesale and retail workers, although the wage rate within the sectoral determination and in the National Minimum Wage Act, is (similar to domestic workers' wages) below the national minimum wage (Government Gazette, 2013). Although many of the provisions in the sectoral determinations relate primarily to wages, in some determinations, conditions beyond wages are specified, such as boarding allowances for workers in the taxi industry, and specific conditions related to working hours for the private security sector (Government Gazette, 2012). These conditions are thus not only aimed at providing adequate wages, but also ensuring workers' the social security.

One weak link in South Africa's social security framework is that there is no *universal* social security benefit (Mackett, 2020a). One benefit which is available to unemployed individuals is the UIF. The UIF is a contributory system, but it has been estimated that only about 15% of the unemployed are covered under the UIF due to the "fact that the majority of the unemployed are workers who have either a long history of unemployment (with exhausted credits) or no prior employment history (and therefore no accumulated credits) at all" (Bhorat & Tseng, 2012, pp. 4–5). These benefits are thus not extensive or adequate given the larger unemployment numbers which South Africa has historically produced, indicating a lack of security.

In addition to the UIF, the Compensation Fund provides for workers (and their families) in the event of illness, disability, and death resulting from occupational injuries and diseases (Department of Labour, 2019), as well as the Supported Employment Enterprises which promotes the employment of people living with disabilities

(Department of Labour, 2019). Outside of the UIF and these other funds, however, unemployed individuals have no social security protection, nor are they covered by South Africa's extensive labour legislation framework.[34]

For those who are employed, the right to join a labour union is guaranteed in the South African constitution and labour unions formed an important part of the anti-apartheid movement (Monyatsi, 2013; RSA, 1996). Despite this, unionisation in South Africa (and globally) has been threatened by the liberalisation of markets and casualisation of labour. As increasing unemployment leads to a decline in union membership and the changing nature of work (i.e. full-time to part-time and permanent to contractual), the position of unions and workers in relation to government and business is further weakened (Monyatsi, 2013). Although women's interests have not always taken centre stage in union debates, the rights of female workers which are protected on the international stage have also largely been protected in South African legislation.

Women needing to go on maternity leave, for example, are entitled to four months' leave, although an employer is not obliged to continue paying a salary during this time. A woman is also protected from performing work which is hazardous to herself or her child if she is nursing a child (Government Gazette, 2020). However, as with the international legal frameworks, these benefits do not extend beyond the productive sphere of the economy.

Nevertheless, unions have been successful in bargaining for workers' rights in the productive sphere through staging strikes when they have not successfully negotiated benefits verbally. These strikes have, however, become more violent and prolonged in recent years (Department of Labour, 2019). One of the deadliest strikes was in 2012 when 34 workers in the mining industry were gunned down (Department of Labour, 2018b). Additionally, in 2013, strikes affected a number of sectors, including transport, manufacturing, construction, and mining (Wilderman, 2015). Although many of the strikes were led by different unions and the demands put forth differed, these primarily resulted in wage increases for workers (Murwirapachena & Sibanda, 2014), although

[34] A more recent exception is the Social Relief of Distress (SRD) grant which provided temporary relief during the COVID-19 economic crisis for the unemployed (South African Government, 2020).

the effectiveness of unions has been hampered by union politics in recent years (Runciman, 2019).[35]

In addition to organisations which fight for the rights of workers, there are also a number which assist in ameliorating the relationship between workers and employers, such as the Commission for Conciliation, Mediation and Arbitration (CCMA), which amongst other functions, strives to "enhance and expand the Employment Security mechanisms to save jobs and alleviate business distress" (Department of Labour, 2019, p. 87). South Africa's labour legislation is thus extensive in its protection of workers, although a well-functioning labour market and flourishing economy is crucial for workers to exercise these rights.

3.2 South Africa's economic environment for decent work

This section presents an overview of macroeconomic trends for the period under review in this study as well as statistics relevant to the South African labour market.

3.2.1 South Africa's macroeconomic context for decent work

3.2.1.1 Economic growth

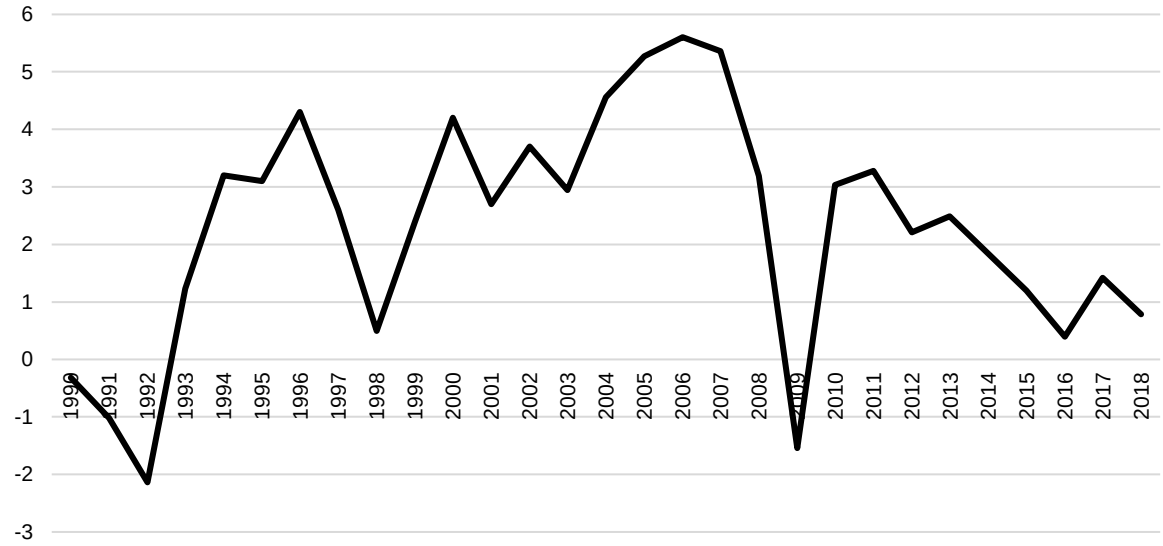
Perhaps one of the most important historical indicators of a country's prosperity is its economic gross domestic product (GDP) growth rate. Together with promoting decent work, economic growth forms part of the UN's 8th sustainable development goal (United Nations, 2020).

South Africa's growth rate has been on a declining trend, although the growth rate has remained predominantly positive since 1990 (see Figure 3-1). This growth rate has historically been below the average growth rate in Sub-Saharan Africa (Mongale & Monkwe, 2015) and studies have shown that some of the most important correlates of economic growth in South Africa include international trade and infrastructure development (Alagidede, Ibrahim, & Sare, 2020; Messono, Nsoga, & Homère, 2020; Mongale & Monkwe, 2015).

[35] The main event which has shattered union solidarity in South Africa was the establishment of the South African Federation of Trade Unions (SAFTU), which is a breakaway federation from COSATU, in 2017 (SAFTU, 2017).

Between 2001 and 2012, the government significantly expanded its infrastructure spending. These included transfers to state-owned enterprises to fund large scale investment projects, such as Eskom and Transnet, as well as infrastructure spending related to the 2010 World Cup. The post-2012 period was characterised by a decline in public investment, a decrease in capital formation in the mining sector, in addition to other areas of the economy which had been saturated by private sector investment spending. Together with policy uncertainty, the post-2015 period saw lower than average growth compared to any other time in South Africa's post-apartheid economy (Sachs, 2020).

Figure 3-1: GDP Growth Rate (%), 1990 – 2018



Source: WDI.

A key characteristic of the South African economy is that its economic growth has not translated into sufficient employment growth, resulting in one of the highest unemployment rates in the world (Cohen & Moodley, 2012; Mkhize, 2015). This mismatch between economic and employment growth is also seen as the cause of the high and persistent inequality rates in South Africa (Ajilore & Yinusa, 2011).

3.2.1.2 Income inequality

Figure 3-2 presents the Gini index for a selected number of years. Although the Gini index has its limitations as a measure of inequality, it provides a useful overview of the extent of inequality and has shown that South Africa's inequality rate remains one of

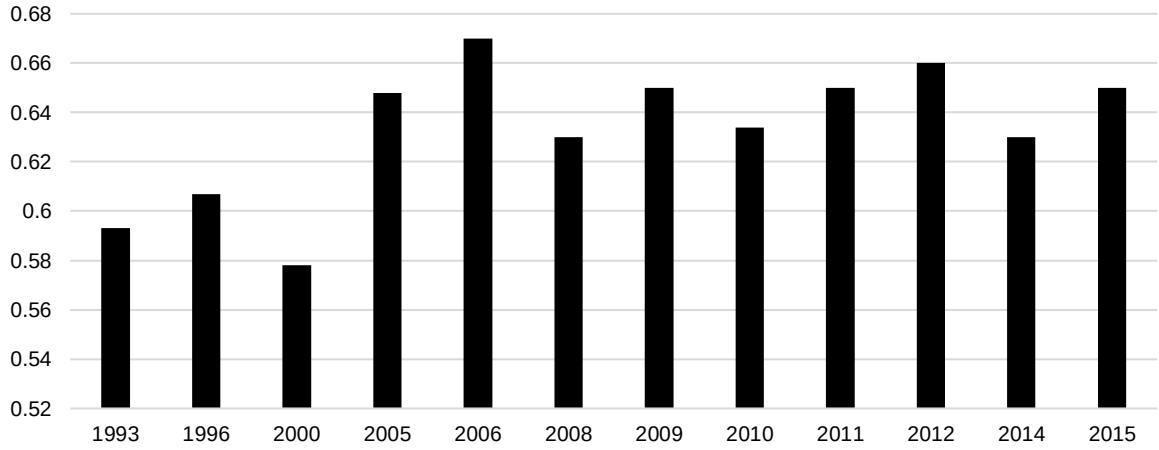
the highest rates in the world (see for example Akanbi (2016); Leibbrandt, Bhorat and Woolard (2001); Magruder (2010); and Wittenberg (2014)).

In global terms, South Africa is singled out along with Brazil and the Middle East region in terms of inequality. According to the 2018 World Inequality Report, in South Africa, Brazil, and the Middle East, those in the top 10% of the income distribution earn between 55% and 65% of the national income (Alvaredo, Chancel, Piketty, Saez, & Zucman, 2018).

From a decent work perspective, inequality becomes an important measure as wage income is the main source of income for many South African households, and it has also been found that labour income is the main contributor to inequality in South Africa (Finn, 2015; Hundenborn, Leibbrandt, & Woolard, 2018).

Figure 3-2 suggests that income inequality has increased since 1993 and this has often made South Africa an interesting case study for income inequality, given that the period post-1993 is characterised by improved social policies and redistribution efforts by the South African government (Barchiesi, 2007b; Department of Finance, 1996). Furthermore, given that labour income is the main driver of inequality in South Africa, getting people employed, but also driving greater equity in the wage distribution of those already employed, would undoubtedly assist in alleviating this problem.

Figure 3-2: Gini Coefficient (%), selected years



Source: WDI, Mudronova (2016) and StatsSA (2019a). *Note: Only selected years available. Gini Coefficient of 0 = perfect equality; Gini coefficient of 1 = perfect inequality. Different methods of calculation used by different authors, although the results differ marginally.*

3.2.1.3 Education of adult population

Another contributor to inequality in South Africa has been the unequal access to quality education, a tool which was strategically used to induce inequality between race groups prior to 1994 (Yamazaki, 2012). According to the ILO (2012a, p. 35), the literacy rate should be included as part of a decent work study as literate people are "better able to access other education and employment opportunities; and collectively, literate societies are better geared to meet development challenges". The ILO further states that looking at the education of the population is about the "capability to access written information in a given country" and this would prove vital in the DWA where the gold standard is written employment agreements (ILO, 2012a, p. 34). There are, however, challenges with a single measure such as the literacy rate or the level of education to measure competency and the extent to which that competency is useful in a particular socioeconomic context (Posel, 2011). Despite this, literacy and educational attainment have remain important variables in relation to labour maket success.

In South Africa, fluency in English, for instance, has proved to be beneficial for increased earnings potential, and thus an important indicator of labour market success (Casale & Posel, 2010b). Zoch (2015) who examined the socio-economic backgrounds of respondents also found that there was a significant difference in the self-reported ability to read and write English between 'low class' and 'middle class' individuals.[36] Education is thus an important variable for determining labour market success in South Africa.

Table 3.1 displays the South African literacy rate and indicates that with the exception of a decline in literacy in 2017, the percentage of literate individuals in the country has increased over time. However, the literacy rate for women has lagged below that of men.

[36] Zoch (2015) defines a low class household as one which belongs to the two bottom quintiles and has at least one biological parent living in the household who has not completed primary education. While a middle-class household is defined as one in the top income quintile, which has both biological parents living in the household and has at least one parent with (at least) a completed secondary education.

Compared to other countries in the region, the *illiteracy* rate is relatively high in South Africa. In 1995, the weighted average of the illiteracy rate across sub-Saharan African countries was 44% (Verner, 2005). The sub-Saharan African rate was higher than that of East Asia and the Pacific, Middle East and North African region, as well as Latin America and the Caribbean (Verner, 2005).[37] In the sub-Saharan African region, South Africa is one of the best performing countries in terms of *literacy* rates together with countries such as Zimbabwe, Zambia, Eswatini, and Namibia scoring in the upper 80s and lower 90s in terms of their adult literacy rate (UNDP, 2019).

Table 3.1: South African literacy rate (% of population 15 years and older), selected years[38]

	1996	2007	2010	2011	2012	2014	2015	2017
All	82.4	88.7	92.9	93.1	93.7	94.1	94.4	87.0
Male	84.1	90.7	94.1	-	-	-	95.4	87.7
Female	80.9	87.0	91.7	-	-	-	93.4	86.5

Source: WDI and Human Development Report. Note: Only selected years available from the World Bank Database

Even with its limitations, literacy rates are a useful indicator of educational competency in a country and studies have shown that these can be directly linked to poverty outcomes of individuals and their households (Azam et al., 2013; Casale & Posel, 2010b; Charette & Meng, 1998; Pillay, 1994).

3.2.1.4 Poverty

The most appropriate definition and measurement methodology of poverty have been debated to a great extent in the literature (Deaton, 2003; Haughton & Khandker, 2009; Jansen, Moses, Mujuta, & Yu, 2015; Stats SA, 2014, 2015). One of the most common methods is using a poverty line and then determining the percentage of individuals living below that line. For this type of analysis, three lines are typically used; the upper-bound poverty line, the lower-bound poverty line, and the food poverty line. With the food poverty line defined as “the amount of money that an individual will need to afford

[37] Verner (2005, p. 7) states that the weighted average “weights each country by the size of its population over the age of 15” who is illiterate.

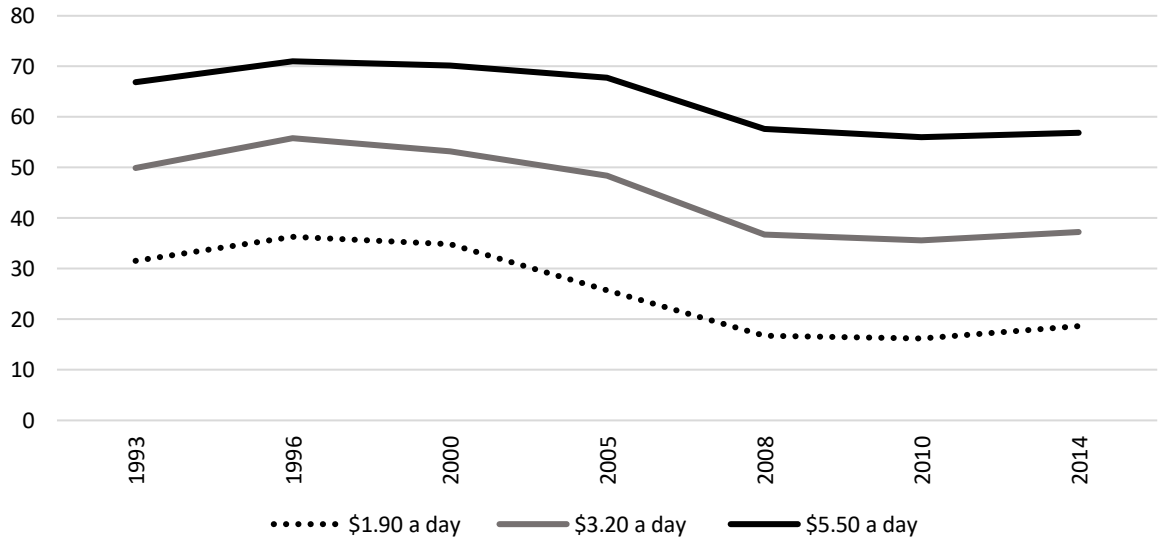
[38] The literacy rate statistics collected by the World Bank are sourced from the UNESCO Institute for Statistics which extracts the data from a combination of national census data and household survey data. On their webpage they indicate that “literacy data are generally collected through population censuses or household surveys in which the respondent or head of the household declares whether they can read and write with understanding a short, simple statement about one's everyday life in any written language. Some surveys require respondents to take a quick test in which they are asked to read a simple passage or write a sentence, yet clearly literacy is a far more complex issue that requires more information” (UNESCO, 2022).

the minimum required daily energy intake"; it is also referred to as the "extreme" poverty line (Stats SA, 2019b, p. 3).

Figure 3-3 shows the percentage of the population living below the various international poverty lines, expressed in US dollars. The graph shows that between 1993 and 1996 poverty in South Africa increased. This was also the time during which the government had embarked on the Reconstruction and Development Plan (RDP) which was characterised by a conservative macroeconomic approach (i.e. constrained government spending, limited tax reforms) as a result of a large debt burden inherited from the previous administration (Edwards, Flowerday, Rankin, Roberts, & Schöer, 2014). This was followed by the Growth, Employment and Redistribution strategy (GEAR) which resulted in reduced taxes and interest rates (Edwards et al., 2014). The late 1990s is also a period during which the number of grant beneficiaries increased (Hall, 2009).

Sachs (2020) noted, however, that the post-2001 period was characterised by increased transfers to households in the form of cash transfers, in addition to the provision of selected basic services, such as free water and electricity to poor households. These associations are notable in Figure 3-3 where poverty had decreased between 1996 up to 2008 when economic growth was likely to have an effect on the declining poverty rates.

Figure 3-3: Poverty Headcount Ratio (2011 PPP) (% of population), selected years



Source: WDI. Note: $5.50 a day is approximately equal to R39.94 a day (R1 198.20 a month), $3.90 is approximately equal to

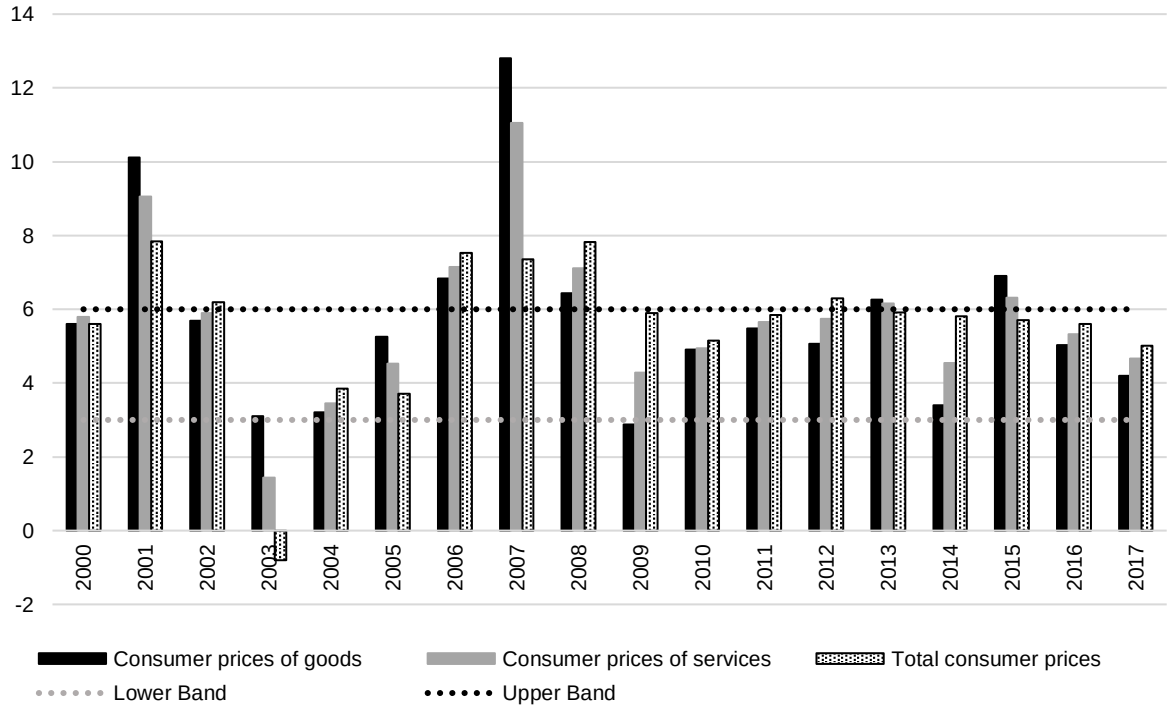
R23.24 a day (R697.20 a month), and $1.90 is approximately equal to R13.80 a day (R414 a month). These are the author's own calculations based on a $1/R7.261 exchange rate in 2011 (OECD, 2020).

3.2.1.5 Inflation

In its resolution concerning consumer price indices, the ILO identifies three "uses" for inflation: the 'acquisition' approach in which the CPI is used as a macroeconomic indicator; the 'use' approach where it is used as a measure of the cost of living; and the 'payment' approach, used for adjusting workers' compensation (ILO, 2003b).

In the case of it being a macroeconomic variable used in the analysis of decent work, a 'mixed' approach to the index is appropriate (ILO, 2003b). Figure 3-4 shows that the prices of both goods and services increased over the reference period, with the price of services increasing at a faster rate than those of consumer goods in some years, although for the bulk of the period the total rate has managed to remain within the 3% to 6% targeting band. The positive inflation rate suggests that the cost of living for individuals in South Africa has increased at a significant rate, but also that under ideal circumstances the increase in the real wages of workers would have been equally substantial.

Figure 3-4: Inflation Rate (%), 2000 – 2017



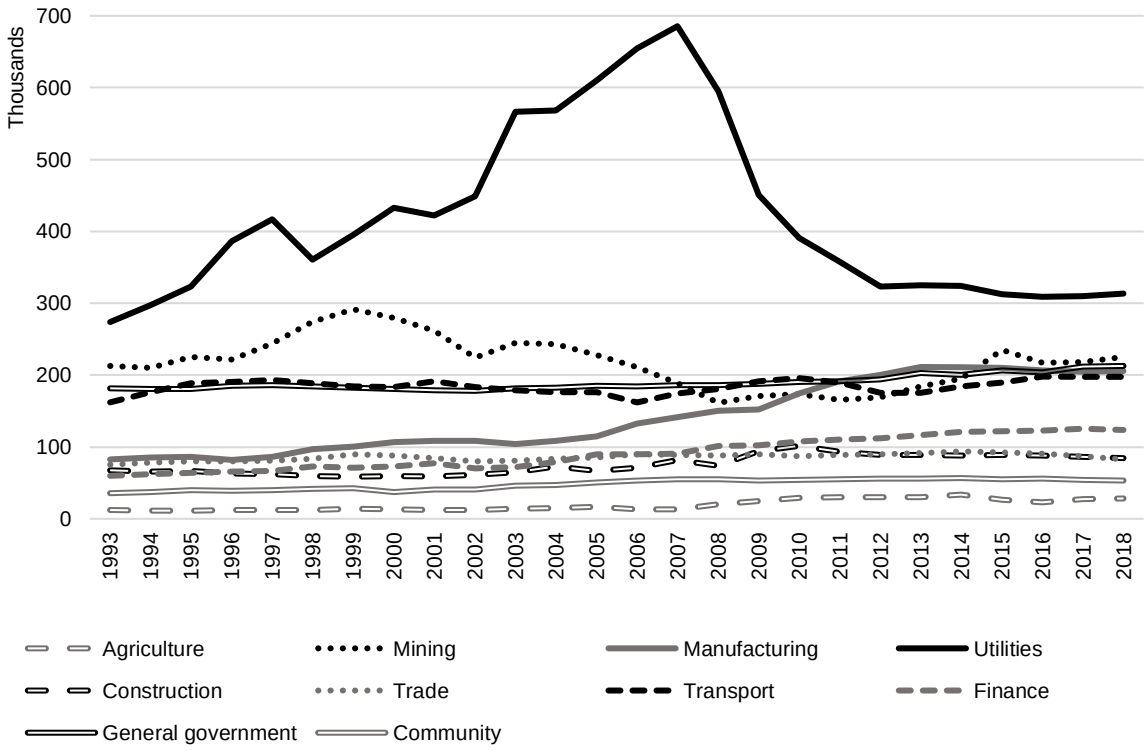
Source: SARB. Note: Own calculations. Base Year = 2016.

However, the increased inflation has resulted in a decline in real wages in many sectors in South Africa (see Figure 3-5) and this has not been met by a decrease in unemployment either (discussed later in this chapter). Although many unionised workers in low-paying industries received wage adjustments above the inflation rate, this has not been the case in all sectors.

3.2.2 Labour market statistics

Figure 3-5 shows the real average wage per employee in each of South Africa's sectors. Real wages for workers in the utilities sector (electricity, gas and water) reached a peak in 2007 where after it decreased dramatically, although by the end of 2018 workers in this sector still earned the highest real wages compared to others in the South African labour market. In addition, workers in the utilities sector had the highest median minimum wage, and those employed in the manufacturing, transport, community, mining and utility sectors earned median minimum wages above the national average in 2015 (Cottle, 2015).

Figure 3-5: Remuneration per employee – real wages (Rand) (in 2010 prices) by sector, 1993 – 2018



Source: Quantec. Not these data include the wages of informal sector workers.

However, the movements in Figure 3-5 would also be dependent on sector specific movements within the economy (shown in Figure 3-7) in addition to the sectors' labour productivity.

There are a number of theories put forth to explain the relationship between real wages and labour productivity (the relationship between labour input and labour output). Some have argued that an increase in wages will result in increased productivity (Gokulsing & Tandrayen-Ragoobur, 2014), while others have suggested that the reverse is true (Von Fintel, 2016; Volek, 2012). However, this relationship could also be impacted by institutional factors which create price and wage rigidities. It is on many of these factors that the arguments for the National Minimum Wage Act was based (Finn, 2015; Mudronova, 2016; Strauss & Isaacs, 2016).

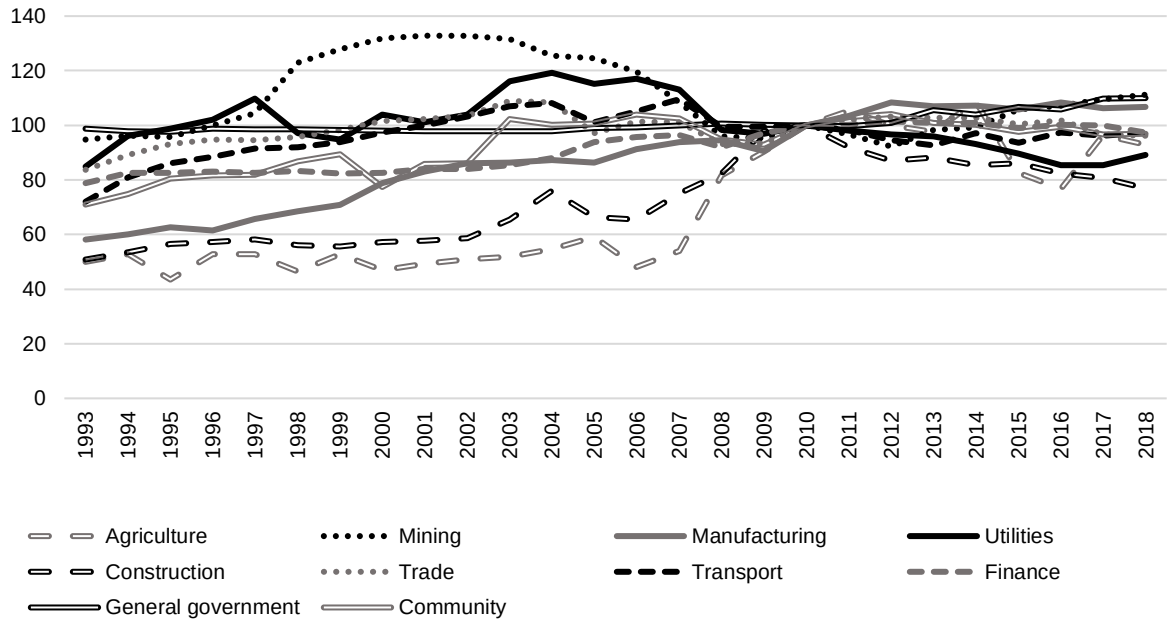
In general, however, there has been an increase in real wages and authors such as Klein (2012) have attributed this to South Africa's collective bargaining framework. He wrote that "the collective bargaining framework in South Africa…not only contributes to the weak link between pay and productivity, but also reduces the responsiveness of the real wage to business cycle fluctuations" (Klein, 2012, p. 4). Others have found, however, that minimum wages set at the sector level have had no adverse effects on employment growth in South Africa, with the possible exception of the agricultural sector (Strauss & Isaacs, 2016).

It is on the basis of this relationship that the ILO (2012a, p. 29) recommends considering labour productivity in studies of decent work as it measures the "role of labour, which is one of the inputs to the production process, in terms of GDP growth". However, a shortcoming of this measure is that it does not consider the changes in the use of capital which accompany the changes in labour inputs.

Nonetheless, Figure 3-6 illustrates that labour productivity in mining, for instance, reached a high of 132% in 2001 (compared to the 2010 base year) increasing between 1998 and 2002 and then declining. However, Figure 3-8 (employment by branch of economic activity) shows that the share of employment in the mining sector decreased over that period (at least from 2000). This variable must therefore be complemented by other employment-related indicators (ILO, 2012a).

Figure 3-6 further indicates that there has been a general decline in labour productivity in South African sectors, between 2010 and 2018. Table 3.2 provides a closer look at the figures from 2010 onwards.

Figure 3-6: Labour productivity by sector (%), 1993 – 2018



Source: Quantec. Note: Labour productivity is the most widely used productivity concept. Labour productivity is the ratio between output (Q) and the labour input (LI) used to produce that output: Labour productivity = Q / LI = output per unit of labour input. Labour productivity can be expressed as output per worker (by dividing total output by total number of workers employed) or as output per hour (by dividing total output by the total number of hours worked). Base year = 2010.

The table confirms that the only sectors which were exempt from this decline in productivity from 2010 were manufacturing and general government. In both sectors, real wages generally tended upwards (Figure 3-5). However, in sectors where a decline in productivity is accompanied by an increase in real wages, Klein (2012) concludes that these excess wages have played an important role in the loss of employment in the post-2008 period. However, in sectors such as agriculture it must be noted that real wages had not significantly increased, despite a sharp increase in productivity between 1993 and 2010.

Table 3.2: Labour productivity by sector (%), 2010 – 2018

Sector	Agriculture	Mining	Manufacturing	Electricity	Construction	Trade	Transport	Finance	General government	Community
2010	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2011	105.3	96.8	103.5	98.2	92.0	102.0	98.4	100.3	99.7	103.0
2012	100.0	92.2	108.3	96.7	87.0	103.2	94.5	101.4	101.0	104.1
2013	97.5	98.3	107.0	96.0	88.1	102.8	92.7	100.8	105.5	100.9
2014	108.7	99.3	107.2	93.2	85.3	102.7	97.1	100.8	103.9	100.1
2015	82.7	105.8	105.9	89.5	86.0	100.3	93.5	99.0	106.9	97.5
2016	76.8	107.2	108.4	85.3	82.4	101.8	97.4	100.2	105.7	99.5
2017	96.3	109.6	106.2	85.5	80.6	96.7	96.1	99.9	109.8	96.6
2018	92.8	111.1	106.8	89.1	77.0	96.1	97.3	97.3	110.0	96.8

Source: Quantec. Note: Labour productivity is the most widely used productivity concept. Labour productivity is the ratio between output (Q) and the labour input (LI) used to produce that output: Labour productivity = Q / LI = output per unit of labour input. Labour productivity can be expressed as output per worker (by dividing total output by total number of workers employed) or as output per hour (by dividing total output by the total number of hours worked). Base year = 2010.

3.2.2.1 Sectoral shares of GDP

Together with real wage growth and labour productivity in various sectors, the share of a sector in the total economy could also be an important factor to consider in a decent work debate. Figure 3-7 presents the sectoral share in GDP between 2000 and 2018, and depicts the relative change in importance for each sector in the overall economy. The data show that the finance and transport sectors have seen positive growth over the period.

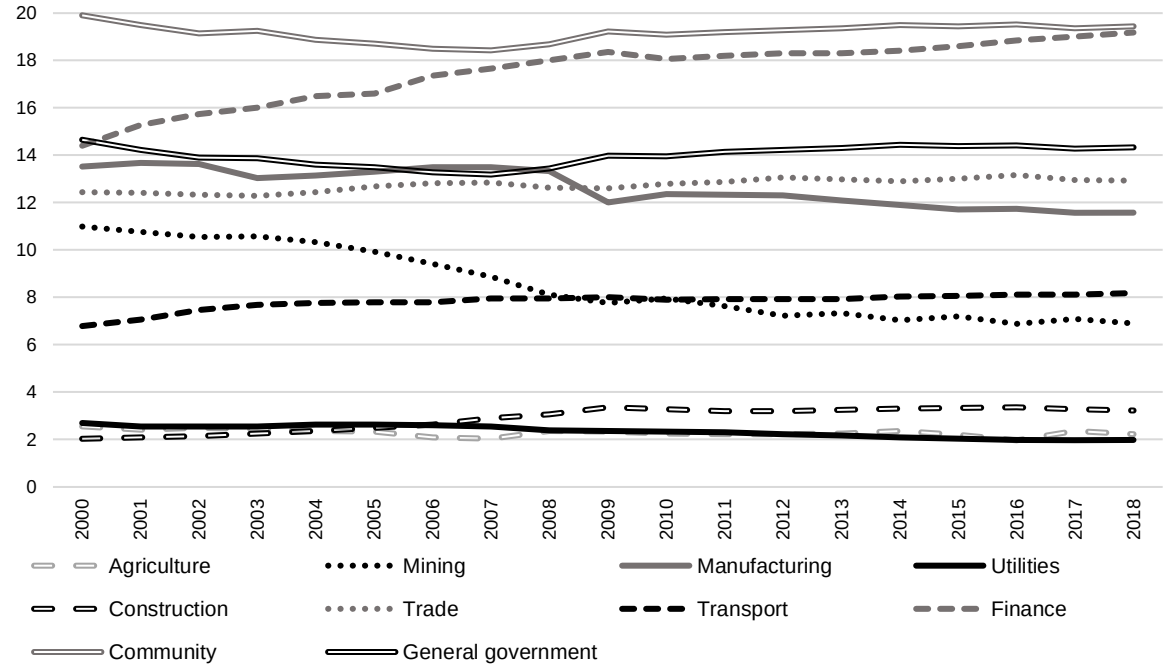
The growth of the finance sector has been noted in previous studies as the financialisation of the economy, and has been identified as a global trend (Phillips & James, 2014). Freund (2010) has criticised this financialisation, as the increased role of the banking sector has in many instances not seen parallel returns in the real economy through production and consumption. In the South African economy, however, there has been an increase in the real wages earned by workers within the finance sector over the same period (Figure 3-5).

This growth of the financial economy has been mirrored by a decline in the contribution of the mining and manufacturing sectors. Manufacturing decreased its GDP share from 13.5% in 2000 to 11.5% in 2018, while the mining sector decreased its share from 11% in 2000 to 7% in 2018. The decline in manufacturing is indicative of the deindustrialisation which has been characteristic of many African economies, although

real wages in this sector consistently increased over the same period (Tregenna, 2008). This has been attributed to the capital-intensive nature of the sector and the demand for high-skilled individuals, which is in short supply (Black, Craig, & Dunne, 2017; DTI, 2015). The capital-intensive nature of manufacturing has also been identified as a barrier to its growth (Kingdon & Knight, 2007).

Figure 3-7 further indicates that community services made up the greatest sectoral share in GDP, followed by financial services which gradually increased its share of GDP over the period under review and then general government.

Figure 3-7: Sectoral shares of GDP, gross value-added at basic prices (%), 2000 – 2018



Source: SARB. Note: Own calculations.

3.2.2.2 Employment by branch of economic activity

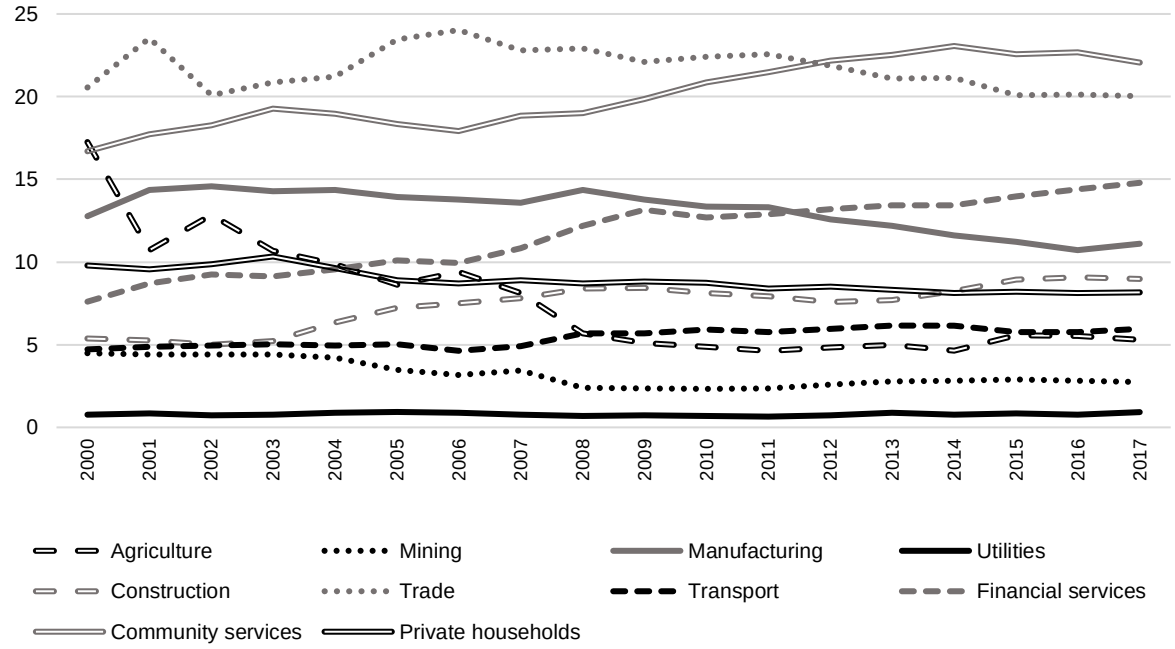
An analysis of employment growth by sector shows that the trade sector was the highest contributing employer between 2000 and 2012, whereafter community services became the largest employer (see Figure 3-8).

Criticisms waged against the financialisation of the economy may be valid, given that the financial services sector was not the biggest employer over the period, although employment in financial services did grow from 8% in 2000 to 15% in 2017. The mining sector also showed a decline in its employment share over the period from 4.4% in

2000 to 2.7% in 2017. Manufacturing decreased its share, although it made a slight recovery between 2016 and 2017.

In 2012, community services, which include public sector employees, became the largest employer by branch of economic activity. The increase in public sector employment has been credited to the government's counter-cyclical fiscal policy by Klein (2012). This growth in employment has been accompanied by an increase in productivity in general government over the same period (see Table 3.2).

Figure 3-8: Employment by branch of economic activity (%), 2000 – 2017



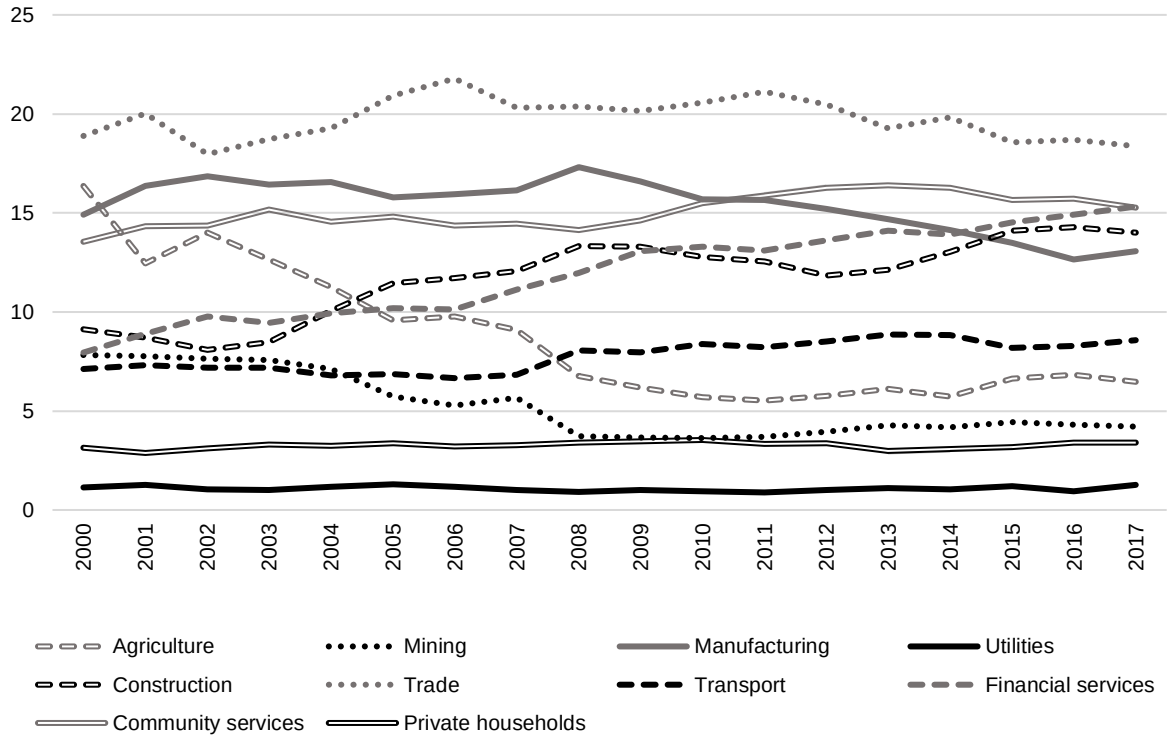
Source: PALMS. Note: Own calculations.

Figure 3-9 depicts the employment share in each sector for males only, and shows that the largest employer of males between 2000 and 2017 was the trade sector. This is followed by manufacturing; however, this sector declined its share of employment over the period, and community services surpassed it in 2017.

Further notable is the sharp drop in agricultural employment for males. Agriculture saw a decline in male employment from 16% in 2000 to 6% in 2017. This is despite the fact that agriculture increased its share in GDP slightly over the same period (see Figure 3-7). The mining sector also dropped its share of male employment, although this drop was not as sharp as that of the agriculture (from 8% in 2000 to 4% in 2017).

Sectors in which employment gains were evident included construction, transport, finance, as well as a slight increase for private households.

Figure 3-9: Employment of males by branch of economic activity (%), 2000 – 2017

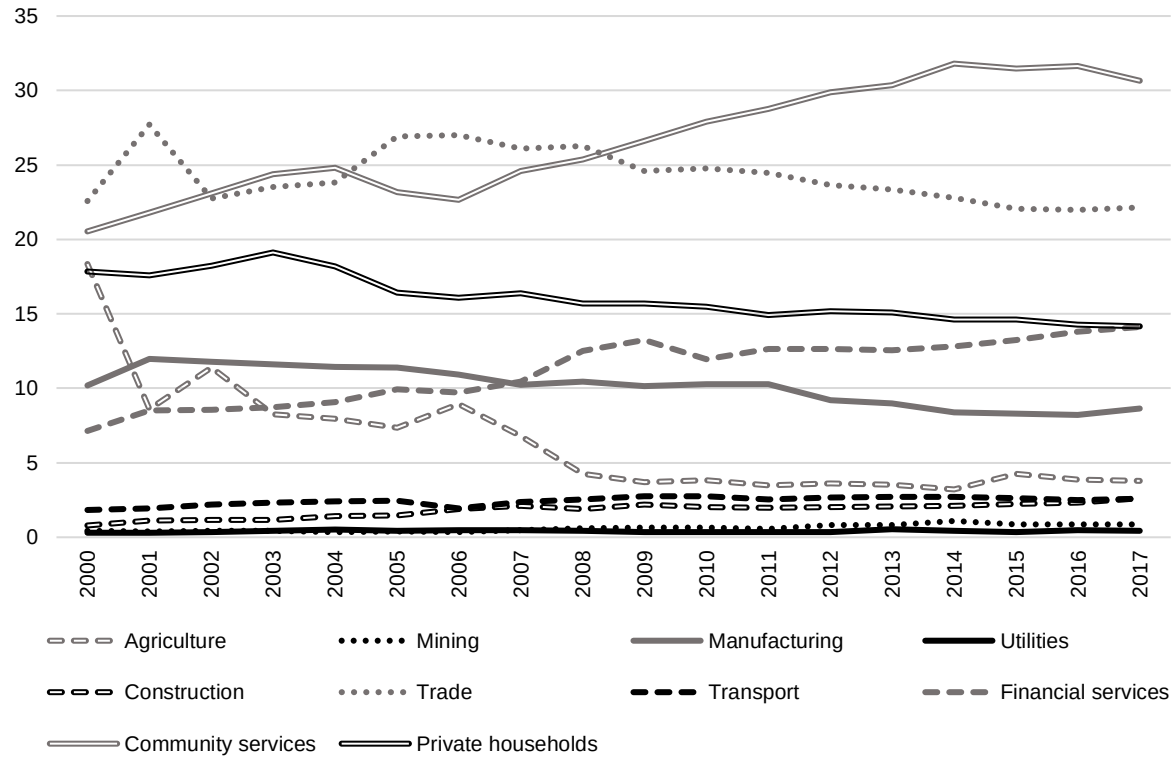


Source: PALMS. Note: Own calculations

Figure 3-10 depicts the share of employment by sector for females in the South African labour market and indicates that the share of employment in community services grew dramatically over the period (from 21% in 2000 to 31% in 2017). Financial services also increased its employment of female labour.

A decline was notable in the employment in private households and manufacturing. Similar to the male employment shares, women also experienced a decline in agricultural employment for the period under consideration. The agriculture employment share declined from 18% in 2000 to only 4% in 2017.

Figure 3-10: Employment of females by branch of economic activity (%), 2000 – 2017



Source: PALMS. Note: Own calculations

For both men and women, the share in employment by branch of economic activity thus decreased in the trade, financial services, manufacturing, and agriculture sectors, although males did make gains in private households, where women decreased their share. However, despite these trends, many individuals were excluded from labour market opportunities during this period.

3.2.2.3 Unemployment and labour force participation

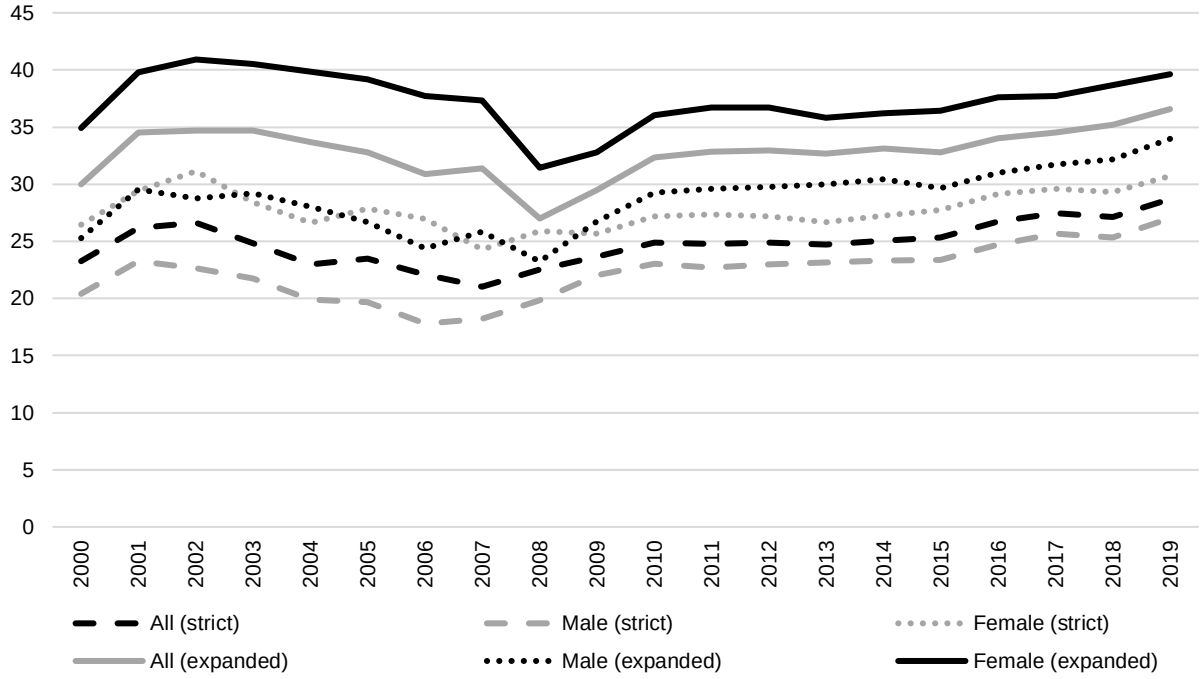
The South African labour market has been plagued with high unemployment rates and proper documentation thereof started at the beginning of the democratic era (Kingdon & Knight, 2007; Klasen & Woolard, 1999). Figure 3-11, which depicts these rates from 2000, however, shows that a slight decline in unemployment was evident from 2002. A general increase in the unemployment rate was evident from 2008, although the expanded rates increased faster than the strict rates, indicating that the number of discouraged work seekers increased over this time, consistent with Verick's (2012)

findings and highlighting the need to separate the narrow and broad unemployed in an analysis of the South African labour market.[39]

Although the government's fiscal policy resulted in an increase in public sector employment over this period, the effects of the 2008/09 financial crisis is evident (Klein, 2012). However, despite the increase in unemployment, there was a general increase in the real wages of most sectors post-2008 (Figure 3-5).

Furthermore, as confirmed in previous studies (Anand, Kothari, & Kumar, 2016; Mlatsheni & Rospabé, 2002), female unemployment rates (official and expanded) were higher than those of men, with the expanded rate for women reaching a peak of 41% in 2002.[40]

Figure 3-11: Official (strict) and expanded (broad) unemployment rate (%), 2000 – 2019



Source: StatsSA QLFS Trends and StatsSA (2009a). *Note: Own calculations. Strict unemployment rate = (strictly unemployed)/(strictly unemployed + employed). Expanded unemployment rate = (broadly unemployed)/(broadly unemployed + employed). . Working age population is between the ages of 15 and 64 (inclusive)*

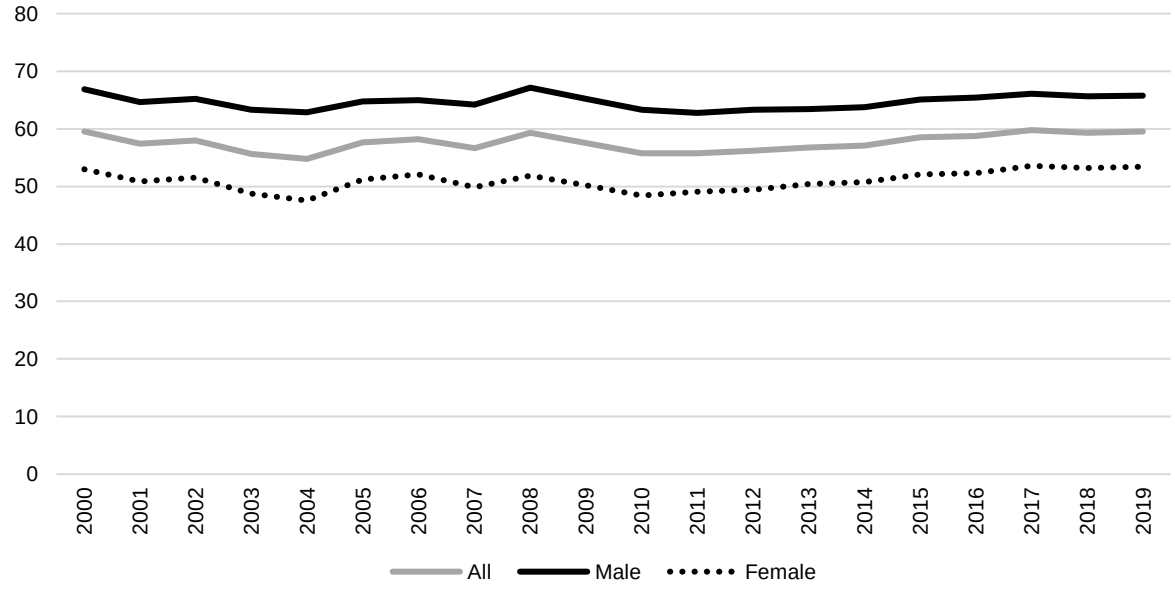
[39] The strict definition of 'unemployment' considers only those individuals who were unemployed and tried to secure employment or start a job in the last four weeks. The expanded definition includes those who did not report looking for work or starting a business in the reference period (last four weeks). Individuals who did not report looking for work or starting a business are generally referred to as 'discouraged work seekers'.

[40] In the QLFS questionnaire which was utilised from 2008 the employment question was slightly modified and excluded activities like doing work on a family plot and repair work to one's home. Stats SA only included those activities which were completed with the purpose of exchanging in a market. This could *partly* be responsible for the increase in the unemployment rate observed between 2007 and 2008, although the effects of the global financial crisis would undoubtedly also be responsible for this increase in the unemployment rates.

Men also had higher labour force participation rates than females, and a slight decrease in the labour force participation rates for both sexes was evident post-2008, before increasing again after 2010.

Important to note though, is that the trends in labour force participation, for men and women, do not differ. Thus, Figure 3-12 suggests that viewing men and women's labour force participation from a macro lens suggests that they roughly behaved similarly in relation to macroeconomic shocks to the South African labour market between 2000 and 2019. It is therefore important to consider these movements and their causes at a microeconomic level as well.

Figure 3-12: Labour force participation rate (%), 2000 – 2019



Source: StatsSA QLFS Trends and StatsSA (2009a). *Note: Own calculations. Labour force participation rate = (unemployed + employed)/working-age population. Strict definition of unemployment used here. Working age population is between the ages of 15 and 64 (inclusive).*

The South African context for decent work between 1993 and 2018 was thus one which is characterised by high inequality and inflation which tended towards the upper limit of the inflation target, in addition to declining economic growth rates and increasing unemployment – with women being disproportionately affected by unemployment. In some sectors, however, there has been an increase in real wages and this is likely due to the South African Reserve Bank's rigid inflation targeting

regime supporting growth in real wages. This could also, however, be indicative of the strong collective bargaining framework as suggested by Klein (2012).

The important role played by labour unions in the labour market has ensured that workers' rights are protected as far as is possibly feasible within the context of declining unionisation in certain sectors (Hagen, 2004; Mosoetsa, 2001; Skinner & Valodia, 2002).This context will now form the backdrop for the analysis which will consider decent work within each occupational group in the South African labour market.

3.3 Decent work by occupational group

3.3.1 Occupation growth over time

In this section, decent work trends by occupation group are described for the period 2001 to 2018.[41] Each occupation group has its own story given its concentration within the various South African sectors and the domestic and international factors which affect growth within each sector. Given that this study's focus is gender inequality and by extension, women's positioning within the labour market, particular attention will be paid to the occupation groups which were female-dominated over the period under consideration. But, reference will also be made to the occupation groups which had the best and the worst decent work scores over time. The results for all occupation groups will be presented, nonetheless.

Before considering the gender distribution within the occupation groups, Table 3.3 shows how the overall occupational distribution has changed over time. The occupation group which had the greatest share of workers within the economy was cleaners.[42] This group grew from 15.21% in 2001, declined slightly in 2011 (15.06%) and then increased to 16.27% in 2018. Another large occupation group was personal

[41] The LMD 2018 data are a compilation of the QLFSs of 2017, although for ease of reference these data will be referred to as '2018' data in this text.

[42] In the occupational classification 'cleaners and helpers' includes two minor categories which are further disaggregated: (1) domestic, hotel and office cleaners and helpers, and (2) vehicle, window, laundry and other hand cleaning workers. However, a classification that includes 'helpers', conceals the labour that is intrinsic in such work, especially when such work is performed unpaid and reflects the critiques which feminist economists have put forth as contributing to the underpayment and undervaluation of critical reproductive labour. This category is thus referred to 'cleaners' in this thesis, rather than 'cleaners and helpers'.

service workers who made up 7.40% in 2001, 10.39% in 2011, and 12.86% in 2018. General and keyboard clerks and agriculture, forestry and fishery workers also made up a notable share in the overall occupational distribution over the period.

Over this period, cleaners were primarily concentrated within private households, although the share of these workers working in households declined from 61.79% in 2001, to 53.53% in 2011, and 50.17% in 2018 (see Table H - 1, Table H - 4, and Table H - 7). These workers gradually increased their shares in the trade and finance sectors over the same period.

Personal service workers were primarily concentrated within the community services and financial services sectors over the period under consideration, although their shares vary over the survey periods. The same was true for general and keyboard clerks. Agriculture, forestry and fishery workers moved from being largely concentrated in agriculture in 2001 to constituting increasing shares of workers in private households. By 2018, almost a quarter of these workers were working in private households.

Table 3.3: Share of occupation group in overall occupational distribution (%), 2001 – 2018

	2001	**2011**	**2018**
Chief executives, senior officials & legislators	0.12	0.36	0.44
	(0.04)	(0.03)	(0.03)
Administrative & commercial managers	2.92	5.24	4.86
	(0.18)	(0.11)	(0.11)
Production & specialised services managers	0.82	0.49	0.24
	(0.08)	(0.03)	(0.03)
Science & engineering professionals	0.68	1.46	0.71
	(0.08)	(0.06)	(0.04)
Health professionals	0.63	0.97	0.47
	(0.07)	(0.04)	(0.03)
Teaching professionals	1.86	0.64	1.83
	(0.12)	(0.04)	(0.07)
Business & administration professionals	1.34	2.78	1.81
	(0.15)	(0.08)	(0.07)
Science & engineering associate professionals	2.10	2.28	2.03
	(0.14)	(0.07)	(0.07)
Health associate professionals	1.71	1.81	1.68
	(0.13)	(0.06)	(0.06)
Business & administration associate professionals	3.85	4.35	2.08
	(0.16)	(0.08)	(0.07)
Legal, social & cultural associate professionals	3.39	3.53	2.87
	(0.22)	(0.09)	(0.08)
General & keyboard clerks	7.56	8.14	7.02
	(0.25)	(0.13)	(0.13)
Customer services clerks	3.92	4.08	4.26
	(0.18)	(0.09)	(0.10)
Personal service workers	7.40	10.39	12.86
	(0.23)	(0.14)	(0.16)
Sales workers	4.34	3.86	3.71

	(0.19)	(0.10)	(0.09)
Skilled agricultural workers	2.62	0.28	0.16
	(0.14)	(0.02)	(0.02)
Skilled forestry, fishery & hunting workers	1.98	0.02	0.08
	(0.11)	(0.00)	(0.02)
Building & related trades workers	6.83	5.40	5.32
	(0.23)	(0.11)	(0.11)
Metal, machinery & related trades workers	4.22	3.75	3.87
	(0.23)	(0.09)	(0.10)
Handicraft & printing workers	0.54	0.48	0.44
	(0.06)	(0.04)	(0.03)
Electrical & electronic trades workers	1.42	1.47	1.21
	(0.09)	(0.06)	(0.05)
Stationary plant & machine operators	1.41	0.90	1.14
	(0.10)	(0.04)	(0.05)
Assemblers	3.40	2.99	2.19
	(0.15)	(0.09)	(0.07)
Drivers & mobile plant operators	6.93	5.67	6.05
	(0.20)	(0.11)	(0.12)
Cleaners	15.21	15.06	16.27
	(0.29)	(0.16)	(0.17)
Agriculture, forestry & fishery workers	7.11	6.60	8.62
	(0.19)	(0.11)	(0.13)
Mining, construction, manufacturing & transport workers	5.67	7.01	7.76
	(0.19)	(0.12)	(0.13)
Total	**100**	**100**	**100**
N	*27275*	*194203*	*152939*

Source: LFS 2001/2, LMD 2011, and LMD 2018. Note: Standard errors in parentheses. All mean differences between occupation groups within each significant at p<0.001. Data are weighted.

The occupational distribution disaggregated by gender (Table 3.4) shows that for all three survey periods, only 7 out of the 27 occupation groups were female-dominated (i.e. 50% or more employees in the group were female). These include health professionals, teaching professionals, health associate professionals, business and administrative associate professionals, general and keyboard clerks, customer services clerks, and cleaners. As noted in Table 3.3, cleaners were the largest occupation group in the economy, and general and keyboard clerks also made up an important share of the overall occupational distribution.

Other occupation groups which were female-dominated at some point during the period under analysis were chief executives, senior officials and legislators (2001), business and administrative professionals (2011 and 2018), legal, social and cultural associate professionals (2018), personal service workers (2018), sales workers (2001), and electrical and electronic trades workers (2001).

Between 2001 and 2018, women decreased their share in financial services; this is evident in the declining shares of female customer service clerks in financial services, from 25.9% in 2001, to 18.3% in 2011, and 17.9% in 2018 (see Table H - 3, Table H -

6, and Table H - 9). Overall shares for this occupation group, however, also decreased (26.3% (2001), to 21% (2011), and 19.7% (2018)). Financial services increased its share in GDP between 2000 and 2009, with a slight decline in 2010 and then increased again to 2018, although the subsequent increase was not as sharp as the former (Figure 3-7). This sector did grow its share in employment over time, although this growth was in other occupation groups; mainly science and engineering professionals and business and administrative professionals. Female customer service clerks, however increased their shares in trade.

The trade sector remained roughly stagnant in terms of its value add to overall GDP as well as the average remuneration per employee. The community services sector, where the bulk of female-dominated occupations (health professionals, teaching professionals, health associate professionals, and business and administrative associate professionals) were concentrated over the period, declined its value-added share of GDP to 2007 and then slightly increased to 2018 (see Figure 3-7) – average remuneration per employee in this industry also remained largely stagnant over the period. Thus, women were primarily concentrated in industries which had slow growth in terms of its GDP share as well as wage growth.

Table 3.4: Share of occupation group in overall occupational distribution, by gender (%), 2001 – 2018

	2001		2011		2018	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**
Chief executives, senior officials & legislators	49.08	50.92	70.58	29.42	64.40	35.60
	(15.44)	(15.44)	(3.63)	(3.63)	(3.70)	(3.70)
Administrative & commercial managers	74.62	25.38	64.17	35.83	63.20	36.80
	(2.98)	(2.98)	(1.04)	(1.04)	(1.15)	(1.15)
Production & specialised services managers	77.60	22.40	64.48	35.52	74.18	25.82
	(4.32)	(4.32)	(3.27)	(3.27)	(4.44)	(4.44)
Science & engineering professionals	82.05	17.95	79.54	20.46	79.56	20.44
	(3.89)	(3.89)	(1.85)	(1.85)	(2.51)	(2.51)
Health professionals	35.82	64.18	32.35	67.65	29.83	70.17
	(5.65)	(5.65)	(2.16)	(2.16)	(3.48)	(3.48)
Teaching professionals	39.29	60.71	40.90	59.10	35.40	64.60
	(2.97)	(2.97)	(3.03)	(3.03)	(1.73)	(1.73)
Business & administration professionals	56.81	43.19	47.04	52.96	48.36	51.64
	(5.52)	(5.52)	(1.51)	(1.51)	(1.96)	(1.96)
Science & engineering associate professionals	77.50	22.50	80.43	19.57	73.26	26.74
	(2.80)	(2.80)	(1.22)	(1.22)	(1.57)	(1.57)
Health associate professionals	11.56	88.44	13.00	87.00	18.52	81.48
	(2.17)	(2.17)	(1.06)	(1.06)	(1.46)	(1.46)
Business & administration associate professionals	36.23	63.77	30.10	69.90	26.13	73.87
	(2.01)	(2.01)	(0.90)	(0.90)	(1.52)	(1.52)
Legal, social & cultural associate professionals	54.75	45.25	49.90	50.10	49.16	50.84
	(3.45)	(3.45)	(1.23)	(1.23)	(1.49)	(1.49)
General & keyboard clerks	37.90	62.10	35.33	64.67	33.01	66.99
	(1.64)	(1.64)	(0.79)	(0.79)	(0.88)	(0.88)
Customer services clerks	24.59	75.41	23.30	76.70	19.25	80.75
	(1.96)	(1.96)	(0.99)	(0.99)	(0.93)	(0.93)

Personal service workers	63.12	36.88	58.31	41.69	48.65	51.35
	(1.55)	(1.55)	(0.70)	(0.70)	(0.67)	(0.67)
Sales workers	48.44	51.56	61.28	38.72	58.39	41.61
	(2.21)	(2.21)	(1.18)	(1.18)	(1.25)	(1.25)
Skilled agricultural workers	90.70	9.30	66.41	33.59	73.03	26.97
	(1.48)	(1.48)	(4.04)	(4.04)	(4.99)	(4.99)
Skilled forestry, fishery & hunting workers	55.25	44.75	85.37	14.63	76.41	23.59
	(2.83)	(2.83)	(7.97)	(7.97)	(7.72)	(7.72)
Building & related trades workers	94.52	5.48	95.41	4.59	95.48	4.52
	(0.70)	(0.70)	(0.44)	(0.44)	(0.42)	(0.42)
Metal, machinery & related trades workers	97.09	2.91	95.96	4.04	94.68	5.32
	(0.60)	(0.60)	(0.57)	(0.57)	(0.58)	(0.58)
Handicraft & printing workers	67.02	32.98	79.01	20.99	79.19	20.81
	(5.09)	(5.09)	(2.83)	(2.83)	(2.99)	(2.99)
Electrical & electronic trades workers	42.66	57.34	53.01	46.99	52.19	47.81
	(3.25)	(3.25)	(1.96)	(1.96)	(2.14)	(2.14)
Stationary plant & machine operators	96.25	3.75	90.81	9.19	85.07	14.93
	(0.99)	(0.99)	(1.28)	(1.28)	(1.55)	(1.55)
Assemblers	57.16	42.84	65.02	34.98	66.33	33.67
	(2.14)	(2.14)	(1.31)	(1.31)	(1.50)	(1.50)
Drivers & mobile plant operators	98.34	1.66	96.91	3.09	96.63	3.37
	(0.39)	(0.39)	(0.34)	(0.34)	(0.36)	(0.36)
Cleaners	19.27	80.73	21.37	78.63	20.31	79.69
	(0.85)	(0.85)	(0.49)	(0.49)	(0.47)	(0.47)
Agriculture, forestry & fishery workers	68.86	31.14	74.62	25.38	71.11	28.89
	(1.29)	(1.29)	(0.71)	(0.71)	(0.72)	(0.72)
Mining, construction, manufacturing & transport workers	75.13	24.87	71.01	28.99	69.07	30.93
	(1.38)	(1.38)	(0.79)	(0.79)	(0.79)	(0.79)
Total	**58.03**	**41.97**	**55.85**	**44.15**	**54.05**	**45.95**
	(0.44)	**(0.44)**	**(0.23)**	**(0.23)**	**(0.24)**	**(0.24)**
N	*27275*		*194203*		152939	

Source: LFS 2001/2, LMD 2011, and LMD 2018. Note: Standard errors in parentheses. Rows add to 100. Data are weighted. All mean differences for 2001 significant at p<001, for 2011 differences between occupation groups are significant at p<001 with the exception of female skilled forestry, fishery & hunting workers, while all differences between occupation groups for the 2018 data are significant at p<0.01.

3.3.2 Decent work indicators by occupation group

In this section, each *indicator* which makes up the composite *index* (DWI), used in the remainder of this study is studied by 'occupation group' and over time.[43] Table 3.5 shows the indicator scores by occupation group for the three survey periods for the first indicator which consisted of paid leave, longer working hours, and excess working hours. The table shows that for all the female-dominated occupation groups, the indicator scores increased between 2001 and 2011 and further increased between 2011 and 2018, with the exception of cleaners whose scores decreased between 2011 to 2018, while business and administration associate professionals had the same score for 2011 and 2018.

[43] These were further disaggregated by gender, although no notable patterns are present between the indicator scores for men and women, and those results are thus not presented here.

Teaching professionals were strongly unionised over the three periods, while customer service clerks, many of whom were employed in the trade industry would be covered by the sectoral determination for wholesale and retail workers which is updated on a regular basis (Government Gazette, 2016). For both teaching professionals and customer service clerks, the scores for excess hours increased over the three survey periods, while for health professionals and health associate professionals, these element scores initially increased then decreased; indicating that workers in these occupation groups are more likely to work excessive hours than before (see Tables in Appendix E).

The worst performing occupation group for this indicator was skilled forestry, fishery and hunting workers, while the best was teaching professionals for 2001 and 2018 and science and engineering professionals for 2011.

Table 3.5: Indicator 1 - Time and work/life balance by occupation group, 2001 – 2018

	2001	2011	2018
Chief executives, senior officials & legislators	0.745	0.886	0.850
	(0.08)	(0.01)	(0.02)
Administrative & commercial managers	0.832	0.890	0.899
	(0.01)	(0.00)	(0.00)
Production & specialised services managers	0.810	0.732	0.756
	(0.02)	(0.02)	(0.03)
Science & engineering professionals	0.859	0.920	0.925
	(0.02)	(0.01)	(0.01)
Health professionals	0.781	0.894	0.903
	(0.03)	(0.01)	(0.01)
Teaching professionals	0.873	0.902	0.942
	(0.01)	(0.01)	(0.01)
Business & administration professionals	0.864	0.905	0.909
	(0.02)	(0.01)	(0.01)
Science & engineering associate professionals	0.839	0.873	0.885
	(0.02)	(0.01)	(0.01)
Health associate professionals	0.843	0.859	0.866
	(0.02)	(0.01)	(0.01)
Business & administration associate professionals	0.852	0.912	0.912
	(0.01)	(0.00)	(0.01)
Legal, social & cultural associate professionals	0.799	0.851	0.861
	(0.02)	(0.01)	(0.01)
General & keyboard clerks	0.850	0.897	0.898
	(0.01)	(0.00)	(0.00)
Customer services clerks	0.744	0.779	0.786
	(0.01)	(0.01)	(0.01)
Personal service workers	0.653	0.718	0.733
	(0.01)	(0.00)	(0.00)
Sales workers	0.635	0.695	0.716
	(0.01)	(0.01)	(0.01)
Skilled agricultural workers	0.569	0.595	0.728
	(0.01)	(0.02)	(0.03)
Skilled forestry, fishery & hunting workers	0.466	0.488	0.504
	(0.03)	(0.06)	(0.04)
Building & related trades workers	0.665	0.698	0.707
	(0.01)	(0.01)	(0.01)
Metal, machinery & related trades workers	0.717	0.788	0.801

	(0.02)	(0.01)	(0.01)
Handicraft & printing workers	0.621	0.698	0.731
	(0.03)	(0.02)	(0.02)
Electrical & electronic trades workers	0.670	0.727	0.743
	(0.02)	(0.01)	(0.01)
Stationary plant & machine operators	0.785	0.834	0.860
	(0.02)	(0.01)	(0.01)
Assemblers	0.692	0.838	0.839
	(0.01)	(0.01)	(0.01)
Drivers & mobile plant operators	0.638	0.670	0.687
	(0.01)	(0.01)	(0.01)
Cleaners	0.603	0.671	0.666
	(0.01)	(0.00)	(0.00)
Agriculture, forestry & fishery workers	0.540	0.607	0.658
	(0.01)	(0.00)	(0.00)
Mining, construction, manufacturing & transport workers	0.660	0.703	0.734
	(0.01)	(0.01)	(0.00)

Source: LFS 2001/2, LMD 2011, and LMD 2018. Note: Standard errors in parentheses. All differences by year significant at p<0.001. Data are weighted.

The results for indicator 2, which consisted of the employment sector, informal employment rate, contract type, duration of employment, and whether someone has a written contract or not is displayed in Table 3.6. The results indicate that for all female-dominated occupation groups, the scores increased between 2001 and 2011, while they all decreased between 2011 and 2018; with the exception of teaching professionals. Also notable is that there was a general decline in the indicator scores across occupation groups between 2011 and 2018 with a few exceptions.

A deviation from this general decline includes skilled forestry, fishery and hunting workers which saw an increase between 2011 and 2018. This could be an indication of the effects of the 2012 agriculture workers' strike or the fact that many agricultural workers gradually moved from working within private households to working within establishments in the agricultural sector over the survey periods. This could also be the results of an increased capacity to enumerate agricultural workers correctly, although the scores for this occupation group still remained the lowest out of all occupation groups for all three survey periods.

This general decline is indicative of the casualisation of work within the South African labour market between 2011 and 2018. This was accompanied by declining economic growth rates for the same period, increasing unemployment rates, as well as a stagnation in wage growth for most industries.

Table 3.6: Indicator 2 - Stability and security by occupation group, 2001 – 2018

	2001	**2011**	**2018**

Chief executives, senior officials & legislators	0.793	0.838	0.803
	(0.02)	(0.01)	(0.01)
Administrative & commercial managers	0.795	0.837	0.817
	(0.01)	(0.00)	(0.00)
Production & specialised services managers	0.742	0.721	0.645
	(0.01)	(0.01)	(0.02)
Science & engineering professionals	0.781	0.835	0.817
	(0.01)	(0.00)	(0.01)
Health professionals	0.775	0.861	0.837
	(0.01)	(0.00)	(0.01)
Teaching professionals	0.796	0.828	0.847
	(0.01)	(0.01)	(0.00)
Business & administration professionals	0.762	0.812	0.805
	(0.02)	(0.00)	(0.00)
Science & engineering associate professionals	0.772	0.815	0.805
	(0.01)	(0.00)	(0.00)
Health associate professionals	0.772	0.828	0.804
	(0.01)	(0.00)	(0.00)
Business & administration associate professionals	0.771	0.821	0.797
	(0.01)	(0.00)	(0.00)
Legal, social & cultural associate professionals	0.756	0.796	0.763
	(0.01)	(0.00)	(0.00)
General & keyboard clerks	0.764	0.811	0.786
	(0.00)	(0.00)	(0.00)
Customer services clerks	0.697	0.736	0.717
	(0.01)	(0.00)	(0.00)
Personal service workers	0.680	0.713	0.673
	(0.01)	(0.00)	(0.00)
Sales workers	0.611	0.642	0.627
	(0.01)	(0.01)	(0.01)
Skilled agricultural workers	0.305	0.609	0.573
	(0.01)	(0.02)	(0.02)
Skilled forestry, fishery & hunting workers	0.009	0.050	0.145
	(0.01)	(0.02)	(0.04)
Building & related trades workers	0.598	0.606	0.540
	(0.01)	(0.00)	(0.01)
Metal, machinery & related trades workers	0.669	0.738	0.701
	(0.01)	(0.00)	(0.01)
Handicraft & printing workers	0.487	0.647	0.583
	(0.03)	(0.02)	(0.02)
Electrical & electronic trades workers	0.635	0.689	0.679
	(0.01)	(0.01)	(0.01)
Stationary plant & machine operators	0.772	0.804	0.774
	(0.01)	(0.01)	(0.01)
Assemblers	0.719	0.796	0.773
	(0.01)	(0.00)	(0.00)
Drivers & mobile plant operators	0.674	0.624	0.599
	(0.01)	(0.00)	(0.01)
Cleaners	0.343	0.373	0.360
	(0.00)	(0.00)	(0.00)
Agriculture, forestry & fishery workers	0.560	0.462	0.487
	(0.01)	(0.00)	(0.00)
Mining, construction, manufacturing & transport workers	0.652	0.688	0.667
	(0.01)	(0.00)	(0.00)

Source: LFS 2001/2, LMD 2011, and LMD 2018. Note: Standard errors in parentheses. 2001: All differences significant at p<0.001, except skilled forestry, fishery & hunting workers – 98.91% of workers scored 0. 2011: All differences significant at p<0.001, skilled forestry, fishery & hunting workers significant at p<0.01. 2018: All differences significant at p<0.001. Data are weighted. Significance levels included are comparisons of categories within each survey year.

Indicator 3, which includes components related to earnings and the gender and race composition of occupation groups, is presented in Table 3.7. Female-dominated occupation groups which increased over all three survey periods are health professionals and teaching professionals, while all the other female-dominated

occupation groups experienced an initial increase and a subsequent decrease over the three survey periods.

For the initial increase, customer service clerks, and cleaners would be covered by their respective sectoral determinations in terms of wage increases and other benefits, although these occupation groups are highly gender segregated and would likely suffer from the institutional disadvantage of being employed in a female-dominated occupation (Budlender, 2016; Department of Labour, 2018a; Government Gazette, 2016). Indicator scores for teaching professionals could likely be attributed to the major teachers' strike which took place in 2010 (Patsanza, 2010); but also, a culture of unionisation within the occupation group.

Despite the initial increase, cleaners were the worst scoring occupation group in 2001 and 2018, while skilled forestry, fishery and hunting workers were the worst group for 2011. The best ranked occupation group was science and engineering professionals in 2001, chief executives, senior officials and legislators in 2011, and health professionals in 2018.

Table 3.7: Indicator 3 - Treatment and earnings by occupation group, 2001 – 2018

	2001	**2011**	**2018**
Chief executives, senior officials & legislators	0.762	1	0.810
	(0.00)	-	(0.00)
Administrative & commercial managers	0.855	0.846	0.891
	(0.00)	(0.00)	(0.00)
Production & specialised services managers	0.735	0.715	0.549
	-	(0.00)	(0.00)
Science & engineering professionals	1	0.963	0.896
	-	(0.00)	(0.00)
Health professionals	0.751	0.807	1
	(0.00)	(0.00)	-
Teaching professionals	0.767	0.853	0.902
	(0.00)	(0.00)	(0.00)
Business & administration professionals	0.909	0.813	0.816
	-	(0.00)	(0.00)
Science & engineering associate professionals	0.636	0.672	0.654
	(0.00)	(0.00)	(0.00)
Health associate professionals	0.736	0.740	0.607
	(0.00)	(0.00)	(0.00)
Business & administration associate professionals	0.708	0.710	0.538
	(0.00)	(0.00)	(0.00)
Legal, social & cultural associate professionals	0.683	0.716	0.520
	(0.00)	(0.00)	(0.00)
General & keyboard clerks	0.657	0.685	0.561
	(0.00)	(0.00)	(0.00)
Customer services clerks	0.462	0.515	0.465
	(0.00)	(0.00)	(0.00)
Personal service workers	0.422	0.344	0.327
	(0.00)	(0.00)	(0.00)
Sales workers	0.342	0.442	0.436

	(0.00)	(0.00)	(0.00)
Skilled agricultural workers	0.118	0.127	0.077
	(0.00)	(0.00)	(0.00)
Skilled forestry, fishery & hunting workers	0.348	0.000	0.180
	(0.00)	-	(0.00)
Building & related trades workers	0.318	0.524	0.435
	(0.00)	(0.00)	(0.00)
Metal, machinery & related trades workers	0.461	0.535	0.568
	(0.00)	(0.00)	(0.00)
Handicraft & printing workers	0.429	0.483	0.082
	(0.00)	(0.00)	(0.00)
Electrical & electronic trades workers	0.410	0.352	0.399
	-	(0.00)	(0.00)
Stationary plant & machine operators	0.497	0.488	0.468
	(0.00)	(0.00)	(0.00)
Assemblers	0.399	0.302	0.325
	(0.00)	(0.00)	(0.00)
Drivers & mobile plant operators	0.499	0.454	0.358
	(0.00)	(0.00)	(0.00)
Cleaners	0.000	0.007	0.000
	-	(0.00)	-
Agriculture, forestry & fishery workers	0.142	0.074	0.180
	(0.00)	(0.00)	(0.00)
Mining, construction, manufacturing & transport workers	0.363	0.266	0.199
	(0.00)	(0.00)	(0.00)

Source: LFS 2001/2, LMD 2011, and LMD 2018. Note: Standard errors in parentheses. 2001: All differences significant at p<0.001, except skilled forestry, fishery & hunting workers and production & specialised service managers. 2011: All differences significant at p<0.001, except personal services workers which is not significant. 2018: All differences significant at p<0.001. Data are weighted. Significance levels included are comparisons of categories within each survey year.

Lastly, Table 3.8 shows the dialogue and representation indicator which consists of medical aid, pension contribution, UIF contribution, union membership and union density. None of the female-dominated occupation groups managed a consistent increase in indicator scores over the survey periods. Instead, business and administrative associate professionals and general and keyboard clerks had indicator scores which declined over the periods.

Cleaners and health professionals initially had an increase in indicator scores between 2001 and 2011 and these scores declined between 2011 and 2018. Lastly, teaching professionals, health associate professionals, and customer service clerks had a decrease and then an increase. Health professionals also had the best indicator scores over the entire period under consideration, while skilled forestry, fishery and hunting workers had the worst for 2001 and 2018, and building and related trades for 2011.

Table 3.8: Indicator 4 - Dialogue and representation by occupation group, 2001 – 2018

	2001	**2011**	**2018**
Chief executives, senior officials & legislators	0.530	0.579	0.577
	(0.09)	(0.01)	(0.02)
Administrative & commercial managers	0.547	0.537	0.567
	(0.02)	(0.00)	(0.01)

Production & specialised services managers	0.414	0.375	0.344
	(0.02)	(0.02)	(0.02)
Science & engineering professionals	0.604	0.616	0.655
	(0.03)	(0.01)	(0.01)
Health professionals	0.686	0.698	0.694
	(0.02)	(0.01)	(0.01)
Teaching professionals	0.605	0.569	0.658
	(0.01)	(0.01)	(0.01)
Business & administration professionals	0.522	0.509	0.585
	(0.02)	(0.01)	(0.01)
Science & engineering associate professionals	0.572	0.592	0.656
	(0.02)	(0.01)	(0.01)
Health associate professionals	0.671	0.647	0.689
	(0.02)	(0.01)	(0.01)
Business & administration associate professionals	0.585	0.561	0.531
	(0.01)	(0.00)	(0.01)
Legal, social & cultural associate professionals	0.513	0.474	0.468
	(0.02)	(0.01)	(0.01)
General & keyboard clerks	0.559	0.558	0.553
	(0.01)	(0.00)	(0.00)
Customer services clerks	0.399	0.391	0.404
	(0.01)	(0.01)	(0.01)
Personal service workers	0.414	0.409	0.380
	(0.01)	(0.00)	(0.00)
Sales workers	0.258	0.290	0.307
	(0.01)	(0.01)	(0.01)
Skilled agricultural workers	0.114	0.187	0.209
	(0.01)	(0.02)	(0.02)
Skilled forestry, fishery & hunting workers	0.005	0.000	0.042
	(0.00)	-	(0.02)
Building & related trades workers	0.398	0.343	0.308
	(0.01)	(0.01)	(0.01)
Metal, machinery & related trades workers	0.456	0.470	0.464
	(0.02)	(0.01)	(0.01)
Handicraft & printing workers	0.284	0.295	0.281
	(0.04)	(0.02)	(0.02)
Electrical & electronic trades workers	0.298	0.353	0.365
	(0.02)	(0.01)	(0.01)
Stationary plant & machine operators	0.649	0.686	0.675
	(0.02)	(0.01)	(0.01)
Assemblers	0.538	0.601	0.575
	(0.01)	(0.01)	(0.01)
Drivers & mobile plant operators	0.411	0.387	0.397
	(0.01)	(0.01)	(0.01)
Cleaners	0.143	0.194	0.178
	(0.00)	(0.00)	(0.00)
Agriculture, forestry & fishery workers	0.148	0.164	0.180
	(0.00)	(0.00)	(0.00)
Mining, construction, manufacturing & transport workers	0.409	0.380	0.382
	(0.01)	(0.00)	(0.00)

Source: LFS 2001/2, LMD 2011, and LMD 2018. Note: Standard errors in parentheses. 2001: All differences significant at p<0.001, except Skilled forestry, fishery & hunting – 98.42% of workers scored 0. 2011: All differences significant at p<0.001. 2018: All differences significant at p<0.1. Data are weighted. Significance levels included are comparisons of categories within each survey year.

3.3.3 Composite DWI by occupation group

Table 3.9 shows the weighted composite DWI for each occupation group over the three survey periods. The table shows that four out of the seven female-dominated occupation groups increased its DWI over the entire period (2001-2018), while the rest had an overall decrease. Health and teaching professionals are the only two female-

dominated occupation groups which had consistent increases in DWI scores, first from 2001 to 2011 and then from 2011 to 2018.

Health associate professionals is the only female-dominated occupation group which had consistently decreased between the survey periods. For all three survey periods, over 90% of these workers were concentrated in the community services sector. However, this was also the case for health and teaching professionals. Thus, a decline in DWI for health associate professionals is likely attributable to alternative factors such as the nature of the work being performed in these occupation groups being affected by technological developments or other factors.

General and keyboard clerks had an initial increase and subsequent decrease in their scores. About a third of general and keyboard clerks were employed in the community services sector in 2001 and this share had increased to close to 40% in 2018. The use of technology likely also affected the work of general keyboard clerks which included general office clerks, secretaries, and keyboard operators (Stats SA, 2012). Similar patterns were notable for business and administrative associate professionals, customer service clerks, and cleaners.

In general, most (15 out of 27) occupation groups experienced an overall increase over the survey periods (2001-2018), and the rest an overall decrease. Between these periods, there were also mixed results. These data indicate that macroeconomic shocks and changes within the labour market do not affect all workers in the same way. However, it is clear that the best and the worst occupation groups are not necessarily situated at the extreme top and bottom of the occupational classification. The worst performing occupation group was expectedly skilled forestry, fishery and hunting workers for all three survey periods, while science and engineering professionals were the best for 2001 and 2011, and health professionals for 2018.

Table 3.9: Composite DWI by occupation group, 2001 – 2018

	2001	2011	2018
Chief executives, senior officials & legislators	0.749	0.838	0.783
	(0.04)	(0.01)	(0.01)
Administrative & commercial managers	0.799	0.792	0.816
	(0.01)	(0.00)	(0.00)
Production & specialised services managers	0.709	0.643	0.588
	(0.01)	(0.01)	(0.02)
Science & engineering professionals	0.854	0.847	0.847

	(0.01)	(0.00)	(0.01)
Health professionals	0.789	0.835	0.883
	(0.01)	(0.00)	(0.01)
Teaching professionals	0.799	0.802	0.863
	(0.01)	(0.01)	(0.00)
Business & administration professionals	0.803	0.773	0.802
	(0.01)	(0.00)	(0.00)
Science & engineering associate professionals	0.740	0.756	0.775
	(0.01)	(0.00)	(0.00)
Health associate professionals	0.794	0.787	0.767
	(0.01)	(0.00)	(0.00)
Business & administration associate professionals	0.765	0.768	0.719
	(0.00)	(0.00)	(0.00)
Legal, social & cultural associate professionals	0.723	0.723	0.675
	(0.01)	(0.00)	(0.00)
General & keyboard clerks	0.742	0.755	0.723
	(0.00)	(0.00)	(0.00)
Customer services clerks	0.603	0.618	0.612
	(0.01)	(0.00)	(0.00)
Personal service workers	0.570	0.562	0.546
	(0.01)	(0.00)	(0.00)
Sales workers	0.481	0.524	0.535
	(0.01)	(0.00)	(0.00)
Skilled agricultural workers	0.269	0.390	0.410
	(0.01)	(0.01)	(0.01)
Skilled forestry, fishery & hunting workers	0.184	0.111	0.206
	(0.01)	(0.01)	(0.02)
Building & related trades workers	0.513	0.547	0.507
	(0.01)	(0.00)	(0.00)
Metal, machinery & related trades workers	0.602	0.647	0.652
	(0.01)	(0.00)	(0.00)
Handicraft & printing workers	0.468	0.537	0.433
	(0.02)	(0.01)	(0.01)
Electrical & electronic trades workers	0.526	0.543	0.564
	(0.01)	(0.01)	(0.01)
Stationary plant & machine operators	0.710	0.726	0.720
	(0.01)	(0.01)	(0.01)
Assemblers	0.617	0.660	0.653
	(0.01)	(0.00)	(0.00)
Drivers & mobile plant operators	0.584	0.541	0.525
	(0.01)	(0.00)	(0.00)
Cleaners	0.265	0.311	0.303
	(0.00)	(0.00)	(0.00)
Agriculture, forestry & fishery workers	0.361	0.329	0.384
	(0.00)	(0.00)	(0.00)
Mining, construction, manufacturing & transport workers	0.545	0.525	0.515
	(0.01)	(0.00)	(0.00)
N	*25367*	*194203*	152939

Source: LFS 2001/2, LMD 2011, and LMD 2018. Note: Standard errors in parentheses. All differences significant at p<0.001. Data are weighted. Significance levels included are comparisons of categories within each survey year.

As per the data in Table 3.9, Table 3.10 shows that similar patterns were notable when disaggregating the data by gender. Health professionals, teaching professionals, customer service clerks, and cleaners all saw an increase in their overall DWI (2001-2018). This was true for both men and women.

On the other hand, health associate professionals and business and administrative associate professionals, and general keyboard clerks all experienced a decline. For health associate professionals, the DWI for women was higher than men's over all

three survey periods, but the DWI for both men and women had declined. Both male and female health associate professionals were employed predominantly in the community services sector.

Both male and female business and administrative associate professionals were highly concentrated within the community services sector, with close to 100% of female business and administrative associate professionals working in the community services sector by 2018. Furthermore, although women had a higher DWI than men in this occupation group in 2001, men's DWI was greater in 2011 and 2018.

For general and keyboard clerks, both male and female workers had gradually increased their shares in the community services sector over the three survey periods. By 2018, 40.7% of female general keyboard clerks were working in community services compared to 38% of males. This move into the community services sector was accompanied by an overall decline in DWI scores.

For both men and women, skilled forestry, fishery and hunting workers scored the worst across the survey periods, while the occupation groups with the highest scores varied between science and engineering professionals, chief executives, senior officials and legislators, and health professionals.

Table 3.10: Composite DWI by occupation group and gender, 2001 – 2018

	2001		2011		2018	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**
Chief executives, senior officials & legislators	0.707	0.787	0.845	0.818	0.797	0.758
	(0.04)	(0.06)	(0.01)	(0.02)	(0.01)	(0.02)
Administrative & commercial managers	0.796	0.806	0.792	0.790	0.813	0.823
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Production & specialised services managers	0.702	0.729	0.644	0.642	0.585	0.594
	(0.01)	(0.03)	(0.01)	(0.02)	(0.02)	(0.04)
Science & engineering professionals	0.858	0.836	0.844	0.857	0.849	0.839
	(0.01)	(0.03)	(0.00)	(0.01)	(0.01)	(0.01)
Health professionals	0.751	0.808	0.828	0.838	0.872	0.887
	(0.02)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)
Teaching professionals	0.796	0.801	0.809	0.797	0.864	0.862
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
Business & administration professionals	0.801	0.806	0.764	0.781	0.795	0.808
	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)
Science & engineering associate professionals	0.741	0.735	0.755	0.759	0.774	0.779
	(0.01)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)
Health associate professionals	0.778	0.796	0.746	0.793	0.751	0.771
	(0.02)	(0.01)	(0.01)	(0.00)	(0.01)	(0.00)
Business & administration associate professionals	0.763	0.767	0.790	0.758	0.749	0.708
	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)
Legal, social & cultural associate professionals	0.723	0.724	0.720	0.725	0.672	0.678

	(0.01)	(0.02)	(0.00)	(0.00)	(0.01)	(0.01)
General & keyboard clerks	0.750	0.737	0.762	0.751	0.728	0.721
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Customer services clerks	0.599	0.604	0.630	0.614	0.615	0.612
	(0.02)	(0.01)	(0.01)	(0.00)	(0.01)	(0.00)
Personal service workers	0.588	0.538	0.593	0.519	0.572	0.522
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Sales workers	0.503	0.460	0.533	0.511	0.528	0.546
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Skilled agricultural workers	0.268	0.280	0.411	0.347	0.422	0.378
	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)
Skilled forestry, fishery & hunting workers	0.176	0.195	0.111	0.111	0.179	0.292
	(0.01)	(0.01)	(0.02)	(0.03)	(0.02)	(0.05)
Building & related trades workers	0.517	0.437	0.544	0.617	0.503	0.581
	(0.01)	(0.03)	(0.00)	(0.02)	(0.00)	(0.02)
Metal, machinery & related trades workers	0.603	0.580	0.646	0.671	0.647	0.738
	(0.01)	(0.04)	(0.00)	(0.01)	(0.00)	(0.01)
Handicraft & printing workers	0.453	0.503	0.527	0.577	0.404	0.546
	(0.03)	(0.04)	(0.02)	(0.02)	(0.01)	(0.02)
Electrical & electronic trades workers	0.530	0.522	0.546	0.541	0.543	0.587
	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Stationary plant & machine operators	0.713	0.629	0.729	0.700	0.725	0.690
	(0.01)	(0.06)	(0.01)	(0.02)	(0.01)	(0.02)
Assemblers	0.623	0.609	0.676	0.630	0.659	0.643
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)
Drivers & mobile plant operators	0.584	0.583	0.537	0.668	0.521	0.639
	(0.01)	(0.04)	(0.00)	(0.01)	(0.00)	(0.02)
Cleaners	0.353	0.244	0.389	0.289	0.380	0.284
	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Agriculture, forestry & fishery workers	0.357	0.368	0.314	0.373	0.363	0.434
	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Mining, construction, manufacturing & transport workers	0.550	0.530	0.525	0.524	0.520	0.502
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
N	49715	42967	269222	247025	215279	201716

Source: LFS 2001/2, LMD 2011, and LMD 2018. Note: Standard errors in parentheses. All differences significant at p<0.001. Data are weighted. Significance levels included are comparisons of categories within each survey year.

Conclusions

This chapter started with an overview of the economic and social context in which decent work takes place in the South African labour market – the ILO's first decent work indicator. Results for the composite DWI and its constitutive indicators by occupation group were then presented.

The results showed that South Africa has a statutory framework which is generally favourable to the rights of workers and with the intervention of unions, this has improved over the years. However, in the context of high unemployment, and sluggish economic growth, the legal framework has not yielded its full potential. Furthermore, while not all ILO conventions relevant to South Africa's labour market have been ratified, there are laws within the domestic statutory framework which protect the rights of workers.

Overall, the composite index and its constituent indicators showed that between 2001 and 2018, the quality of work had improved for some workers and declined for others within the South African labour market. Even where increases were evident, they have not resulted from a linear progression over the three survey periods observed. Furthermore, various occupation groups, mostly towards the top of the occupational distribution, have the best decent work scores over the survey periods, although skilled forestry, fishery and hunting workers consistently stood out as the worst performing occupation group. These results were accompanied by a sharp decline in the agriculture sector's share in total employment since 2000.

This chapter also focused on female-dominated occupation groups, many of which were concentrated in the community services sector, a sector in which the share of employment had grown over time, but in which average wage growth and value-added to GDP has remained stagnant over the period under consideration.

In the next chapter, the composite index will be studied using various socio-demographic characteristics of workers within the South African labour market. The correlates of the female share in an occupation group will also be presented to provide a more nuanced view of its relationship to the composite DWI, in addition to the correlates of the composite index.

CHAPTER 4: ANALYSING THE CORRELATES OF DECENT WORK

"A cosmetic came out that was supposed to smooth out the wrinkles for five or six hours…The wrinkles would return. We criticized it. But a woman came in one morning, she said, 'I'm going for a job interview and I'm past forty. I want to look nicer.' I felt differently about selling it to her. It might bring her a job"

Jean Stanley, Cosmetics Saleswoman (Turkel, 1974)

Introduction

Quality of work has been a pervasive concept in the literature, studied differently across disciplines (Findlay et al., 2013; Gallie, 2013; Huneeus et al., 2015). In the South African context, however, studies on labour force participation and employment probabilities have often taken precedence over the quality of work debate, given the exceptionally high unemployment rates in the labour market, but also as a result of a lack of data. Where quality of work has been studied, at least in the economics literature, there has been a focus on wage rates as an indicator for how good or bad a particular job is (Rogan & Reynolds, 2015). With the exception of Yu (2020), who took a broader view of the quality of work, the debate has not moved much beyond this.

An important consideration in this chapter is the expectation of the 'types' of people who would be included in the sample. These include employed people, thus a group of people who are relatively privileged in the labour market, given the country's high unemployment rate. However, quality of work is also likely to have a bearing on the reservation wages of individuals – that is, the lowest wage at which an individual is willing to enter the labour market (Ntuli, 2007). Many who do not have good employment prospects (often women, the youth, people living in rural areas) might decide not to enter the workforce based on what their expectations are of the types of jobs they might qualify for, the perceived chances of securing such employment, but also the costs associated with undertaking a job search. Thus, it is possible that those who are employed would have been eligible for relatively good jobs (or perceived themselves as such) – this is assuming that their need to work does not outweigh the freedom to decide whether to work or not. However, the *need* to work possibly trumps

the privilege of deciding whether someone *wants* to work or not, given the lack of protection for the working-age in South Africa's social security framework and the high incidence of working poor individuals (Rogan & Reynolds, 2015; Vermaak, 2012; Wicks-Lim, 2012).

Using the composite DWI reviewed in the last chapter, this chapter presents results pertaining to the correlates of the composite DWI. Descriptive statistics as well as regression analyses with the DWI as the dependent variable were used. The discussion starts with the various socio-demographic characteristics and then presents the results for the fractional probit regressions. In addition, the share of females within an occupation is included as an additional variable in the set of regressions. The chapter concludes with a discussion of the findings and the occupation group rankings for each year. This ranking is then used in the subsequent chapters as a proxy for quality of work.

4.1 Decent work index by socio-demographic characteristics

This section presents the mean DWI for individuals by the various socio-demographic characteristics which have traditionally displayed gender differences and were available in the LFS questionnaire. These include gender, race, marital status, education level, age, and the geographical location of the respondent. In this chapter, heavy reliance is placed on the South African literature on labour force participation and employment probabilities as the socio-demographic variables studied in this chapter have also been found to be significant correlates of labour force participation and employment probabilities, in addition to displaying gender differences in some instances. This literature will be referred to in turn as the results for each characteristic are discussed.

4.1.1 DWI by gender

Many studies have looked at the changes in women's labour force participation and employment probabilities in the South African labour market (Casale, 2003; Dinkelman & Pirouz, 2011; Mosomi, 2019; Ntuli, 2007; Ranchhod & Dinkelman, 2008). These studies have shown a steady increase in the participation of women in the post-

apartheid labour market. Some of the reasons for this move include the fact that a decreased proportion of women has access to a male breadwinner; fertility rates have fallen; and women have acquired higher levels of education, thus improving their potential labour market prospects. Some commentators have also flagged the improvement in data collection which has better enumerated the activities of women. Branson and Wittenberg (2007) state, for instance, that greater efforts were made to find workers in the informal sector in the 2000 LFS and this could be a possible explanation for greater participation numbers of female workers. However, this increase was largely met with employment in low-wage and precarious jobs for women (Casale, 2004). Despite this reported increase in the various studies, the official labour force participation rates of women did not increase much between 2000 and 2018 (see Figure 3-12). There is thus no prior evidence suggesting that women's increased labour force participation would have resulted in their absorption into good quality jobs.

Table 4.1 depicts the average composite DWI for males and females. The table shows that between 2001 and 2011 the DWI increased and then decreased to 2018. For both sexes (2001 – 2018), the DWI increased, except for males whose score remained constant over the longer time period. The difference between the sexes also show that men always had higher DWI scores compared to women and that the differences between males and females narrowed between 2001 and 2011, but increased again in 2018.

Although the results in Table 4.1 confirm that men are better off in the labour market compared to women, it also suggests that during tough economic times these differences tend to widen. However, analyses over a longer period would more reliably confirm this finding.

Table 4.1: DWI by gender, 2001 – 2018

	2001	**2011**	**2018**
Male	0.57	0.59	0.57
	(0.00)	(0.00)	(0.00)
Female	0.51	0.56	0.53
	(0.00)	(0.00)	(0.00)
N	25367	194203	152939

Source: LFS, 2001/2, LMD 2011, and LMD 2018. Note: Standard errors in parentheses. All differences significant at p<0.001. Data are weighted. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

As per the findings of the previous chapter, the difference between the two periods is that between 2001 and 2011, the country experienced generally high economic growth rates and an increase in both the average wages and productivity in most sectors. This is in contrast to the 2011 to 2018 period which was characterised by economic shocks, large decreases or stagnant growth in wage rates for some occupation groups, and an increase in the incidence of unemployment. These macroeconomic shocks are evident in the difference in DWI between the two periods (2001 to 2011 and 2011 to 2018) presented in this chapter.

4.1.2 DWI by race

South Africa's past, characterised by institutionalised racial discrimination, has rendered race an important variable in studies on inequality and labour market outcomes. In the 1990s and 2000s many studies focused on discrimination based on race and how these patterns may have changed with the introduction of government policies aimed at redressing structural inequalities in the labour market and also in society at large (Bhorat, 2004; Bhorat & Oosthuizen, 2005; Brookes & Hinks, 2004; Crankshaw, 1997; Gaitskell et al., 1983; Kenny, 2016; De la Rey, 1997; Makiwane, Ndinda, & Botsis, 2012; Nattrass & Seekings, 2001; Seekings, 2008; Visagie, 2013).

However, tracking progress prior to 1994 has been challenging, given the inequality in data collection methods employed by the pre-democracy administration (Casale, 2003; Pillay, 1985). These authors have shown that previous policies certainly were successful in creating racial differences between the White population and the rest of the country. Furthermore, although the vigour with which race-based studies have been undertaken in the South African labour market has slowed down to an extent in recent years, many of these racial disparities persist.

The DWI disaggregated by race shows that for all race groups, the DWI increased between 2001 and 2011 (Table 4.2). Overall the DWI also increased for all groups between 2001 and 2018. Between 2011 and 2018 the DWI decreased with the exception of the pooled DWI for Africans and Whites, which remained constant and the DWI for African females which increased.

African and Coloured males consistently had a higher DWI than women over all three survey periods, while White women had a higher DWI compared to their male counterparts in 2001 and Indian women had a higher DWI than their male counterparts in 2011 and 2018. In addition, Whites consistently had the highest DWIs out of all the race groups, while African individuals had the lowest – although White and Indian women had the same score in 2011. The difference between the highest and lowest scoring groups (Africans and Whites) remained roughly the same for all survey periods, although the difference between White and African women did decrease over time.

The greatest gender differences were between African males and females over all three survey periods. This difference was then followed by Coloured males and females in 2001 and Indian males and females in 2011 and 2018. Although African women remained the worst scoring group over all three survey periods, the fact that they are the only group which experienced a consistent increase in DWI scores suggests that perhaps employment equity targeting (and accompanying factors such as increased educational attainment) could be working in their favour. Furthermore, the fact that White and Indian females surpass their male counterparts in some years, shows that greater equity is evident amongst these groups, and that more work is needed to ensure greater equality between African and Coloured men and women.

Table 4.2: DWI by race, 2001 – 2018

	2001			2011			2018		
	All	**Male**	**Female**	**All**	**Male**	**Female**	**All**	**Male**	**Female**
African	0.49	0.53	0.44	0.53	0.56	0.50	0.53	0.55	0.51
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Coloured	0.55	0.57	0.53	0.61	0.62	0.61	0.57	0.58	0.56
	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Indian	0.67	0.67	0.66	0.71	0.69	0.74	0.69	0.68	0.71
	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
White	0.71	0.71	0.72	0.74	0.75	0.74	0.74	0.74	0.73
	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
N	25343	49706	42952	194203	269222	247025	152939	215279	201716

Source: LFS, 2001/2, LMD 2011, and LMD 2018. Note: Standard errors in parentheses. Differences between race groups significant at p<0.001. Data are weighted. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

4.1.3 DWI by marital status

Marital status is one of the most important variables when looking at gender differences in labour market outcomes. Studies have found that married men tend to have higher labour force participation rates and employment probabilities compared to their female counterparts (Bhalotra & Umaña-Aponte, 2010; Chun & Oh, 2016; Goldin, 1994; Gupta et al., 2006; Mackett, 2016; Rankin & Roberts, 2010; Salt, 2016; Serumaga-Zake & Kotze, 2004). It has also been found that married men tend to have more favourable labour market outcomes compared to their counterparts who are not married, while the opposite is true for women (Casale & Posel, 2010a).

Table 4.3 shows the DWI by marital status across the survey periods. The table shows that for all groups the DWI increased overall (2001-2018) with the exception of males who were not married, whose scores remained constant. However, broken down by two periods, the data show that the DWI increased between 2001 and 2011 and then decreased between 2011 and 2018. However, the increase between 2001 and 2011 was greater than the decrease between 2011 and 2018. These initial increases were also greater for married individuals between 2001 and 2011 as was the decrease between 2011 and 2018. In addition, women made greater gains in the DWI between 2001 and 2011 compared to men, while the loss between 2011 and 2018 was greater for married women compared to married men. These results suggest that when labour market gains are forthcoming, women seem to benefit more from these than men, although during times of economic distress, married women become particularly disadvantaged in relation to their quality of work.

Gender differences show that men had a greater DWI compared to women whether they were married or not, although this was not the case for men and women who were not married in the 2018 sample where scores were more equal. Where differences did exist, this difference initially narrowed between married males and females and then increased again in 2018. For individuals who were not married, on the other hand, the differences gradually narrowed over time to becoming non-existent in 2018. Individuals who were not married would be a more heterogeneous group than married individuals and various factors could be at play when studying their quality of work.

Despite increased gender parity in terms of quality of work amongst individuals who were not married, they still had a lower DWI than married individuals. This was true for males, females, and the pooled results for all survey periods. The differences were greatest amongst males compared to females, confirming the positive labour market outcomes of married men who may be perceived as more reliable and trustworthy than their counterparts who were not married.

It is also interesting that married women have a higher DWI compared to women who were not married. However, those married women who are employed are likely to have higher reservation wages (Herrmann & Machado, 2012; Rankin & Roberts, 2010; Serumaga-Zake & Kotze, 2004) and enter the labour market only once they are guaranteed a job which is of decent quality. These results could also suggest that marriage may be a barrier to women's labour force participation and employment probabilities, but that this may not be the case for their quality of work.

Table 4.3: DWI by marital status, 2001 – 2018

	2001			2011			2018		
	All	**Male**	**Female**	**All**	**Male**	**Female**	**All**	**Male**	**Female**
Not married	0.49	0.51	0.47	0.52	0.53	0.52	0.51	0.51	0.51
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Married	0.59	0.60	0.55	0.63	0.64	0.60	0.60	0.62	0.57
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
N	25365	49714	42966	194203	269222	247025	152939	215279	201716

Source: LFS, 2001/2, LMD 2011, and LMD 2018. Note: Standard errors in parentheses. All differences significant at p<0.001. Data are weighted. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

4.1.4 DWI by education level

The education level of an individual has been identified as one of the most important indicators of employment probability, and this is even more so for women (Ntuli & Wittenberg, 2013). Education would not only increase the labour force participation of individuals who would have higher reservation wages, and expect greater returns from the labour market, but would also increase the employment probabilities of prospective workers (Naude & Serumaga-Zake, 2001). This has certainly been found to be the case, specifically for women who have education beyond the secondary level (Ntuli, 2007).

Table 4.4 shows the average DWI scores by education level, disaggregated by gender. The only DWI which increased over the 2001 to 2018 period was those of females with no schooling or an incomplete primary schooling, as well as males with a diploma or degree. All other groups by education level saw a decrease in their DWI with the exception of the pooled and female DWI with diplomas or a degree. For these groups, the DWI remained constant between 2001 and 2018.

Those with diplomas or degrees did have an increase in their average DWI between 2001 and 2011. This was true for the female DWI, the male DWI as well as the pooled DWI. Furthermore, over the same period, the only females who had a decline in their average DWI were females with completed secondary schooling.

By education level, small gains were evident between 2001 and 2011, and larger losses were evident between 2011 and 2018. However, changes amongst those with diplomas or degrees were minimal, illustrating that the quality of work amongst highly educated individuals is not as sensitive to macroeconomic and other labour market related shocks compared to individuals with lower levels of education.

For all the survey periods, the DWI increased the higher the level of education for both males and females. The differences between individuals with degrees or diplomas and those at other education levels increased over each survey period with the exception of females with no schooling or primary schooling. For them the differences decreased. Also notable about the DWI for women is that the differences between individuals of different education levels are greater than those of men, confirming the results of previous studies which have indicated that an increase in the education levels of women results in far greater changes in their labour market outcomes than for men (Dinkelman & Pirouz, 2011; Mackett, 2016; Ntuli, 2007).

In addition, the gender differences between men and women were greater the lower the level of education. These differences also narrowed over time, with the exception of those with incomplete primary schooling where the difference was greatest in 2011. This shows that education serves to narrow labour market inequalities between men and women, but also that policies aimed at reducing gender inequalities in the labour market had been beneficial to those with lower levels of education over time. These

results indicate that education is still an important differentiator between workers in the labour market.

Table 4.4: DWI by education level, 2001 – 2018

	2001			2011			2018		
	All	**Male**	**Female**	**All**	**Male**	**Female**	**All**	**Male**	**Female**
No schooling	0.38	0.44	0.28	0.38	0.44	0.32	0.37	0.43	0.32
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Incomplete primary	0.42	0.48	0.31	0.41	0.46	0.33	0.39	0.44	0.33
	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Incomplete secondary	0.49	0.53	0.42	0.48	0.52	0.43	0.45	0.48	0.40
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Complete secondary	0.63	0.64	0.63	0.63	0.64	0.62	0.60	0.62	0.58
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Diploma/degree	0.76	0.75	0.76	0.77	0.77	0.77	0.76	0.77	0.76
	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
N	25142	49576	42881	193383	268773	246654	152559	215049	201566

Source: LFS, 2001/2, LMD 2011, and LMD 2018. Note: Standard errors in parentheses. All differences significant at p<0.001. Data are weighted. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

4.1.5 DWI by age bracket

Youth unemployment is a persistent problem in South Africa (Branson & Wittenberg, 2007; DIAL, 2007; Lam et al., 2008; Mlatsheni & Rospabé, 2002; Ranchhod, 2010; Yu, 2012). Altman (2007) has noted that this group has poor job search capabilities, limited networks to draw on, and a lack of resources to look for jobs. They may also have higher reservation wages, given their lack of experience in the labour market. On the other hand, older workers, primarily women, also have their own set of challenges (Ahmed, Andersson, & Hammarstedt, 2012; Duncan & Loretto, 2004; Glover & Branine, 1997).

Like gender and race, age has also been viewed as a way of categorising workers socially. This is evident in the studies which have shown that discrimination based on age is also prevalent. In the Swedish labour market, evidence of discrimination on the basis of age has been found (Ahmad et al., 2003) and Ainsworth (2002) further argued that the intersection of age and gender is important. Furthermore, she also noted that the instances in which older males were also marginalised the struggles of older female workers were rendered invisible.

Age has been an important factor impacting women's labour force participation, given the tendency for older women to be discriminated against, but also considering the reproductive responsibilities of younger women. In addition to the burden related to bearing a child, there is also the responsibility of raising children. Authors have found that for black women specifically, labour force participation reaches its lowest at the age of 30 and then increases again, as a result of "child-raising pressures (at younger ages) and retirement (after sixty)" (Branson & Wittenberg, 2007, p. 317). At this age, women are likely to have higher levels of experience, although still lower than men who generally do not experience work stoppages in their 20s. Women who re-enter the labour force after childbearing are thus likely to do so at a lower level compared to their male counterparts, but also to be moving towards the age where they could possibly be discriminated against on the basis of 'old' age.

Table 4.5 shows the average DWI by age group for 2001, 2011, and 2018. The data show that between 2001 and 2018 the DWI for 15 to 24-year-old males and 25 to 34-year-old females remained constant. The pooled and male DWI for those aged 25 to 34-years-old declined as well as the pooled and male DWI for those aged 35 to 44-years-old. All the other groups saw an increase between 2001 and 2018.

Between 2001 and 2011, with the exception of the pooled and male DWI for 25 to 34-year-olds and the male DWI for 35 to 44-year olds, which remained constant, all groups saw an increase in their DWI. Between 2011 and 2018, however, the DWI for all groups decreased. The table shows that the gains made between 2001 and 2018 were greater than the losses between 2011 and 2018, thus an overall increase for the majority of the groups. Also notable is that the changes in DWI over the 2001 and 2011 period were greater the higher the age group and lower towards the bottom age brackets. For 2011 to 2018, the change was almost the same for all groups, suggesting a more systemic loss for workers in the labour market.

Individuals aged 15 to 24-years old consistently had the lowest DWI scores for all the years, while 55 to 64-year-olds had the highest for 2011 and 2018. Females between the ages of 34 to 44-years-old in 2011 and 25 to 34-years-old and 35 to 44-years-old in 2018 had the same score as their 55 to 64-year-old counterparts in 2011 and 2018.

For female workers, an increase in DWI scores between 2001 and 2011 was apparent for all the age groups. The same pattern was not visible for men: there was no increase for those in the 25 to 34-year-old age group and the 35 to 44-year-old age group between 2001 and 2011. On the other hand, decreases were evident between 2011 and 2018.

Lastly, for all categories, men had higher DWI scores compared to women, with the exception of 15 to 24-year-olds in 2011 and 2018 and 25 to 34-year-old individuals in 2018. In 2011 and 2018 women between the ages of 15 and 24 had a higher DWI on average compared to men in the same age bracket. This could suggest that discrimination has become less prevalent for young women (gender bias in the labour market is being eroded) or that those who did not expect high returns from the labour market could have self-selected to opt out. In other words, the sample of young women in employment could be a sample which differs fundamentally to those who are not economically active. This explanation is plausible given the high youth unemployment rate in South Africa. On the other hand, this could also reflect the "motherhood penalty" which is likely to be more prevalent amongst older women who would have experienced greater labour market discontinuity, compared to younger women.

Table 4.5: DWI by age bracket, 2001 – 2018

	2001			2011			2018		
	All	**Male**	**Female**	**All**	**Male**	**Female**	**All**	**Male**	**Female**
15 to 24	0.46	0.46	0.46	0.49	0.48	0.52	0.48	0.46	0.50
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
25 to 34	0.56	0.57	0.54	0.56	0.57	0.56	0.54	0.54	0.54
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
35 to 44	0.57	0.61	0.52	0.59	0.61	0.57	0.56	0.58	0.54
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
45 to 54	0.55	0.59	0.49	0.61	0.65	0.56	0.57	0.62	0.52
	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
55 to 64	0.52	0.56	0.46	0.62	0.66	0.57	0.58	0.63	0.54
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)
N	25367	49715	42967	194203	269222	247025	152939	215279	201716

Source: LFS, 2001/2, LMD 2011, and LMD 2018. Note: Standard errors in parentheses. All differences significant at p<0.001. Data are weighted. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

4.1.6 DWI by geographical location

The urban/rural divide in South Africa is, to a large extent, a consequence of apartheid spatial planning. In previous studies, individuals living in urban areas were found to

have better labour market prospects (DIAL, 2007; Ntuli, 2007; Turok, 2012). Two possible reasons for this include the fact that rural dwellers possibly move to urban areas when they have already secured a working opportunity there or that they migrate in search of better opportunities; this could increase their employment probabilities but also lead to higher unemployment figures in urban areas, particularly during periods of sluggish employment growth. In addition, there is also the possibility that those who live in urban areas would have greater access to services or better quality in those services. These could include services which free up time and resources to undertake a job search (water, electricity, transport infrastructure) or services which enhance qualities valued by the labour market, such as education. It is thus expected that urban dwellers would have better quality jobs compared to their rural counterparts.

Table 4.6 shows the average DWI by geographical location. The table shows that for rural inhabitants the DWI increased between 2001 and 2018, while urban dwellers experienced a decrease. Over the entire period, decent work conditions had thus increased for rural inhabitants while the same had not been true for urban dwellers. Over the shorter time periods, the data show that all groups experienced an increase in average scores between 2001 and 2011, except rural males whose scores remained constant. Between 2011 and 2018, rural dwellers experienced an additional increase, while all urban groups decreased in their average DWI.

The government has taken a proactive approach to rural development, as alleviating poverty and hardship in rural areas is key to addressing poverty at the national level (Carter & May, 1999). Over the last few years, the government has implemented numerous programmes to stimulate rural development. These include, amongst others, the Agriparks Initiative, the ‘One Household, One Hectare’ Initiative, the Recapitalisation and Development programme, and the National Youth Services Corps. The objectives of these projects ranged from job creation to providing markets for agricultural produce (National Treasury, 2017, 2020). To run these projects, the government also allocated a substantial amount of money to the Department of Agriculture, Land Reform and Rural Development, the Small Enterprises Development Agency, the Cooperatives Incentive Schemes, and the National Informal Business Upliftment Scheme (National Treasury, 2020).

Despite the decrease for individuals who lived in urban areas over the two periods, the DWI scores for individuals in urban areas remained consistently higher than those of individuals in rural areas. However, these differences decreased with time. The differences between urban and rural females were also greater than the differences between urban and rural males. This suggests that geographical location played an important role for men and women in terms of quality of work, although this was more important for women than it was for men.

Gender differences between men and women were greater in rural areas than they were in urban areas. Although the rural differences narrowed with time, the differences between men and women in urban areas remained constant between 2011 and 2018. The narrowing of gender differences in rural areas could in part be due to increases in the sectoral wages which had increased gradually in the latter period under study (Castel-Branco, 2016; Department of Labour, 2014, 2018a). This indicates that there are greater inequalities in work outcomes for men and women in rural areas than there are in urban areas.

Access to productive land is pivotal to maintaining livelihoods in rural areas and gender discrimination in land rights is commonplace in Southern Africa. Mutangadura (2004, p. 6) had noted that "even though the constitution of South Africa is non-discriminatory, women are discriminated against within all tenure systems" via traditional gender roles which are entrenched even where rights are protected legally. This is likely one of the factors which has sustained gender differences in rural areas. However, despite this, the data show that economic development within rural areas is beneficial to employed rural women.

Table 4.6: DWI by geographical location, 2001 – 2018

	2001			2011			2018		
	All	**Male**	**Female**	**All**	**Male**	**Female**	**All**	**Male**	**Female**
Rural	0.46	0.50	0.39	0.47	0.50	0.45	0.50	0.51	0.47
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
Urban	0.58	0.60	0.56	0.60	0.62	0.59	0.56	0.57	0.54
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
N	25367	49715	42967	194203	269222	247025	152939	215279	201716

Source: LFS, 2001/2, LMD 2011, and LMD 2018. Note: Standard errors in parentheses. All differences significant at p<0.001. Data are weighted. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

4.2 Analysing the correlates of the decent work index

This section presents the regression analysis results, using the DWI as a dependent variable. To add to the explanatory insights gathered from the descriptive analyses, the descriptive variables were considered simultaneously in the regression analyses allowing for inferential deductions of the factors which correlate with the DWI. The first set of regressions include only socio-economic characteristics of individuals, pooled and disaggregated by gender. The second set controls for the female share in an occupation group as a variable of interest.

4.2.1 Analysing socio-economic characteristics as correlates of the decent work index

The correlates of the individual DWI are presented here and the pooled results are displayed in Table 4.7. The regression tables show the results for all the covariates included in the equations, although the analysis here will only focus on the variables which are of interest to the study, namely, gender, age, race, education, marital status, the location in which an individual lives, and the sector in which they work. The provincial dummies should simply be viewed as control variables.

The data show that being a woman resulted in a decreased DWI, and that this decrease became more prominent over time. In 2001 the gender variable was not significant, and in 2018, men were 0.06% more likely to have a higher DWI than women. This is consistent with the descriptive analysis which showed that the differences in DWI between men and women increased in 2018, after a decline from 2001 to 2011.

In addition, the regressions show that the older the worker was, the more likely they were to have a higher DWI. The effect of this variable decreased in 2011 (compared to 2001) and again in 2018, indicating that the effect of age on quality of work had reduced over the period under consideration. The correlates of race were significant for all race groups, although the strongest coefficients were in the 2001 regression. There, Coloureds were 5.1%, Indians, 6.9%, and Whites, 7.2% more likely than Africans to have a higher DWI. These coefficients decreased in the 2011 and 2018

regressions (with the exception of the Indian regression coefficients which remained constant for 2011 and 2018). These results confirm the findings of earlier literature (Mbewe & Woolard, 2016; Seekings, 2008; Yamazaki, 2012) which has shown a decline in between-race inequalities and the 2018 data suggest that perhaps this is a continuing trend. However, the results show that race remains an important factor for labour market success.

Living in an urban area significantly increased an individual's DWI compared to rural dwellers, although a decrease was evident for urban dwellers in 2018. The descriptive analysis showed that the differences in DWI between urban and rural dwellers in 2018 were lower compared to the differences in 2001 and 2011. The overall decline in the DWI of urban inhabitants would also suggest that living in a rural area increased the probability of obtaining a higher DWI, although on average, urban inhabitants still had better scores compared to their rural counterparts.

Being married also increased the likelihood of having a higher DWI compared to not being married over the three survey periods. Also, the larger the household size in which an individual lived, the lower their DWI tended to be. The literature reviewed earlier indicated that large household sizes are common amongst individuals who live with a large number of children or a large proportion of unemployed or elderly individuals (Keller, 2004). The burden of care which accompanies these individuals in a household is a negative predictor of quality of work.

The education variables showed that the higher the level of education, the greater the chances of having a high DWI. These were significant for all levels with the exception of individuals with incomplete primary schooling in 2011 and 2018. The effect of education also grew over time. Having a diploma or a degree meant an individual was 19.7% more likely to have a higher DWI in 2001. The respective figures for 2011 and 2018 were 21.5% and 27.1% more likely. This shows the growing importance of educational attainment to the quality of work.

Lastly, with the exception of working in a private household, individuals in all sectors of the economy were more likely to have a higher DWI compared to those employed in agriculture. Those employed in the mining sector had a greater likelihood of having

a higher DWI compared to agricultural workers, although the effect of this decreased from 25.7% in 2001 to 22.1% in 2018. Workers in agriculture were only better off than workers in private households who were 20.3%, 23.2%, and 24.5% in 2001, 2011, and 2018, respectively, more likely to have a lower DWI than agricultural workers. This is consistent with Yu's (2020) findings which showed that the lowest employment quality is found amongst workers in agriculture and private households.

Table 4.7: Correlates of DWI (marginal effects), 2001 – 2018

Fractional Probit Regression			
DWI	**2001**	**2011**	**2018**
Gender (Ref: Male)			
Female	-0.004	-0.005***	-0.006***
	(0.00)	(0.00)	(0.00)
Age	0.012***	0.008***	0.006***
	(0.00)	(0.00)	(0.00)
Age Squared	-0.000***	-0.000***	-0.000***
	(0.00)	(0.00)	(0.00)
Race (Ref: African)			
Coloured	0.051***	0.040***	0.033***
	(0.01)	(0.00)	(0.00)
Indian	0.069***	0.068***	0.068***
	(0.01)	(0.00)	(0.00)
White	0.072***	0.061***	0.056***
	(0.00)	(0.00)	(0.00)
Geographical Location (Ref: Rural)			
Urban	0.007*	0.034***	-0.039***
	(0.00)	(0.00)	(0.00)
Marital Status (Ref: Not married)			
Married	0.025***	0.026***	0.033***
	(0.00)	(0.00)	(0.00)
Household Size	-0.002**	-0.001***	-0.001***
	(0.00)	(0.00)	(0.00)
Education (Ref: No schooling)			
Incomplete Primary	0.012*	0.007	0.003
	(0.01)	(0.00)	(0.01)
Incomplete Secondary	0.037***	0.039***	0.049***
	(0.01)	(0.00)	(0.01)
Complete Secondary	0.115***	0.125***	0.143***
	(0.01)	(0.00)	(0.01)
Diploma/Degree	0.197***	0.215***	0.271***
	(0.01)	(0.00)	(0.01)
Province (Ref: Gauteng)			
Western Cape	0.007	0.002	0.008*
	(0.01)	(0.00)	(0.00)
Eastern Cape	-0.026***	-0.026***	-0.042***
	(0.01)	(0.00)	(0.00)
Northern Cape	-0.026***	-0.035***	-0.028***
	(0.01)	(0.00)	(0.00)
Free State	0.000	-0.027***	-0.012***
	(0.00)	(0.00)	(0.00)
KwaZulu-Natal	-0.012*	-0.013***	-0.018***
	(0.00)	(0.00)	(0.00)
North West	-0.013*	-0.002	-0.011***
	(0.01)	(0.00)	(0.00)
Mpumalanga	-0.004	-0.036***	-0.042***
	(0.01)	(0.00)	(0.00)
Limpopo	-0.048***	-0.035***	-0.048***
	(0.01)	(0.00)	(0.00)
Industry (Ref: Agriculture)			
Mining	0.257***	0.249***	0.221***

	(0.01)	(0.01)	(0.00)
Manufacturing	0.150***	0.129***	0.113***
	(0.01)	(0.00)	(0.00)
Utilities	0.182***	0.194***	0.177***
	(0.01)	(0.01)	(0.01)
Construction	0.022**	0.038***	0.013**
	(0.01)	(0.00)	(0.00)
Trade	0.060***	0.057***	0.052***
	(0.01)	(0.00)	(0.00)
Transport	0.122***	0.050***	0.024***
	(0.01)	(0.00)	(0.01)
Financial services	0.125***	0.093***	0.067***
	(0.01)	(0.00)	(0.00)
Community	0.164***	0.119***	0.069***
	(0.01)	(0.00)	(0.00)
Private Households	-0.203***	-0.232***	-0.245***
	(0.00)	(0.00)	(0.00)
N	19981	67595	50013

*Source: LFS, 2001/2, LMD 2011, and LMD 2018. Note: The data are weighted, standard errors in parentheses. *** p<0.01 ** p<0.05 * p<0.10. All regressions restricted to ages 15 to 64. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.*

Looking at the data disaggregated by gender shows, for both males and females over the three survey periods, that individuals were likely to have a higher DWI as age increased although the association of age decreased with time (Table 4.8). This could reflect the gains made by 15 to 24-year-olds over the survey periods.

The data also show that African individuals were significantly more likely than any other race group to have a lower DWI. For all three time periods, the gender differences were greater between Coloured and African females compared to Coloured and African males. The data show that in 2001 the greatest coefficient was for Indian males while that changed to White males in 2011 and 2018. For women, the greatest coefficients were for White females in 2001 and Indian females in 2011 and 2018. The data show shifting differences between the various groups over time, reflecting the importance of racial differences in the post-apartheid labour market. although the significant differences across the board confirms that African individuals are still worse off in terms of quality of work in South Africa.

Living in an urban area increased the likelihood of a having higher DWI and for women the effect grew from 1.4% in 2001 to 3.2% in 2011. However, this decreased the likelihood of having a higher DWI, as per the pooled regressions, in 2018. For men, this effect was only significant and positive in 2011, while it was significant and negative in 2018. This could be a reflection of the narrowing differences between rural and urban workers. However, the coefficients were stronger for men than they were

for women in both 2011 and 2018, possibly indicating the growing significance of location for men in determining the quality of work they have access to.

Being married increased the likelihood of having a higher DWI for both men and women, although this effect was greater for men. This is in line with the literature which shows that married men earn a wage premium in the labour market (Casale & Posel, 2010a). Interestingly this variable was also positive for women, although the associations were not as great as those for men. These correlates also increased over time for women. Previous literature has shown that being married decreases the employment and labour force participation probabilities of women (Dinkelman & Pirouz, 2011; Ntuli & Wittenberg, 2013; Ranchhod, 2010). However, the results here suggest that once in the labour market, women are able to obtain better quality work or alternatively that their reservation wages are higher and they are likely to apply for jobs which are of a better quality. Furthermore, the effect of household size was fairly weak, although significant for both men and women over the period, with the exception of women in 2001. The coefficients do suggest nonetheless that the greater someone's household size, the smaller their DWI.

In line with cited previous literature, the table shows that the higher the level of education, the greater women's labour market prospects become. The table shows that for individuals with completed secondary education or a degree or diploma, the correlates were greater for women compared to men; these correlates also increased over time. The data show that women with a diploma or a degree were respectively 21.2% in 2001, 22.8% in 2011, and 28.1% (2018) more likely to have a higher DWI compared to women with no schooling. These correlates were also significant for women with completed secondary schooling. Although these were also significant for men, the correlates were not as great as those for women (except completed secondary schooling in 2018 where the effect was greater for men). Greater correlates were evident for men who had incomplete secondary schooling or lower. This is in line with the previous literature (Anker, 1997, 1998; Gradín, 2016) and is likely due to the types of manual work which are available to men, or alternatively a higher benchmark is required for women to be eligible for labour market entry and employment.

Lastly, as per the pooled regressions, Table 4.8 shows that workers in all sectors were likely to have higher DWI scores compared to agricultural workers, except for those working in private households. This effect was evident for both men and women, with the negative effect for women in private households growing over time.

Table 4.8: Correlates of DWI (marginal effects), by gender, 2001 – 2018

Fractional Probit Regression						
DWI	**2001**		**2011**		**2018**	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**
Age	0.013***	0.013***	0.009***	0.008***	0.007***	0.005***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Age Squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Race (Ref: African)						
Coloured	0.049***	0.057***	0.034***	0.047***	0.033***	0.034***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Indian	0.070***	0.064***	0.051***	0.090***	0.064***	0.079***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
White	0.065***	0.082***	0.072***	0.050***	0.069***	0.048***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Geographical Location (Ref: Rural)						
Urban	0.004	0.014**	0.035***	0.032***	-0.043***	-0.034***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
Marital Status (Ref: Not married)						
Married	0.034***	0.010*	0.036***	0.013***	0.046***	0.017***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Household Size	-0.002*	-0.002	-0.000**	-0.001***	-0.000**	-0.001***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Education (Ref: No schooling)						
Incomplete Primary	0.014	0.009	0.015*	-0.003	0.007	-0.003
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Incomplete Secondary	0.039***	0.036***	0.045***	0.032***	0.055***	0.041***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Complete Secondary	0.110***	0.127***	0.124***	0.126***	0.143***	0.139***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Diploma/Degree	0.188***	0.212***	0.203***	0.228***	0.252***	0.281***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Province (Ref: Gauteng)						
Western Cape	0.015	-0.004	0.003	0.002	0.002	0.014**
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Eastern Cape	-0.024***	-0.027***	-0.028***	-0.023***	-0.048***	-0.037***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Northern Cape	-0.029***	-0.014	-0.027***	-0.044***	-0.020***	-0.035***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)
Free State	0.009	-0.010	-0.029***	-0.024***	-0.014***	-0.008
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
KwaZulu-Natal	-0.005	-0.019**	-0.006	-0.020***	-0.015***	-0.021***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
North West	-0.008	-0.018*	0.010*	-0.017***	-0.008	-0.014**
	(0.01)	(0.01)	(0.00)	(0.01)	(0.00)	(0.00)
Mpumalanga	0.007	-0.023**	-0.031***	-0.041***	-0.038***	-0.044***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Limpopo	-0.050***	-0.044***	-0.021***	-0.051***	-0.041***	-0.055***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Industry (Ref: Agriculture)						
Mining	0.260***	0.215***	0.241***	0.258***	0.225***	0.212***
	(0.01)	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)
Manufacturing	0.161***	0.132***	0.134***	0.118***	0.122***	0.100***
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)
Utilities	0.189***	0.167***	0.193***	0.196***	0.186***	0.173***
	(0.01)	(0.03)	(0.01)	(0.02)	(0.01)	(0.01)
Construction	0.026***	0.018	0.033***	0.068***	0.018***	0.020**

	(0.01)	(0.02)	(0.00)	(0.01)	(0.00)	(0.01)
Trade	0.076***	0.037***	0.059***	0.055***	0.057***	0.045***
	(0.01)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)
Transport	0.122***	0.138***	0.031***	0.127***	0.011	0.107***
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
Financial services	0.127***	0.117***	0.095***	0.092***	0.077***	0.054***
	(0.01)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)
Community	0.172***	0.148***	0.131***	0.111***	0.107***	0.040***
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.00)
Private Households	-0.196***	-0.209***	-0.240***	-0.225***	-0.219***	-0.258***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)
N	20829	20966	68016	67819	55267	56175

*Source: LFS, 2001/2, LMD 2011, and LMD 2018. Note: The data are weighted, standard errors in parentheses. *** p<0.01 ** p<0.05 * p<0.10. All regressions restricted to ages 15 to 64. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.*

4.2.2 Analysing the female share in an occupation as a determinant of the decent work index

Table 4.9 shows the regressions with an additional variable of interest, namely, the female share in the occupation group. This variable acts as a proxy for female participation in the occupation group. The share of women in an occupation group would be dependent on the barriers to entry in that occupation group, many of which tend to be socially enforced.

The regression analyses show that the higher the share of females within an occupation group, the lower the average DWI within that occupation group tended to be. However, this effect decreased from 7.2% in 2001 to 2.2% in 2011, and then increased again to 4.9% in 2018. These results indicate that the more women were employed in a particular occupation group, the lower the quality of work was within that occupation group. However, this could be the result of a number of factors such as women self-selecting to enter occupation groups they see as suitable for them or women not being able to enter occupation groups which are largely male dominated, both of which are socially constructed barriers to entry.

Controlling for this variable, however, rendered the female dummy insignificant for 2011 and 2018, indicating that women's lower labour market prospects are not only due to discrimination based on gender, but could also possibly be due to the structural nature of being employed in occupations which are female-dominated. Studies have found, for instance, that female domination in export industries has made them more competitive due to reduced wages paid to workers in those industries (Seguino, 2000,

2007). This data would suggest that a similar effect is present in the South African labour market.

Beyond this change, the signs of the other covariates remained the same over time as they were in the previous set of regressions, with slight changes in the effect sizes.

Table 4.9: Correlates of DWI including female share in occupation (marginal effects), 2001 – 2018

Fractional Probit Regression			
DWI	**2001**	**2011**	2018
Female share	-0.072***	-0.022***	-0.049***
	(0.01)	(0.00)	(0.00)
Gender (Ref: Male)			
Female	0.010**	-0.001	0.002
	(0.00)	(0.00)	(0.00)
Age	0.012***	0.008***	0.006***
	(0.00)	(0.00)	(0.00)
Age Squared	-0.000***	-0.000***	-0.000***
	(0.00)	(0.00)	(0.00)
Race (Ref: White)			
Coloured	0.051***	0.040***	0.033***
	(0.01)	(0.00)	(0.00)
Indian	0.070***	0.068***	0.069***
	(0.01)	(0.00)	(0.00)
White	0.069***	0.060***	0.055***
	(0.00)	(0.00)	(0.00)
Area (Ref: Rural)			
Urban	0.009**	0.034***	-0.039***
	(0.00)	(0.00)	(0.00)
Marital Status (Ref: Not married)			
Married	0.024***	0.026***	0.032***
	(0.00)	(0.00)	(0.00)
Household Size	-0.002**	-0.001***	-0.001***
	(0.00)	(0.00)	(0.00)
Education (Ref: No schooling)			
Incomplete Primary	0.011*	0.007	0.004
	(0.01)	(0.00)	(0.01)
Incomplete Secondary	0.037***	0.039***	0.049***
	(0.01)	(0.00)	(0.01)
Complete Secondary	0.118***	0.125***	0.145***
	(0.01)	(0.00)	(0.01)
Diploma/Degree	0.201***	0.216***	0.274***
	(0.01)	(0.00)	(0.01)
Province (Ref: Gauteng)			
Western Cape	0.007	0.003	0.008*
	(0.01)	(0.00)	(0.00)
Eastern Cape	-0.025***	-0.026***	-0.042***
	(0.00)	(0.00)	(0.00)
Northern Cape	-0.024***	-0.034***	-0.028***
	(0.01)	(0.00)	(0.00)
Free State	-0.000	-0.027***	-0.012***
	(0.00)	(0.00)	(0.00)
KwaZulu-Natal	-0.012*	-0.013***	-0.018***
	(0.00)	(0.00)	(0.00)
North West	-0.013**	-0.002	-0.010**
	(0.01)	(0.00)	(0.00)
Mpumalanga	-0.004	-0.036***	-0.043***
	(0.01)	(0.00)	(0.00)
Limpopo	-0.048***	-0.035***	-0.048***
	(0.01)	(0.00)	(0.00)
Industry (Ref: Agriculture)			
Mining	0.250***	0.248***	0.218***

	(0.01)	(0.01)	(0.00)
Manufacturing	0.153***	0.130***	0.115***
	(0.01)	(0.00)	(0.00)
Utilities	0.180***	0.195***	0.175***
	(0.01)	(0.01)	(0.01)
Construction	0.013	0.036***	0.009*
	(0.01)	(0.00)	(0.00)
Trade	0.069***	0.061***	0.061***
	(0.01)	(0.00)	(0.00)
Transport	0.122***	0.051***	0.024***
	(0.01)	(0.00)	(0.01)
Financial services	0.136***	0.097***	0.078***
	(0.01)	(0.00)	(0.00)
Community	0.179***	0.125***	0.082***
	(0.01)	(0.00)	(0.00)
Private Households	-0.180***	-0.224***	-0.228***
	(0.01)	(0.00)	(0.00)
N	19981	67586	49889

*Source: LFS, 2001/2, LMD 2011, and LMD 2018. Note: The data are weighted, standard errors in parentheses. *** p<0.01 ** p<0.05 * p<0.10. All regressions restricted to ages 15 to 64. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.*

Looking at this set of regressions disaggregated by gender shows that as per the pooled regressions, the coefficients of the female share in the occupation group decreased between 2001 and 2011 and then increased in 2018. These were also consistently greater for women than they were for men, with women in 2001 being almost 10% more likely to have a lower DWI the higher the proportion of females employed in their occupation group (3.2% for 2011 and 8.5% for 2018). Although this coefficient is greater for women, notable here is that the coefficient is also significant for men. This indicates that the structural nature of being employed in an occupation which is highly feminised is a challenge for both men and women.

As per the previous set of regressions, the coefficients have slight differences, although the signs remain the same. The regressions show that the factors which have traditionally affected labour market prospects also affect the quality of work which workers are subjected to once they obtain paying jobs.

Table 4.10: Correlates of DWI including female share in occupation (marginal effects), by gender, 2001 – 2018

Fractional Probit Regression						
DWI	**2001**		**2011**		**2018**	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**
Female share	-0.064***	-0.098***	-0.024***	-0.032***	-0.041***	-0.085***
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)
Age	0.012***	0.013***	0.009***	0.008***	0.007***	0.005***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Age Squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Race (Ref: African)						
Coloured	0.048***	0.057***	0.034***	0.047***	0.033***	0.033***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Indian	0.072***	0.061***	0.052***	0.089***	0.066***	0.078***

	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
White	0.062***	0.079***	0.072***	0.049***	0.068***	0.046***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Area (Ref: Rural)						
Urban	0.005	0.014**	0.035***	0.033***	-0.043***	-0.033***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
Marital Status (Ref: Not married)						
Married	0.032***	0.010*	0.035***	0.013***	0.045***	0.017***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Household Size	-0.002*	-0.002	-0.000**	-0.001***	-0.000**	-0.001***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Education (Ref: No schooling)						
Incomplete Primary	0.012	0.008	0.015*	-0.003	0.008	-0.002
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Incomplete Secondary	0.039***	0.037***	0.045***	0.033***	0.056***	0.042***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Complete Secondary	0.111***	0.129***	0.125***	0.127***	0.144***	0.141***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Diploma/Degree	0.192***	0.212***	0.204***	0.228***	0.255***	0.282***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Province (Ref: Gauteng)						
Western Cape	0.014	-0.005	0.003	0.002	0.003	0.013**
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Eastern Cape	-0.023***	-0.026***	-0.028***	-0.023***	-0.048***	-0.036***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Northern Cape	-0.028***	-0.013	-0.027***	-0.044***	-0.020***	-0.033***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)
Free State	0.007	-0.009	-0.029***	-0.023***	-0.014***	-0.007
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
KwaZulu-Natal	-0.005	-0.019**	-0.005	-0.020***	-0.014***	-0.021***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
North West	-0.009	-0.016*	0.010*	-0.017***	-0.007	-0.013**
	(0.01)	(0.01)	(0.00)	(0.01)	(0.00)	(0.00)
Mpumalanga	0.006	-0.021**	-0.032***	-0.041***	-0.039***	-0.044***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Limpopo	-0.048***	-0.044***	-0.021***	-0.050***	-0.040***	-0.053***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Industry (Ref: Agriculture)						
Mining	0.251***	0.221***	0.239***	0.260***	0.222***	0.211***
	(0.01)	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)
Manufacturing	0.161***	0.143***	0.134***	0.122***	0.122***	0.111***
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)
Utilities	0.183***	0.183***	0.192***	0.200***	0.183***	0.175***
	(0.01)	(0.03)	(0.01)	(0.02)	(0.01)	(0.01)
Construction	0.016*	0.012	0.030***	0.072***	0.013**	0.023**
	(0.01)	(0.02)	(0.00)	(0.01)	(0.01)	(0.01)
Trade	0.081***	0.057***	0.062***	0.063***	0.061***	0.067***
	(0.01)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)
Transport	0.117***	0.157***	0.030***	0.134***	0.008	0.125***
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
Financial services	0.134***	0.140***	0.099***	0.101***	0.085***	0.080***
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)
Community	0.184***	0.176***	0.137***	0.121***	0.118***	0.067***
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)
Private Households	-0.198***	-0.162***	-0.237***	-0.210***	-0.216***	-0.218***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
N	20828	20957	67586	67586	49874	49889

*Source: LFS, 2001/2, LMD 2011, and LMD 2018. Note: The data are weighted, standard errors in parentheses. *** p<0.01 ** p<0.05 * p<0.10. All regressions restricted to ages 15 to 64. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.*

4.3 Discussion

The results in this chapter showed how the mean DWI by various individual characteristics differ from the labour force participation and employment probabilities literature, as they show what happens to people once they are in the labour force. However, much of what is presented here will also be based on factors which impact people *before* they enter the labour market.

These will not only include factors related to the characteristics of individuals, but also inequality in the various opportunities which are available to people who enter the labour force (Dickens, 1994). In relation to equality of opportunity, women have, for instance, always tended to be worse off than men and Africans worse off than Whites. Race and gender have affected the quality of education people have access to, their networks (and the quality thereof), and their previous work experience, amongst other factors (Altman, 2007). These would affect the types of jobs which are accessible to individuals and in turn, their quality of work once they manage to obtain employment.

Many labour economics studies on South Africa have used wage rates as a proxy for employment quality, given the lack of data on job quality. A more comprehensive view of employment quality within the South African labour market has not been evident until fairly recently (see Yu (2020)). In addition, and probably based on the historically high unemployment rates in the South African labour market, there is the fact that studies have tended to focus on the factors which would determine labour force participation and employment probabilities of individuals (Casale, 2003; Dinkelman & Pirouz, 2002, 2011; Ntuli & Wittenberg, 2013; Ranchhod, 2010). This chapter has thus gone a step further to study how these characteristics might assist in explaining the quality of work workers are subjected to once they obtain employment.

The general trend observed in this chapter is that the period between 2001 and 2011 was characterised by growth in the quality of work. As per the previous chapter, this was a period characterised by a decline in the unemployment rate. However, the subsequent period (2011 – 2018) has seen a decline in the quality of work for many and although gains were made for some groups over this latter period in terms of their DWI scores, the increases were not as great as those observed in the former period.

This was also a period during which the economy was in distress and unemployment grew.

The patterns in the quality of work can be linked to the macroeconomic conditions outlined in the previous chapter in two ways. The first is directly through growth in public sector employment. This was most certainly the case between 2002 and 2012 when employment in health, education and the police service grew by 3.7%, 1.5%, and 4.2%, respectively (Sachs, 2020). These workers would likely have benefitted from good quality public sector jobs which tend to have better social security protection.[44] Between 2012 and 2018, the growth rate in employment in health, education, and policing had been 0.5%, -0.9%, and -0.4%, respectively (Sachs, 2020). This would thus partly explain the decrease in the quality of work in the latter period (2011-2018) observed in this study.

The second way in which macroeconomic conditions could have affected quality of work is through indirect government spending, such as grants and the provision of free services, as noted in chapter 3. The decline in quality of work in the 2011 to 2018 period would thus have been affected by the reduction in private investment and employment as well as a decline in transfers to households (which facilitate labour market participation) and to local government authorities which enhance their service delivery capacity.

Further to this, the results, both descriptive and inferential, confirmed that factors which traditionally affect labour market prospects also affect the quality of work. These include gender, age, race, place of residence, the sector in which one is employed, marital status, and the size of the household. A deviation from the previous literature is the fact that being married also had a positive effect on the quality of women's work, as it did for men. Previous literature has found that being married usually decreases women's labour force participation and employment probabilities, while men tend to earn a premium on their wages if they are married (Casale & Posel, 2010a; Dinkelman & Pirouz, 2011; Serumaga-Zake & Kotze, 2004). This could be as a result of women

[44] Studies have shown that public sector jobs tend to be uncompetitive in terms of wages, but are competitive in relation to additional social security protection and workers are inclined to view those jobs as more meaningful (Blank, 1985; Gabris & Simo, 1995; Lewis & Frank, 2002).

substituting the incomes of their partners during times of economic distress, as suggested by the added-worker effect, or could also include the fact that married women have higher reservation wages compared to women who are not married and are likely to only accept jobs of a higher quality.

Furthermore, the pattern of quality of work was not linear amongst the various age groups. Additionally, young women (15 to 24-years-old) scored higher than males of the same age; this is also a deviation from the previous literature. This finding is interesting given that these women are at peak childbearing age which has been found to be a barrier to labour force participation and employment probabilities (Hoem & Hoem, 1989; Olivetti, 2006; Posel & Van Der Stoep, 2008; Van Der Stoep, 2008). This could also be an indication, however, that when women of this age do enter the labour market, they are likely to take jobs which would satisfy their reservation wages and possibly be of a higher quality, as is the case for married women.

In addition to the correlates of the DWI, the female share in an occupation was regressed on the DWI. Although these regressions have their limitations, they support the findings of previous studies on female-dominated occupation groups (Beller, 1982; Hakim, 1992; Olfert & Moebis, 2006). Some of the reasons cited for considering gender occupational segregation include the fact that occupational segregation contributes to wage differentials between men and women, it affects poverty and inequality overall, reinforces gender stereotypes, has a negative effect on the prospects of future generations, and negatively affects efficiency in the labour market (Anker, 1998). Occupations in which women are highly concentrated also tend to be low paid and precarious (Seguino, 2007), and the results in this chapter suggest that men employed in occupations in which there is a high concentration of females also tend to suffer the consequences of this disadvantage.

Although the direction in which the causality runs cannot be determined with this data, a qualitative analysis might shed more light on why this structural disadvantage exists, beyond what is theorised in the economics literature. What should be noted from this analysis, however, is that the gender dummy included in the regression becomes insignificant once the female share variable is included. This suggests that the concentration of women in an occupation group might be a more important factor in

determining the quality of a job than being a woman is. Striving for greater equity between men and women in terms of how they are distributed across the occupational spectrum might thus go some way in improving the quality of work for both sexes, but particularly for women.

The last part of this chapter highlights the reasoning for the construction of the DWI. Table 4.11 ranks the occupation groups according to their mean calculated DWI for each survey period. Using this ranking, an ordinal variable was created in the time-use survey (TUS) – which uses the same occupational classification – to act as a proxy for quality of work. The ranking from the 2001 LFS was used in the 2000 TUS, while the ranking from the 2011 LMD survey was used in the 2010 TUS; the latest available wave of the TUS.

While the ranking of the various occupation groups changes over the survey periods, Table 4.11 shows that the occupation groups which score high, generally remain toward the top end of the rank over the three periods, while the occupation groups which score low, generally remain towards the lower end of the rank over the survey periods.

Table 4.11: Occupation group ranks by DWI, 2001 – 2018

2001		2011		2018	
Science & engineering professionals	0.854	Science & engineering professionals	0.847	Health professionals	0.883
Business & administration professionals	0.803	Chief executives, senior officials & legislators	0.838	Teaching professionals	0.863
Administrative & commercial managers	0.799	Health professionals	0.835	Science & engineering professionals	0.847
Teaching professionals	0.799	Teaching professionals	0.802	Administrative & commercial managers	0.816
Health associate professionals	0.794	Administrative & commercial managers	0.792	Business & administration professionals	0.802
Health professionals	0.789	Health associate professionals	0.787	Chief executives, senior officials & legislators	0.783
Business & administration associate professionals	0.765	Business & administration professionals	0.773	Science & engineering associate professionals	0.775
Chief executives, senior officials & legislators	0.749	Business & administration associate professionals	0.768	Health associate professionals	0.767
General & keyboard clerks	0.742	Science & engineering associate professionals	0.756	General & keyboard clerks	0.723

Science & engineering associate professionals	0.74	General & keyboard clerks	0.755	Stationary plant & machine operators	0.72
Legal, social & cultural associate professionals	0.723	Stationary plant & machine operators	0.726	Business & administration associate professionals	0.719
Stationary plant & machine operators	0.71	Legal, social & cultural associate professionals	0.723	Legal, social & cultural associate professionals	0.675
Production & specialised services managers	0.709	Assemblers	0.66	Assemblers	0.653
Assemblers	0.617	Metal, machinery & related trades workers	0.647	Metal, machinery & related trades workers	0.652
Customer services clerks	0.603	Production & specialised services managers	0.643	Customer services clerks	0.612
Metal, machinery & related trades workers	0.602	Customer services clerks	0.618	Production & specialised services managers	0.588
Drivers & mobile plant operators	0.584	Personal service workers	0.562	Electrical & electronic trades workers	0.564
Personal service workers	0.57	Building & related trades workers	0.547	Personal service workers	0.546
Mining, construction, manufacturing & transport workers	0.545	Electrical & electronic trades workers	0.543	Sales workers	0.535
Electrical & electronic trades workers	0.526	Drivers & mobile plant operators	0.541	Drivers & mobile plant operators	0.525
Building & related trades workers	0.513	Handicraft & printing workers	0.537	Mining, construction, manufacturing & transport workers	0.515
Sales workers	0.481	Mining, construction, manufacturing & transport workers	0.525	Building & related trades workers	0.507
Handicraft & printing workers	0.468	Sales workers	0.524	Handicraft & printing workers	0.433
Agriculture, forestry & fishery workers	0.361	Skilled agricultural workers	0.39	Skilled agricultural workers	0.41
Skilled agricultural workers	0.269	Agriculture, forestry & fishery workers	0.329	Agriculture, forestry & fishery workers	0.384
Cleaners	0.265	Cleaners	0.311	Cleaners	0.303
Skilled forestry, fishery & hunting workers	0.184	Skilled forestry, fishery & hunting workers	0.111	Skilled forestry, fishery & hunting workers	0.206

Source: LFS 2001/2, LMD 2011, and LMD 2018. Note: Data are weighted.

Conclusions

This chapter presented the composite DWI by various socio-demographic characteristics (similar to what Yu (2020) did) and regression analyses to study the correlates of the DWI. Fractional probit regressions were used to study the socio-economic characteristics of workers and an additional set of regressions was included

to study the relationship between the female concentration in an occupation group and the DWI.

The most notable result was the fact that young women (aged 15 to 24-years-old) had a higher DWI than their male counterparts. In addition, being married was positively correlated with the DWI for women. These are important deviations from the previous literature and might reflect the need to look beyond just employment and labour force participation probabilities of men and women, and include a broader focus on the quality of work and the correlates thereof once people secure employment.

In addition to this, the structural disadvantage of people employed in occupation groups which are female-dominated was also highlighted. This was the case for both men and women and showed how the 'gender typing' of occupations can be detrimental to all workers employed in those occupation groups.

Lastly, the ranking for the occupation groups included in this study was presented. This ranking is used in the remainder of the study and acts as a proxy for the quality of work in the analysis which uses the TUS. These are studied in the subsequent chapters in relation to the time-use of workers, to determine whether there is a relationship between the quality of their work and the time they spend on unpaid reproductive labour.

CHAPTER 5: TIME-USE SURVEY METHODOLOGY

"People imagine a waitress couldn't possibly think or have any kind of aspiration other than to serve food. When somebody says to me, 'You're great, how come you're just *a waitress?'* Just *a waitress. I'd say, 'Why don't you think you deserve to be served by me?' It's implying that he's not worthy, not that I'm not worthy. It makes me irate. I don't feel lowly at all. I myself feel sure. I don't want to change the job. I love it."*

Dolores Dante, Waitress (Turkel, 1974)

Introduction

The increasing popularity of time-use data has provided researchers and policy makers with better tools for understanding how people, and women in particular, spend their time. These are activities which are not usually easily measurable through conventional household survey questionnaires. In South Africa, this has also been the case and in the South African TUS questionnaires, the "household and demographic sections of the questionnaire contained many of the standard questions of the Stats SA household surveys. This was done so as to facilitate comparison across surveys" (Stats SA, 2001c, p. 14). This study exploited this advantage to draw a link between findings and variables in the LFS and those in the TUS. Given that this link was made, similarities (in addition to those already mentioned in chapter 2) between the datasets will be highlighted in this chapter.

Following on from the methodology described in chapter 2 and the ranking of occupation groups in chapter 4, this chapter describes how the information described in the previous chapters and the results obtained from those analyses will be used in the remainder of this thesis to answer the overarching research question. The discussion in this chapter thus includes a description of the datasets used in the remainder of the thesis and how it links to the data analysis in the last two chapters. However, the discussion starts with a brief description of the emergence of time-use survey data and the usefulness thereof.

5.1 The emergence of time-use surveys

Time-use data have increased in popularity in the last few decades (Budlender, 2010; Floro & Komatsu, 2011a; Frazis & Stewart, 2010; Goldschmidt-Clermont & Pagnossin-

Aligisakis, 1999; Guerts & De Ree, 1993; Stinson, 1999). These data are collected to determine how people spend their time. Stinson (1999, p. 12) stated that though these data "may have originated within the social sciences and the time management domain of the business world, international governments have also been quick to recognize the value of this information". There are a number of methodological issues to be considered when collecting time-use data, as these will impact the accuracy of the data which are collected. These include how the data are collected and the options which respondents are provided with when recording their activities, such as the option to include simultaneous activities or the duration of the time slots provided. Additional factors should also be considered when choosing the methodology, such as the assumed literacy rate of the population under study or the resources which potential respondents have access to.[45]

Budlender (2007) describes two types of surveys, the 'stylised' approach and the 'diary' approach. The stylised approach provides respondents with a list of pre-defined activities and they are then required to indicate the amount of time spent on each of the listed activities per day. The diary approach is more flexible and respondents are given the opportunity to indicate 'in their own words' what they did and for how long. The stylised approach has the limitation of being 'leading' and limiting the scope for describing activities, although it can be a more economical way of collecting data, especially where enumerators are only interested in a certain set of activities. In such instances, the list can be limited to the activities of interest. Having a pre-set list also introduces the potential for social desirability bias, where respondents choose options which may be viewed more favourably. This becomes an important consideration as time-use is driven by cultural norms (Frazis & Stewart, 2010). For the purposes of studying overall time-use, particularly where information about time-use related to childcare is required, the diary approach is preferred.

In the 1920s and 1930s, statistical agencies in the United States were interested in studying the time-use of home makers. They made use of a 'paper' diary in which respondents were required to record their activities on two clock-shaped diagrams with

[45] This is not an exhaustive list, and only a few of these considerations are discussed here to highlight the methodology of the South African TUS. Further discussion is available in Budlender (2007).

30-minute slots; one representing AM, and the other PM. In Australia, on the other hand, respondents were also asked to complete a diary in 1992, although this diary consisted of 5-minute slots, and respondents were asked additional questions, such as who they performed the activity with, where the activity took place, and what else the respondent was doing at the time (Stinson, 1999).

In some instances time-use diaries can also be self-administered, although this methodology is generally adopted in developed countries (Budlender, 2007). These could result in greater accuracy, as respondents fill this out as the day goes on, but this can result in a number of inaccuracies. It is difficult, for instance, to probe simultaneous activities, and to ask clarification questions to ensure activities are correctly classified (see 'eating' example discussed later in this chapter). Self-administered diaries would also require a high literacy rate to ensure that participants are able to fill in the form on their own. The Republic of Korea is one of the few countries which has been able to collect self-administered time-use diaries, as a result of the highly educated nature of their population (Budlender, 2007).

The same consideration would need to be made when there is the option to collect data via telephone interviews. While countries such as Canada have developed an efficient and cost-effective method by collecting data via telephone, in developing countries where every household may not have access to a telephone, data collection via telephone interviews becomes a challenge (Budlender, 2007; Stinson, 1999). In some instances, time-use diaries were also added on as a separate module in existing surveys, such as in the cases of Tanzania and Benin, where it was included as part of the labour force and urban surveys, respectively (Budlender, 2007). This methodology is likely to reduce the costs associated with sampling for and administering a new survey.

Lastly, and very importantly, when studying reproductive labour, there is the issue of simultaneous activities. Simultaneous activities are an important consideration in a time-use diary, given that it has been found that people spend as much as “3 to 4 hours per day, doing more than one activity at a time” (Stinson, 1999, p. 18). Excluding the option to note simultaneous activities results in the undercounting of reproductive

labour activities. Simultaneous activities and their application in the South African TUS are discussed further in section 5.3.1.

5.2 The data

Stats SA had only collected and released two waves of the TUS data at the time of writing; these were the 2000 data and the 2010 data.[46] The 2000 wave of the TUS data initially had a planned sample of 10 800 dwelling units selected from a sampling frame based on the 1996 Population Census – similar to the 2001 LFS used in this study. However, the released sample included 14 553 respondents from only 8 564 households.[47] The data collection consisted of three phases (called 'tranches'). These indicated whether a household was part of the February (1st tranche), June (2nd tranche), or October (3rd tranche) set of interviews, with the reason for including these tranches being to "catch seasonal changes in activities" (Stats SA, 2000a, p. 2).

For the 2010 data, collection was undertaken in the last quarter (October to December) of 2010 by enumerators who were also collecting the 2010 QLFS data at the time (Stats SA, 2010). Based on the 2001 Population Census master sample, about 30 000 dwelling units were selected, similar to the methods utilised to collect the 2010 QLFS (part of the annual dataset – LMD 2011 – which was used in the last two chapters) (Stats SA, 2013).

Both datasets included a household module as well as a diary and demographic questionnaire. The household part of the questionnaire would be answered by an adult member of the household who would have the ability to provide the information required in that section of the questionnaire. These included questions with which to determine the household size, the services the household has access to, and the main sources of income of the household. For the time-use diaries and demographic questionnaires, two individuals, 10 years or older, were selected to complete the

[46] A pilot was conducted in November 1999 in the North West province and findings from this pilot allowed for an improved questionnaire during the 2000 data collection.

[47] According to Stats SA (2001c, p. 15), the reasons for "non-realisation of the full sample were unoccupied dwelling units and dwelling units which were marked on the maps but not found on the ground. Some of the discrepancies, particularly in informal areas, were due to changes on the ground between mapping of the areas and enumeration", although refusals were low.

diaries. The enumerators were required to list all the household members from the oldest to the youngest (10 years or older), and based on the household size, they made use of a selection grid to ensure that sampling within a household was random – if more than two eligible respondents were present in a household. Fieldworkers thus administered one household questionnaire, two demographic questionnaires, and two time-use diaries in each household selected for the sample. Stats SA (2001c, p. 18), however, states that "the survey is smaller than the usual Stats SA survey and thus slightly less reliable in terms of extrapolation, [the] proportions should, nevertheless, reflect the full population."

5.3 Constructing the time-use variables

5.3.1 Description of time-use activities

How a questionnaire is *designed*, as with other surveys, plays an important role in the quality of data which is extracted in the process. How the questionnaire is *administered* plays an equally important role, as discussed previously (Guerts & De Ree, 1993). In this section, how the time-use activities (recorded in the diary) were coded is described and reference is made to questionnaire design and its administration.

The diary approach applied by Stats SA is known as the 'yesterday' approach, where respondents who were selected to complete the time-use diaries were asked how they spent their time over a 24-hour time period, in 30-minute intervals (Stats SA, 2013). The diary consisted of 48 slots, with 04h00 to 04h30 of the previous day being the first slot for the diary and 03h30 to 04h00 of the current day being the 48th slot of the diary. Respondents were provided with the opportunity to flag simultaneous activities and each respondent could list up to three activities in one 30-minute slot. For instance, minding a child while cooking would be recoded as two separate activities.

The first consideration in the coding of the data related to simultaneous activities. Because simultaneous activities were permitted, Stats SA (2000b) provided two time variables, one which divided the available minutes within a time slot by the number of activities which were performed in the time slot. The other treated each activity as if it were happening within its own time slot and added them up as separate activities. For

instance, to cap a day at 24-hours, simultaneous activities could not exceed the 30 minutes available in a time slot. If someone said they were minding a child and cooking at the same time, 15 minutes would be allocated to the child minding and 15 minutes to the cooking. The latter instance in which the time was *added up* rather than *divided* would have resulted in these two activities being counted as 60 minutes' worth of time instead: 30 minutes of child minding plus 30 minutes for the cooking. The latter approach (adding up) was used in this study.

The problem with the former approach to treating simultaneous activities (i.e. capping the day at 24-hours) is that it underestimates the amount of work which individuals who tend to perform multiple activities at a time do in a day (Floro & Komatsu, 2011a). Not capping the time, however, also means that there could be an overestimation of time recorded for some activities. Someone may have well intended to imply that they spent 15 minutes cooking and the remaining 15 minutes minding a child (or some other distribution within the 30-minute time frame) or alternatively that they were cooking for the full 30-minute slot and perhaps only *actively* performed childminding for a small portion of the time slot. However, with the given information, a distinction between these two ways of using a 30-minute time slot cannot be determined. Furthermore, we cannot determine to what extent activities are being performed actively or passively – such as child minding.

The second consideration in the coding relates to how people view and define employment or productive activity, but also because of the ways in which labour force surveys are designed. There is evidence which suggests that informally employed individuals in the labour market could be underestimated, given the measures used to define someone as 'employed' in labour force surveys. This results in these individuals subsequently not being asked specific labour market related questions (Muller, 2003). In addition, many individuals involved in survivalist activities may themselves not consider these as productive activities and report that they are unemployed or not economically active instead (Nattrass, 2000).

Using the 2000 time-use survey data, Floro and Komatsu (2011a) found that 11% of not economically active men and 5% of unemployed men actually performed some form of wage work, while these numbers were 5% and 7%, respectively, for not

economically active and unemployed women. Added to this, they found that up to 73% of men and 58% of women who were considered not economically active or unemployed actually engaged in subsistence activities. Time-use survey data thus have the potential to provide a more accurate picture of economic activity.

To identify time-use activities correctly, it was important to note the definition of an establishment. In the fieldworkers' manual the following definition was provided (Stats SA, 2000a, p. 5):

> An *establishment* is defined as a fixed structure (for example, a shop, office, factory, mine) in which production of goods and services is carried out on a regular basis. It includes commercial farms. It includes private households when they are employing domestic workers. Usually establishments will have regular employees working in them, while non-establishment work (categories 2 and 3) does not involve regular employees.

Activities recorded in the surveys fell into 10 different categories, with each consisting of subcategories (see Appendix I). The System of National Accounts (SNA) time was constructed from categories 1, 2, and 3; non-SNA or unpaid reproductive work from categories 4, 5, and 6; while non-productive activities were activities which fell under the description provided for categories 7, 8, 9, and 0 (see Table 5.1). The naming convention of these categories are consistent with the categories which are used in the calculation of the GDP; with only SNA activities being considered in this calculation (Goldschmidt-Clermont & Pagnossin-Aligisakis, 1999).

Table 5.1: Time-use activity codes

Time-use category	Code	Activity category
SNA	1	Employment for establishments
	2	Primary production activities not for establishments
	3	Services for income and other production of goods not for establishments
Non-SNA	4	Household maintenance, management and shopping for own household
	5	Care for children, the sick, elderly and disabled for own household
	6	Community services and help to other households
Non-productive	7	Learning
	8	Social and Cultural Activities
	9	Mass media use
	0	Personal care and self-maintenance

Source: TUS 2000 & 2010

SNA work is typically considered work which takes place within the productive boundary of the economy, while non-SNA work takes place within the reproductive sphere; unpaid either for the household in which the respondent lives or another household.[48] Non-productive activities, on the other hand, are the types of activities which one could not give to someone else to do (also known as the 'third party criterion' (Goldschmidt-Clermont & Pagnossin-Aligisakis, 1999)); such as attending school, socialising with family, or doing nothing. The summary statistics for the average time-use by activity are presented in Table I - 1.

While these three categories (SNA, non-SNA, and non-productive) of work are widely used and accepted around the world, they have not been without criticism, particularly from the feminist economics literature. These categorisations have rendered invisible women's economic contributions, they are linked to limited social security for those who perform non-SNA work, this classification has in many respects masked the duty of the state which is to provide care to those in need of it and is thus a critical component of gender injustices in contemporary capitalist society (Hirway, 2015). Despite these criticisms, the difficulty in enumerating non-SNA work (and related arguments) have been put forth in favour of maintaining this classification (Budlender & Brathaug, 2002).

The third coding consideration relates to following up or probing answers of respondents. In some instances, it is important to probe the answers of respondents to ensure that the data are captured as accurately as possible. Stinson (1999) flags the issue related to 'eating'. She states that eating can be classified as 'working time', if the eating is happening at a work-related function, 'socialising', when the activity takes place at a social location, or 'personal care', when done within the household, either alone or with other household members. In this instance, a probe on the response would assist in classifying the activity correctly – either as SNA time or non-productive time.

[48] Important to note here is that the term 'work' is used more loosely than the definition provided in Stats SA's (2009b) guide where they specifically refer to the contribution which is made to the national output. All non-SNA work activities are not necessarily included in the national output and therefore would not formally be considered work by the standards of the Stats SA definition. However, going forward in this thesis, the term 'work' will refer to both SNA and non-SNA activities.

In the Stats SA TUS, enumerators would have had the opportunity to ask follow-up questions or questions of clarity, given that the data were collected in-person. One instance where enumerators were specifically instructed to follow up, was on childcare activities (Stats SA, 2000a). In the questionnaire, after having completed the time-use diary, respondents were asked: *"Did you spend any time during the day looking after children?"* The respondents could then report that they did not, that they did and already indicated such activities in their time diary, or that they did but did not mention all the times. If the enumerators went back to the diary to add additional childcare activities, these activities were flagged in the coding process.

5.3.2 Identifying employed individuals in the dataset

Given that this study related to labour market outcomes, it was important to classify the employed in the sample correctly. In the TUS questionnaire, individuals were asked about activities which are considered 'productive'. The 2000 TUS question was framed as follows:

In the last seven days, did you do any of the following activities? Do any kind of business, big or small, for yourself, help unpaid in a family business, do any work on a household plot, food garden, kraal, catch any fish or wild animals for sale, do domestic work for another household for payment in cash or kind, do any other work for wage, salary, piecework pay, commission or payment in kind?

Individuals were given the option to choose more than one of these activities, and some were thus captured under more than one of the above-mentioned activities. Those who reported that they did 'any kind of business…for yourself' were captured as 'self-employed'. Respondents who indicated that they helped unpaid in a family business were captured as working in a 'family business', while those who reported doing any form of fishing or farming were captured as 'subsisting'. Lastly, those who said that they did domestic work for another household or worked for some form of payment were considered as being in 'paid work'. All these individuals were considered as 'employed' for the purpose of the analysis, although those who *only* indicated engaging in self-employment activities were excluded from the analysis, for reasons stated in chapter 2.

The 2010 questionnaire was changed slightly and respondents had fewer options. The question was rephrased with three options as follows:

In the last week…

(a) *Did you work for a wage, salary, commission, or any payment in kind (including paid domestic work), even if it was only for one hour?*
Examples: a regular job, contract, casual, or piece work for pay, work in exchange of food or housing, paid domestic work.

(b) *Did you run or do any kind of business, big or small, for yourself or with one or more partners, even if it was for only one hour?*
Examples: Commercial farming, selling things, making things for sale, construction, repairing things, guarding cars, brewing beer, collecting wood or water for sale, hairdressing, crèche business, taxi or other transport business, having a legal or medical practice, performing in public, having a public phone shop.

(c) *Did you help without being paid in any kind of business run by your household, even if it was for only one hour?*
Examples: Commercial farming, help to sell things, make things for sale or exchange, doing the accounts, cleaning up for the business.

Like the 2000 questionnaire, this allowed respondents to choose more than one option which would have resulted in a more accurate reflection of the 'employed' population, and respondents who answered 'yes' to any of the above questions were counted amongst the 'employed' for purposes of the analysis. Those who answered 'yes' to option (a) were coded as being in 'paid work', those who answered 'yes' to (b) as 'self-employed' (and excluded from the analysis, unless they also answered 'yes' to (a) and/or (c)), and those who answered 'yes' to option (c) were coded as working in a 'family business'.

The difference between the two questionnaires is that the 2010 questionnaire did not explicitly ask about subsistence activities in service of the household. In addition, the third option in the 2000 questionnaire which asked respondents *'did you do any work*

on a household plot, food garden, kraal' does not specifically state that these activities should take place for the purposes of making a sale, while the 2010 question (option (b)), suggests that making a sale is the only condition under which such activities would be considered productive.[49] This would likely result in undercounting employed individuals in the 2010 survey period (or overestimating the unemployed), if those who engage in subsistence activities are considered employed, and result in a decrease in the number of productively employed individuals between the two survey periods. However, as the data in chapter 3 showed, the estimated unemployment rate was higher in 2001 than it was in 2010; thus there did not seem to be an association between the changed questionnaire and the recorded number of unemployed individuals.[50] Furthermore, these individuals could alternatively have been included in the expanded unemployment rate (assuming they would be classified as unemployed and not looking for work due to being otherwise occupied), although the expanded unemployment rate was also higher in 2001 than it was in 2010.

Given this difference, the time-use data shown by type of employment includes those in paid work, unpaid in a family business, and subsisting for the 2000 data, while the 2010 analysis only makes a distinction between those in paid work and those working unpaid in a family business.

5.3.3 Constructing the quality of work variable

Based on the analysis in chapters 3 and 4, a ranking was obtained for the occupation groups. Table 5.2 shows the codes for the occupation groups from the best scoring group to the worst obtained from the 2001 LFS data. This coding was applied to the 2000 TUS data. Similarly, the 2010 ranking is what was obtained from the 2011 LMD data. Using this ranking, an ordered nominal variable was created with the best occupation group coded as 27, while the poorest performing occupation group was coded as 1.

[49] The 2001 September LFS questionnaire uses the same format to identify employed individuals as the 2000 TUS and 2010 QLFS questionnaire uses the same format to identify employed individuals as the 2010 TUS.

[50] The estimated unemployment rate was lower in 2000 compared to the 2010 rate, although the various problems experienced with LFS data collection could call into question the accuracy of the 2000 estimate; thus, a comparison is made here to the 2001 estimate instead.

As noted at the end of chapter 4, the ordering for the two years are not identical, but it is important to note that most occupations remain in the same 'vicinity' on the scale, with some retaining their ranking over the two survey periods.

Table 5.2: Occupation codes for quality of work variable

2000		2010	
Science & engineering professionals	27	Science & engineering professionals	27
Business & administration professionals	26	Chief executives, senior officials & legislators	26
Administrative & commercial managers	25	Health professionals	25
Teaching professionals	24	Teaching professionals	24
Health associate professionals	23	Administrative & commercial managers	23
Health professionals	22	Health associate professionals	22
Business & administration associate professionals	21	Business & administration professionals	21
Chief executives, senior officials & legislators	20	Business & administration associate professionals	20
General & keyboard clerks	19	Science & engineering associate professionals	19
Science & engineering associate professionals	18	General & keyboard clerks	18
Legal, social & cultural associate professionals	17	Stationary plant & machine operators	17
Stationary plant & machine operators	16	Legal, social & cultural associate professionals	16
Production & specialised services managers	15	Assemblers	15
Assemblers	14	Metal, machinery & related trades workers	14
Customer services clerks	13	Production & specialised services managers	13
Metal, machinery & related trades workers	12	Customer services clerks	12
Drivers & mobile plant operators	11	Personal service workers	11
Personal service workers	10	Building & related trades workers	10
Mining, construction, manufacturing & transport workers	9	Electrical & electronic trades workers	9
Electrical & electronic trades workers	8	Drivers & mobile plant operators	8
Building & related trades workers	7	Handicraft & printing workers	7
Sales workers	6	Mining, construction, manufacturing & transport workers	6
Handicraft & printing workers	5	Sales workers	5
Agriculture, forestry & fishery workers	4	Skilled agricultural workers	4
Skilled agricultural workers	3	Agriculture, forestry & fishery workers	3
Cleaners	2	Cleaners	2
Skilled forestry, fishery & hunting workers	1	Skilled forestry, fishery & hunting workers	1

Source: From own analysis using LFS 2001/2 and LMD 2011.

The ordered qualitative variable was used as a proxy for quality of work, and the analysis techniques used alongside this variable are described in the following sections.

5.4 Analysis using the time-use survey

The first section here will provide a description of the variables as well as the analysis techniques used to obtain the results presented in chapters 6 and 7. The analysis starts with a general overview of the time-use patterns of employed individuals and the regression analyses using the quality of work proxy.

5.4.1 Coding of explanatory variables

Similar to the analysis undertaken with the DWI, the variables described in this section are those which have been found to have implications for women's labour force participation and employment probabilities. These included age, gender, education, geographical location, gender, household membership, marital status, province, and race.

This step of the analysis importantly included the number of children in the household. This variable was included based on the fact that the literature has shown that this is an important consideration when studying women in the labour market (Azimi, 2015; Bhalotra & Umaña-Aponte, 2010; Finlay, Efevbera, Ndikubagenzi, & Canning, 2018; Killingsworth & Heckman, 1986; Lim, 2002; Ntuli & Wittenberg, 2013; Posel & Van Der Stoep, 2008). Having more children in the household, particularly young children has been found to reduce the labour force participation probabilities as well as employment probabilities of women. Children in the household would also have important implications for time-use patterns as well, particularly in the distribution of care work and other non-SNA work in the household.

These variables were included as continuous variables, with the number of 'young' children being the number of children younger than 6 years of age living in a household with the respondent. The number of 'older' children in the household would be those from the ages of 7 to 14-years-old, who would likely be of school-going age. These different life stages would likely require a different time commitment for child minders and was expected to have differential associations with the quality of work women tend to be employed in.

Lastly, a sector variable was not included here, as the codes for the 2000 TUS included errors which could not be accurately rectified.

Table 5.3: Variable codes used for TUS data

Variable	Measurement scale	Coding
Age	Continuous	From the age of 15.
Age bracket	Ordinal	0 = 15 – 24; 1 = 25 – 34; 2 = 35 – 44; 3 = 45 – 54; 4 = 55 - 64
Education	Ordinal	0 = No Schooling; 1 = Incomplete Primary; 2 = Incomplete Secondary; 3 = Complete Secondary; 4 = Diploma/Degree
Gender	Nominal	0 = Male; 1 = Female
Household size	Continuous	Addition of all household members listed by the respondent according to age category (Young child = 0 – 6; Older child = 7 – 14; Working-age adult = 15 – 64; Pensioner = older than 64).
Marital status	Nominal	0 = Never married; 1 = Married or cohabiting; 2 = Widowed, divorced, or separated
Province	Nominal	0 = Western Cape; 1 = Eastern Cape; 2 = Northern Cape; 3 = Free State; 4 = KwaZulu-Natal; 5 = North West; 6 = Gauteng; 7 = Mpumalanga; 8 = Limpopo
Race	Nominal	0 = African; 1 = Coloured; 2 = Indian; 3 = White

Source: Own coding of TUS 2000 & 2010.

These variables were used in both the descriptive and inferential statistical analyses.

5.4.2 Analysis techniques

5.4.2.1 Descriptive analyses

A descriptive analysis of the time-use patterns of employed individuals is presented in chapter 6 and these included individuals between the ages of 15 and 64 (inclusive). The three main time-use activities (SNA work, non-SNA work, and non-productive activity time) were studied and the data were then disaggregated to study how the same individuals split their time between the different non-SNA categories; household maintenance, care work, and community service (categories 4, 5, and 6 in Table 5.1).

The analysis begins with the time-use patterns by type of individual employment: subsisting, paid work, or working unpaid in a family business in 2000 and paid work or working unpaid in a family business in 2010. These patterns were then further studied by sociodemographic characteristics, including gender, race, marital status, household composition, education level, and age.

5.4.2.2 Regression analyses

Numerous sets of regressions were then included, and these are discussed in two parts here. The first looks at the *correlates of different time-use activities* and the second at the *relationship between time-use and the quality of work*.

As will be shown in chapter 6, the bulk of productive (or SNA) work which occupied the time of employed individuals was time spent working in an establishment (activity 1 in Table 5.1) and time spent in primary production (activity 2). The bulk of unpaid reproductive (or non-SNA) work, on the other hand consisted of household maintenance (activity 4) and care work (activity 5). Thus, four sets of regressions are presented, each one examining the determining factors in each of these four time-use activities.

Given that simultaneous activities were permitted in the data analysis, it was important to standardise the time-use variables. The *absolute* minutes were converted to the proportion of the day spent on a certain activity. In other words, the amount of time a respondent said they spent on SNA activities was added up in minutes (including the addition of simultaneous activities) and this value was divided by the number of available minutes in a day (1 440 minutes). This total value allowed for a relative comparison using the same unit of analysis. This process is shown mathematically:

$$\rho_{ai} = \frac{m_{ai}}{1440} \tag{6}$$

Where ρ_{ai} is the proportion of the day individual i spent on activity a, m_{ai} the number of minutes individual i spent on activity a, and 1440 being the number of available minutes in a 24-hour day.

The first set of regressions was used to determine what the factors are which explain the proportion of time spent working in an establishment; the second, time spent on primary production; the third, household maintenance; and lastly, care work. Given that this variable had been converted to a proportion, it took on values between 0 and 1, and thus a fractional probit regression was employed. As stated in chapter 2, this

model is recommended by Papke and Wooldridge (1996) when the dependent variable y, $0 \leq y \leq 1$, needs to be explained by a range of explanatory variables.

The model took on the following form (Kölling, 2012):

$$E(y_i|x_i, \varepsilon_i) = \emptyset(x'_i\beta_i + \varepsilon_i) \quad (7)$$

where y_i was the response variable, $0 \leq y \leq 1$, x'_i the vector of observed explanatory variables for individual i with corresponding parameter vectors, β_i, and $\emptyset$ the cumulative distribution function. Lastly, ε_i captured the unobserved variables.

The explanatory variables included gender, age, age squared, race, geographical location, marital status, the number of young children, the number of older children, the number of pensioners, the number of working-age women, and the number of working-age men co-resident in the household. In addition, education and province were also included. These were estimated using pooled regressions as well as disaggregated by gender for each of the survey periods included in the study.

In addition to studying the correlates of various types of time-use activities, a set of regressions using the occupation rank variable as a proxy for quality of work was included. Of particular interest here was the association between the proportion of time spent on SNA and non-SNA work and the quality of work an individual was undertaking.

This analysis differed from what was presented in chapter 4, as the DWI regressions allocated an individual score to each employed respondent in the sample. Given that the best possible alternative for the TUS data was carrying this information over through the occupational structure of the two datasets (LFS and TUS), the analysis was only possible at the occupational level. However, all the covariates included in the regressions were individual and household level covariates. In addition, the proportion of time spent on SNA and non-SNA work was calculated at the individual level.

Given the ordered nature of the dependent variable, an ordered logit regression was used in the analysis (Greene, 2003). These models regressed the proportion of time spent on non-SNA work (Model I) on the quality of work and then the proportion of non-SNA time *and* SNA time (Model II). The focus here was specifically on the correlates of time spent on non-SNA work, although a third model was included which included only the correlates of the SNA time (Model III).

The ordered logit model I utilised took on the following form:

$$y_i = z_i\delta_i + x'_i\beta_i + \varepsilon_i \tag{8}$$

where $y_i, 1 \leq y \leq 27,$ was the occupation rank for individual i and z_i the proportion of time spent on non-SNA work by individual i and the corresponding parameter, δ. Unobservable factors were embedded in ε_i, and x'_i the vector of explanatory variables for individual i with corresponding parameter vectors, β_i.

Model II took on the following form:

$$y_i = z_i\delta_i + v_i\varphi_i + x'_i\beta_i + \varepsilon_i \tag{9}$$

where $y_i, 1 \leq y \leq 27,$ was the ordered occupation rank for individual i and z_i the proportion of time spent on non-SNA work by individual i and the corresponding parameter, δ. In addition, v_i, the proportion of time spent on SNA work by individual i and the corresponding parameter, φ_i. Unobservable factors were embedded in ε_i, and x'_i the vector of explanatory variables for individual i with corresponding parameter vectors, β_i.

Lastly, Model III looked at follows:

$$y_i = v_i\varphi_i + x'_i\beta_i + \varepsilon_i \tag{10}$$

where y_i , $1 \leq y \leq 27$, was the ordered occupation rank for individual i and v_i, the proportion of time spent on SNA work by individual i and the corresponding parameter, φ_i. Unobservable factors were embedded in ε_i, and x'_i the vector of explanatory variables for individual i with corresponding parameter vectors, β_i.

In each one of the models, the explanatory variables included gender, age, age squared, race, marital status, the number of young and older children in the household, the number of pensioners in the household, the number of working-age women and men in the household, education level of the respondent, and province of residence. These were estimated using pooled regressions as well as disaggregated by gender for each of the survey periods included in the study.

An additional set of regressions was also run pooling the 2000 and 2010 TUS data, although the large sample size of the 2010 data results in estimates biased towards 2010 outcomes. These results are presented in Appendix K.

5.5 Limitations

The greatest limitation in relation to the time-use data is that only two waves of data are available. It had been reported that the next wave would be released in 2016 and that the time-use survey would run every four years subsequent to that, although to date, the 2010 data is the last available dataset (Stats SA, 2013). This makes studying patterns over a longer time frame challenging, and also means that this thesis is unable to conclude with updated findings and results, in relation to time-use.

Secondly, the use of a proxy variable to represent quality of work also presents a challenge. This is because the more accurate measure of quality of work, measured at the individual level (DWI), cannot be compared to the time-use activities at the individual level as respondents cannot be matched between the LFS and TUS. This may also conflate quality of work within a particular occupation group. However, given that occupation groups remained in roughly the same 'location' on the occupation rank, the method used in this analysis is the best possible solution to the problem. In addition, the similarities in the questionnaire design of the LFS and TUS were highlighted to indicate the validity of this comparative approach.

Another issue of the time-use data was raised by Floro and Komatsu (2011a) who indicated in their study (using the 2000 TUS), that a limitation of the data included the fact that many respondents would not have access to a watch and thus not have a notion of time which is required to complete a time-use diary such as the one administered by Stats SA. Although this concern is valid, 74% of households in which employed individuals lived reported having a clock in the 2000 sample and this number was 62% for the 2010 sample. Furthermore, the advantage of having the face-to-face interview, which differs from the self-administered diaries used in many developed countries, is that the enumerators could have assisted with an estimation of time in the extreme case where a respondent would not have been able to provide fairly accurate estimates of their time-use activities.

An additional limitation relates to endogeneity of the outcome variables; that is time spent on unpaid reproductive labour and the quality of work. With the given data, it cannot be determined in which direction causality runs between these variables. Thus, any inferences made here should be interpreted as associations or correlates rather than effects or determinants. Furthermore, time spent on SNA, non-SNA and non-productive activities are highly interdependent. This could result in possible multicollinearity in equations (8) to (10).

Lastly, as was the case for the LFS data analysis, unobserved heterogeneity will present a challenge here, although it cannot be rectified with these data. This may not only relate to the quality of the job an individual is employed in, but also how they spend their time and the speed with which two people would complete the same task – which could be related to innate ability. This limitation cannot be rectified by time-use data as these data cannot capture human *effort*. Time-use data "makes no difference between one hour worked in harsh circumstances and one hour worked in more comfortable circumstances" (Goldschmidt-Clermont & Pagnossin-Aligisakis, 1999, p. 520). Again, the results presented in the forthcoming chapters should be interpreted bearing in mind the potential bias introduced by unobserved heterogeneity and sample selection.

Conclusions

This chapter outlined the process by which the results presented in chapters 6 and 7 were obtained. Furthermore, it outlined the methodology employed by Stats SA in the collection of the data, the coding of the TUS data, as well as the analysis procedures employed. The chapter also touched on the importance of choosing the correct data collection methodology in a certain context, and briefly how the TUS has been conducted in other countries.

The methodology described in this chapter leans heavily on the methodology described in chapter 2. The two chapters thus complement one another in answering the overarching research question of this thesis. The next two chapters (6 and 7) present the results of the estimation methods described in this chapter.

CHAPTER 6: HOW WORKERS SPEND THEIR TIME

"I used to work for $1.50 a week. This is five days a week, sometimes six. If you live in the servant quarter, your time is never off, because if they decide to have a party at night, you gotta come out"

Maggie Holmes, Domestic (Turkel, 1974, p. 161)

Introduction

This chapter examines the time-use patterns of employed individuals according to the characteristics studied in the previous chapter. This will allow for an understanding of how time-use patterns have changed over time (2000 – 2010), but also how employed men and women spend their time differently. In each instance, time is divided into three types of activities; System of National Accounts (SNA) work, non-SNA work, and non-productive activities. In addition to this, non-SNA work (unpaid reproductive labour time),[51] which consists of home maintenance, care work, and community service, is further disaggregated. This sheds light on *who* performs the bulk of unpaid reproductive labour, how time spent on this labour might have changed over the period of analysis; and also what *types* of unpaid reproductive labour workers are predominantly engaged in.

The ability to do unpaid reproductive work could be seen as a privilege or a chore for working people. Workers could be in jobs which require excessive working hours with limited flexibility, meaning that they are unlikely to have the option to engage in unpaid reproductive labour outside of their productive work or do so to a limited extent. On the other hand, underemployment could result in workers having to pitch in at home to assist with unpaid reproductive labour. There is also the case of workers who must simply find time to do both, and consequently extend their work days. This has often been the case for women (Floro et al., 2008; Rubiano-Matulevich & Viollaz, 2019; Valodia & Devey, 2005). The data in this chapter thus require a nuanced interpretation which moves beyond seeing paid productive labour as desirable and unpaid reproductive work as undesirable.

[51] SNA work in this chapter refers to work done for pay, although it includes unpaid workers in a family business. Furthermore, non-SNA work includes reproductive labour performed for no pay, in service of the household. Where someone is paid to perform reproductive labour, such as a domestic worker, nanny, or gardener, this would fall under SNA work. Thus, non-SNA work only refers to *unpaid* reproductive labour.

The chapter starts with a discussion of summary statistics of the 2000 and 2010 TUS sample of employed individuals, as well as the time-use patterns of individuals by type of employment. This will be followed by a look at time-use patterns by the various covariates listed in the previous chapter, including the number of children co-resident in the household.

6.1 Overall time-use patterns of employed individuals

6.1.1 Characteristics of the employed in 2000 and 2010

Table 6.1 displays the descriptive statistics for the 2000 and 2010 samples of employed individuals in the TUS. The table shows that men made up a greater proportion of employed individuals over the two periods, although the proportion of men in employment was greater in 2010 than it was in 2000. Employed women were on average, older than employed men, suggesting that continuous labour market engagement may be hampered for women.

Women's household sizes were also larger than men's, with children primarily present in greater numbers in households where women lived. Although the household sizes of the employed were smaller in 2010 than they were in 2000, this would still affect the amount of unpaid reproductive labour which needs to be performed in these households.

In both periods, married men made up a greater proportion of the employed compared to married women. Although men who had never been married made up a greater proportion of the employed than their female counterparts in 2010, the proportion of women who had never been married was greater than men in 2010. This could indicate changing gender norms or alternatively that reduced household sizes could have allowed women to enter the workforce.

Separated women also made up a greater proportion of the employed than did their male counterparts in both survey periods.[52] This could be an indication of the greater

[52] For ease of reporting 'separated' refers to widowed, divorced or separated individuals.

need to work amongst separated women, specifically those who no longer have access to male income support (Elizabeth, Tolmie, & Gavey, 2013).

In addition, at higher levels of education, women made up greater proportions of the employed than did men, although for both men and women those with incomplete secondary schooling had the greatest proportions. Lastly, women generally had a lower mean occupation rank compared to men. In other words, men tended to have better quality jobs than women.

Table 6.1: Mean characteristics of workers, by gender, 2000 and 2010

	2000			2010		
	All	**Male**	**Female**	**All**	**Male**	**Female**
Male	0.549			0.569		
	(0.01)			(0.01)		
Female	0.451			0.431		
	(0.01)			(0.01)		
Age	35.385	34.637	36.296	36.703	36.425	37.069
	(0.26)	(0.35)	(0.37)	(0.14)	(0.19)	(0.20)
African	0.688	0.706	0.666	0.697	0.716	0.671
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Coloured	0.108	0.094	0.126	0.036	0.037	0.036
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Indian	0.038	0.038	0.037	0.122	0.112	0.137
	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)	(0.01)
White	0.167	0.163	0.171	0.145	0.136	0.156
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Number of young children	0.606	0.553	0.670	0.509	0.484	0.541
	(0.02)	(0.03)	(0.04)	(0.01)	(0.02)	(0.02)
Number of older children	0.830	0.756	0.921	0.514	0.457	0.590
	(0.03)	(0.04)	(0.04)	(0.01)	(0.01)	(0.02)
Number of pensioners	0.150	0.172	0.124	0.090	0.095	0.082
	(0.01)	(0.02)	(0.01)	(0.00)	(0.01)	(0.01)
Number of working-age women	2.437	2.097	2.853	2.011	1.686	2.439
	(0.05)	(0.06)	(0.08)	(0.02)	(0.03)	(0.03)
Number of working-age men	2.287	2.543	1.974	1.989	2.237	1.662
	(0.05)	(0.06)	(0.07)	(0.02)	(0.03)	(0.03)
Household size	6.310	6.120	6.542	5.112	4.959	5.314
	(0.12)	(0.16)	(0.19)	(0.05)	(0.07)	(0.07)
Never married	0.388	0.397	0.377	0.413	0.406	0.421
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)
Married/Cohabiting	0.510	0.558	0.452	0.523	0.563	0.471
	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
Separated	0.101	0.045	0.170	0.064	0.031	0.108
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)
No schooling	0.078	0.067	0.092	0.022	0.022	0.022
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Incomplete primary	0.174	0.190	0.156	0.087	0.095	0.076
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)
Incomplete secondary	0.352	0.356	0.347	0.376	0.399	0.346
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Complete secondary	0.145	0.139	0.152	0.309	0.306	0.313
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Diploma/degree	0.251	0.248	0.253	0.206	0.178	0.243
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Occupation rank	9.936	10.159	9.664	11.432	11.566	11.255
	(0.17)	(0.22)	(0.25)	(0.09)	(0.12)	(0.15)
Western Cape	0.118	0.105	0.133	0.143	0.132	0.157
	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)

Eastern Cape	0.146	0.131	0.164	0.102	0.101	0.102
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Northern Cape	0.021	0.022	0.019	0.022	0.023	0.021
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Free State	0.066	0.066	0.065	0.058	0.059	0.055
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
KwaZulu-Natal	0.196	0.195	0.197	0.199	0.192	0.207
	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)
North West	0.079	0.090	0.065	0.062	0.068	0.054
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Gauteng	0.226	0.233	0.217	0.282	0.286	0.277
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Mpumalanga	0.071	0.075	0.065	0.066	0.071	0.060
	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Limpopo	0.079	0.083	0.074	0.067	0.068	0.067
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
N	14128	14198	14194	38988	38957	38826

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. All differences significant at p<0.01. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

6.1.2 Time-use patterns by type of employment

The time-use patterns according to the different types of employment are presented in this section. In 2000, a distinction was made between those engaged in subsistence production, those working for a wage, and those who work unpaid in a family business. However, in 2010, individuals were not given the option to state that they were subsisting. Given the different classifications between 2000 and 2010, a comparison between the two periods cannot be made in this section, and thus only within-time period differences are noted here.

Table 6.2 shows the different time-use patterns in the two years according to the type of employment. The data show that in 2000, paid workers spent the most time on SNA work, while those subsisting reported spending the least. It is possible that the work of individuals subsisting overlaps with the other activities, given the nature of the work and the location in which it tends to be performed.

Location as a possible explanatory factor is further evident in the fact that subsisting workers spent the most time on non-SNA work in 2000, and those in paid employment the least, out of the three groups. Subsisting workers likely do lend themselves to being more readily available to perform non-SNA work, while working unpaid in a family business might also provide more flexibility in terms of performing non-SNA work.

The most time spent on non-productive labour was by workers working unpaid in family businesses, while those in paid work spent the least amount of time on non-productive labour activities. Combining overall time spent on unpaid reproductive and productive labour shows that those in paid work had the longest working days, while those working in family businesses had the longest days if non-productive labour time was included in 2000.

In 2010, paid workers again spent the most time on SNA activities, while unpaid family business workers spent the most time on non-SNA work and non-productive activities. The total day, including unpaid reproductive and productive labour only, was longer for unpaid family business workers, while these workers' days were also longer compared to paid workers, when including non-productive activities.

Table 6.2: Mean overall time-use by type of employment (minutes per day), 2000 and 2010

	2000			2010	
	Subsisting	**Paid work**	**Family business**	**Paid work**	**Family business**
SNA	186.92	402.29	219.38	456.32	351.78
	(10.60)	(6.76)	(18.43)	(3.91)	(32.45)
non-SNA	224.37	157.83	208.56	134.10	250.09
	(9.66)	(4.11)	(16.18)	(1.99)	(20.31)
non-Productive	1224.13	1089.47	1264.14	994.49	1036.99
	(14.27)	(7.34)	(23.45)	(3.82)	(41.83)
Total (without non-productive work)	*411.29*	*560.12*	*427.94*	*590.42*	*601.87*
Total (with non-productive work)	*1635.42*	*1649.59*	*1692.08*	*1584.91*	*1638.86*
N	14264	14264	14264	39018	12521

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. All differences significant at p<0.01. Totals are author's own calculations. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

Table 6.3 shows these time-use patterns disaggregated by gender. The table shows that for both men and women, paid workers spent the most time on SNA activities, while workers subsisting spent the most, out of the three groups, on non-SNA activities. The group which spent the most time on non-productive work was the subsisting workers for men and unpaid family business workers for women in 2000. The gender differences show that men spent more time than women on SNA activities, regardless of the type of work they did, while women spent more time than men on non-SNA activities in 2000. The differences between the sexes for SNA work were smaller than the differences in the time spent on non-SNA work. For all three groups, women spent more than double the amount of time on non-SNA work compared to men.

The 2010 data showed that paid workers spent the most time on SNA work and unpaid workers in family businesses spent the most time on non-SNA work and non-productive activities for both men and women. As per the 2000 data, women spent on average more time than men on non-SNA activities, while men spent more time than women on SNA activities. The gender differences in the time spent on different activities remained greater for non-SNA activities. This indicates that although women spent far more time on non-SNA activities than men, the gender differences in time spent on SNA activities were not equally large.

Lastly, the data indicate that regardless of the type of employment, women had longer total working days (i.e. without non-productive time), compared to men.

Table 6.3: Mean overall time-use by type of employment (minutes per day), disaggregated by gender, 2000 and 2010

	2000					
	Male			**Female**		
	Subsisting	**Paid work**	**Family business**	**Subsisting**	**Paid work**	**Family business**
SNA	213.01	427.08	274.12	152.49	371.18	167.50
	(15.59)	(9.63)	(29.58)	(13.55)	(9.16)	(22.96)
non-SNA	134.39	96.78	109.76	343.11	234.43	302.20
	(9.29)	(4.53)	(13.45)	(14.98)	(6.43)	(25.13)
non-Productive	1295.03	1127.28	1290.93	1130.58	1042.03	1238.75
	(19.74)	(10.66)	(33.86)	(17.32)	(9.55)	(32.11)
Total (without non-productive)	*347.40*	*523.86*	*383.88*	*495.60*	*605.61*	*469.70*
Total (with non-productive)	*1642.43*	*1651.14*	*1674.81*	*1626.18*	*1647.64*	*1780.45*
N	14264	14264	14264	14264	14264	14264
	2010					
	Male			**Female**		
	Paid work	**Family business**		**Paid work**	**Family business**	
SNA	483.54	362.95		420.00	345.33	
	(5.45)	(34.89)		(5.55)	(47.62)	
non-SNA	85.90	168.32		198.42	297.34	
	(2.04)	(23.30)		(3.34)	(27.69)	
non-Productive	1008.03	1088.11		976.41	1007.45	
	(5.55)	(50.54)		(5.02)	(56.49)	
Total (without non-productive)	*569.44*	*531.27*		*618.42*	*542.67*	
Total (with non-productive)	*1577.47*	*1619.38*		*1594.83*	*1550.12*	
N	38975	6211		38838	8563	

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. All differences significant at p<0.01. Totals are author's own calculations. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

Table 6.4 shows the time spent on reproductive labour by employment category. In the table a distinction is made between household maintenance, care work, and community service. In 2000 workers subsisting spent the most time, out of the three

groups, on household maintenance and care work, while paid workers spent the most on community service. This could be indicative again of the types of work subsisting workers do and where the work takes place; typically, in close proximity to the home.

In 2010, workers working unpaid in a family business spent more time than paid workers on all three unpaid reproductive labour activities.

Table 6.4: Mean non-SNA labour time-use by type of employment (minutes per day), 2000 and 2010

	2000			2010	
	Subsisting	**Paid work**	**Family business**	**Paid work**	**Family business**
Household	189.01	130.36	178.89	117.67	208.44
	(8.33)	(3.27)	(13.54)	(1.80)	(18.78)
Care	30.54	19.29	23.44	12.01	28.34
	(3.38)	(1.29)	(5.15)	(0.48)	(5.79)
Community	4.83	8.18	6.22	4.42	13.31
	(1.25)	(1.84)	(2.32)	(0.45)	(5.86)
N	14264	14264	14264	39018	12521

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. All 2000 differences significant at p<0.05. All 2010 differences significant at p<0.1. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

Analysing Table 6.5 by gender, shows that in 2000, both men and women who were subsisting spent the most time on household maintenance and care work, compared to workers in the other employment categories. Workers in paid work, on the other hand, spent more time on community service than workers in any of the other employment categories.

In terms of household maintenance, the mean differences in time spent between men and women were more than double. For care activities, the differences were more than six-fold. This indicates, as per the findings of earlier literature (Antonopoulos, 2009; Budlender, 2010; Dlamini, 2005; Gupta et al., 2006; Hallman, Quisumbing, Ruel, & Briere, 2005; ILO, 2007b), that women spend a disproportionate amount of time on care labour, compared to men. Male workers in paid work and family businesses, on the other hand, spent on average, more time on community service compared to their female counterparts, although the gender differences were marginal as was the average amount of time dedicated to this activity.

The 2010 data showed that workers in unpaid family businesses spent on average more time than paid workers on every unpaid reproductive labour activity; this was true for both male and female workers. Women also spent more time on each activity

compared to their male counterparts, with the exception of community service performed by unpaid family business workers. The differences between men and women for care work and household maintenance were not as great as they were between men and women in 2000, although women still spent the most time on these types of activities.

Table 6.5: Mean non-SNA labour time-use by type of employment (minutes per day), disaggregated by gender, 2000 and 2010

	2000					
	Male			**Female**		
	Subsisting	**Paid work**	**Family business**	**Subsisting**	**Paid work**	**Family business**
Household	121.15	81.62	98.75	278.55	191.52	254.86
	(8.95)	(3.23)	(12.97)	(12.59)	(5.36)	(20.61)
Care	8.66	5.92	3.42	59.40	36.06	42.41
	(2.31)	(0.97)	(1.26)	(6.75)	(2.53)	(9.43)
Community	4.57	9.25	7.59	5.16	6.85	4.93
	(1.58)	(3.08)	(4.27)	(2.01)	(1.51)	(2.02)
N	14264	14264	14264	14264	14264	14264
	2010					
	Male			**Female**		
	Paid work	**Family business**		**Paid work**	**Family business**	
Household	77.78	134.62		170.89	251.10	
	(1.88)	(19.32)		(3.04)	(24.79)	
Care	4.59	9.95		21.92	38.97	
	(0.45)	(4.22)		(0.94)	(9.31)	
Community	3.53	23.75		5.60	7.27	
	(0.54)	(13.47)		(0.76)	(4.53)	
N	38975	6211		38838	8563	

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. All differences significant at p<0.1 for women in 2000 and at p<0.05 for men with the exception of community work performed by men employed in a family business, this is not significant. For the 2010 data, with the exception of community work performed by men and women working in a family business, which is not significant, for males the remaining differences are significant at p<0.1 and for females the remaining differences are significant at p<0.01. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

6.2 Time-use patterns of the employed by socio-demographic characteristics

This section provides a summary of the various time-use activities of employed individuals by socio-demographic characteristics.

The first set of data provides an overview of time-use patterns over the two periods for all employed individuals. Table 6.6 shows that employed individuals increased the amount of time spent on SNA activities between 2000 and 2010, and decreased the amount of time spent on non-SNA and non-productive activities.

The decrease in average time spent on non-SNA activities indicates that people could have started 'outsourcing' these responsibilities to individuals outside their household. It is unlikely that these would simply have been performed by co-resident household members, given that the average household size also decreased over this period (see Table 6.1). However, combining productive and unpaid reproductive time does show that individuals spent more time working in 2010 compared to 2000, while the overall decrease in the total length of the day (with non-productive activities), shows that employed individuals also spent less time engaging in non-productive activities in 2010 compared to 2000.

Table 6.6: Mean overall time-use by activity (minutes per day), 2000 and 2010

	2000	**2010**
SNA	349.22	454.95
	(6.27)	(3.89)
non-SNA	171.48	135.29
	(3.83)	(1.99)
non-Productive	1126.83	995.26
	(6.89)	(3.79)
Total time (without non-productive)	*520.70*	*590.24*
Total time (with non-productive)	*1647.53*	*1585.50*
N	14264	39018

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. All differences significant at p<0.01. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

The patterns of time-use in unpaid reproductive labour show that workers spent more time in all three types of activities in 2000 compared to 2010. The greatest difference between the two periods was evident amongst care activities. Workers have thus decreased their time dedicated to care activities the most, likely employing the services of paid reproductive workers outside of their households.

Table 6.7: Mean non-SNA labour time-use by activity (minutes per day), 2000 and 2010

	2000	**2010**
Household	143.04	118.58
	(3.15)	(1.80)
Care	21.40	12.21
	(1.26)	(0.48)
Community	7.04	4.49
	(1.47)	(0.45)
N	14264	39018

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. All differences significant at p<0.01. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

6.2.1 Time-use by gender

Table 6.8 shows the various time-use activities disaggregated by gender and indicates, as per the previous tables, that there was an increase in the amount of time spent on SNA activities for both men and women between 2000 and 2010. Both male and female employed individuals also spent less time on non-SNA work and non-productive activities.

In terms of gender differences, men spent more time, in both periods, on SNA and non-productive activities, while women spent more time on non-SNA activities in both periods. However, the differences between men and women were greater in 2010 than they were in 2000. This suggests that even though both men and women spent fewer hours on non-SNA work in 2010 than they did in 2000, the decrease between the two periods was greater for men than it was for women. In addition, the difference in time spent on SNA activities between men and women was smaller than the differences in non-SNA time. Thus, although workers decreased the time spent on non-SNA work, men spent far less time doing this type of work compared to women – suggesting that norms around traditional gender roles were still observed despite the fact that women had started spending more time on SNA work.

The gender differences in SNA time were greater in 2010 than it was in 2000, although women had a longer working day (adding SNA and non-SNA time) compared to men – working 43% of the entire day in 2010. Thus, even though non-SNA time-use had decreased, workers had worked more in general, with women increasing their working days disproportionately.

Table 6.8: Mean overall time-use by gender (minutes per day), 2000 and 2010

	2000			2010		
	SNA	**non-SNA**	**non-Productive**	**SNA**	**non-SNA**	**non-Productive**
Male	375.58	103.60	1169.19	482.63	86.45	1008.83
	(9.09)	(4.15)	(10.07)	(5.42)	(2.04)	(5.53)
Female	317.22	253.89	1075.41	418.31	199.92	977.30
	(8.35)	(5.95)	(8.85)	(5.51)	(3.33)	(4.99)
N	14264			39018		

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. All differences significant at p<0.01. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

Table 6.9 shows that there was a decrease in time spent on unpaid reproductive work over the two periods, as was also evident from Table 6.8. Both men and women decreased the average amount of time spent on all unpaid reproductive labour activities over the two periods. For women, the greatest decline was evident in the amount of care work they did, and for men the decrease was most pronounced in the amount of time dedicated to community service activities.

For household maintenance and care work, the difference between time spent by men and women was greater in 2000 than they were in 2010, indicating that the gender difference in time-use did narrow somewhat over the two survey periods. As expected, women spent more time on average on all types of activities, with the exception of community service in 2000 where men spent on average 7.81 minutes per day compared to 6.10 minutes for women.

Table 6.9: Mean non-SNA labour time-use by gender (minutes per day), 2000 and 2010

	2000			2010		
	Household	**Care**	**Community**	**Household**	**Care**	**Community**
Male	89.56	6.22	7.81	78.19	4.60	3.67
	(3.29)	(0.90)	(2.48)	(1.88)	(0.45)	(0.55)
Female	207.96	39.83	6.10	172.05	22.29	5.59
	(4.99)	(2.44)	(1.23)	(3.03)	(0.93)	(0.75)
N	14264			39018		

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. All 2000 differences significant at p<0.05 and all 2010 differences significant at p<0.01. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

6.2.2 Time-use by race

Table 6.10 indicates that for all race groups, time spent on SNA activities increased between 2000 and 2010, while time spent on non-SNA and non-productive activities decreased. In terms of SNA time, the greatest average increase was amongst Africans, while Whites had the smallest average increase over the two periods. Over these two periods, an increase in the DWI was also evident for all race groups. This would suggest that the increase in time dedicated to SNA activity has been accompanied by an increase in the quality of work.

In both 2000 and 2010, Indians spent on average the most time on SNA activities. In 2000, Africans spent the least time on SNA activities while Whites spent the least time in 2010. The difference between the groups which spent the most and the least time over the two periods on SNA activities decreased over the two periods, with the

difference between Africans and Indians decreasing from an average of 97.47 minutes in 2000 to 64.61 minutes in 2010. This pattern could be an indication of increased opportunities for Africans in the labour market.

In terms of non-SNA activities, Africans spent the most time, while Indians spent the least time on these activities in both periods. The differences between these two groups widened over the two periods, suggesting that racial inequality in time-use of non-SNA work amongst employed individuals increased over the two periods.

Table 6.10: Mean overall time-use by race (minutes per day), 2000 and 2010

	2000			2010		
	SNA	**non-SNA**	**non-Productive**	**SNA**	**non-SNA**	**non-Productive**
African	326.31	176.84	1134.29	457.64	140.29	990.69
	(7.15)	(4.40)	(8.19)	(4.33)	(2.34)	(4.37)
Coloured	380.46	176.28	1117.49	440.73	138.71	1015.07
	(17.78)	(14.52)	(18.19)	(10.62)	(5.29)	(10.39)
Indian	423.78	119.97	1085.68	522.25	79.20	946.64
	(24.09)	(14.18)	(26.33)	(16.85)	(7.39)	(16.00)
White	410.33	156.54	1109.83	437.40	122.49	1012.47
	(18.26)	(9.95)	(19.64)	(13.53)	(6.19)	(12.27)
N	*14257*			*39018*		

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. All differences significant at p<0.01. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

As per the data in Table 6.10, Table 6.11 shows that for all groups, both male and female, the time spent on SNA activities over the two periods increased, while the time spent on non-SNA activities decreased. In 2000, African males and females spent the most time on non-SNA activities, while they spent the least time on SNA activities. In 2010, they still spent the most time on non-SNA activities. Although the patterns varied for the groups who spent the most time on SNA activities and the least time on non-SNA activities. The table shows that in terms of the burden of time spent on non-SNA activities, Africans were the worst off and this had not changed over the period under consideration.

The gender differences between the groups show that over both periods, men spent more time on SNA activities and non-productive activities, while women spent more time on non-SNA activities, with the exception of White women in 2010 who spent more time on non-productive activities compared to their male counterparts. In both periods, the differences between men and women were greatest amongst White individuals for SNA work and greatest for African individuals for non-SNA work. In

2000, the differences in time spent on non-productive activities were greatest amongst Africans, while this was the case for Whites in 2010. The differences in time spent on all activities between men and women were narrower in 2010 than they were in 2000. This suggests that differences in time-use narrowed over the two periods and became more equally spread when studying the patterns disaggregated by gender, although the traditional racial patterns largely persisted.

Table 6.11: Mean overall time-use by race (minutes per day), disaggregated by gender, 2000 and 2010

	2000					
	Male			**Female**		
	SNA	**non-SNA**	**non-Productive**	**SNA**	**non-SNA**	**non-Productive**
African	349.80	107.22	1181.02	296.19	266.10	1074.38
	(10.07)	(4.53)	(11.47)	(10.06)	(7.14)	(10.88)
Coloured	412.44	105.53	1162.51	351.14	241.14	1076.22
	(24.82)	(21.79)	(29.07)	(24.64)	(17.02)	(22.69)
Indian	441.87	64.38	1130.60	401.11	189.63	1029.39
	(33.39)	(10.54)	(34.92)	(34.86)	(27.44)	(37.51)
White	454.50	94.71	1128.91	359.48	227.73	1087.87
	(28.13)	(10.14)	(30.87)	(20.62)	(15.60)	(23.13)
N	*14260*			*14261*		
	2010					
	Male			**Female**		
	SNA	**non-SNA**	**non-Productive**	**SNA**	**non-SNA**	**non-Productive**
African	486.35	90.46	1005.98	417.30	210.33	969.21
	(5.91)	(2.29)	(6.25)	(6.39)	(4.15)	(5.81)
Coloured	453.16	83.46	1043.56	427.30	198.40	984.30
	(16.15)	(6.35)	(16.62)	(13.77)	(7.80)	(11.61)
Indian	528.44	43.00	963.10	513.86	128.30	924.30
	(22.89)	(6.55)	(20.32)	(24.82)	(12.39)	(25.44)
White	475.07	79.71	1007.71	393.06	172.87	1018.07
	(19.69)	(6.86)	(18.48)	(17.27)	(9.03)	(15.60)
N	*38975*			*38838*		

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. All differences significant at p<0.01. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

Table 6.12 which shows only time spent on unpaid reproductive labour, indicates that the largest decease in time spent on household maintenance was evident for Indians, while for care work this was true for Africans. Africans spent a third less of their time on care work in 2010 than they did in 2000. Thus, Africans could have increased participation in jobs which do not allow them to perform care activities or they could have outsourced this responsibility to other households.

In both periods, however, Africans spent the most time on household maintenance, compared to other race groups, while the same was true for Coloureds as it relates to care work.

Table 6.12: Mean non-SNA labour time-use by race (minutes per day), 2000 and 2010

	2000			2010		
	Household	**Care**	**Community**	**Household**	**Care**	**Community**
African	151.90	17.95	6.99	125.21	10.65	4.43
	(3.82)	(1.32)	(1.56)	(2.10)	(0.54)	(0.49)
Coloured	129.11	34.15	13.02	111.26	21.68	5.77
	(8.57)	(4.53)	(9.08)	(4.50)	(1.72)	(1.63)
Indian	103.52	15.28	1.17	66.38	9.43	3.40
	(11.16)	(6.60)	(0.64)	(6.93)	(2.27)	(2.53)
White	122.62	29.20	4.72	106.05	12.43	4.01
	(8.33)	(3.94)	(1.47)	(5.73)	(1.43)	(1.38)
N	*14257*			*39018*		

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. All differences significant at p<0.1 with the exception of care work performed by Indian and Coloured individuals for 2000 and for 2010, all differences significant at p<0.05 except time spent on community work for White individuals. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

The pattern in the pooled data presented in Table 6.12 was only evident amongst females where African females and Coloured females spent the most time on household maintenance and care work, respectively. African men also spent the most time on household maintenance over the two periods, compared to males of other races. In addition, White males spent the most time on care work in 2000 and Coloured males in 2010. Even though African men spent the most time on household maintenance over both periods compared to their counterparts, they spent less than half the time on average, compared to their female counterparts. They did, however, have the smallest gender difference, with only White males and females having a larger or comparable gender difference in time spent on household maintenance over the two periods.

Indian males and females in 2010 and African males and females in 2000 had the greatest divergence between time spent on care work. African men spent less than 10% of the time that African females spent on care work in 2000 and this share had only increased to 15% in 2010 (comparable to Indian males and females). This would suggest that African households are likely the least egalitarian in terms of how care work is spread across men and women. It is possible that cultural differences amongst the race groups could contribute to explaining some of the patterns, although as gender norms change over time, so too could the cultural practices observed by the various race groups.

Table 6.13: Mean non-SNA labour time-use by race (minutes per day), disaggregated by gender, 2000 and 2010

	2000	
	Male	**Female**

	Household	Care	Community	Household	Care	Community
African	96.69	3.52	7.01	222.69	36.44	6.97
	(3.93)	(0.64)	(2.44)	(6.21)	(2.75)	(1.69)
Coloured	70.03	11.21	24.29	183.27	55.17	2.70
	(7.38)	(2.97)	(18.74)	(12.59)	(7.50)	(1.86)
Indian	53.95	8.34	2.10	165.65	23.98	0.00
	(9.12)	(4.87)	(1.14)	(20.52)	(13.53)	-
White	76.62	14.86	3.23	175.58	45.72	6.43
	(9.54)	(4.17)	(1.71)	(12.26)	(6.84)	(2.45)
N	*14260*			*14261*		
	2010					
	Male			**Female**		
	Household	**Care**	**Community**	**Household**	**Care**	**Community**
African	83.42	3.27	3.77	183.95	21.03	5.35
	(2.11)	(0.52)	(0.64)	(3.72)	(1.04)	(0.76)
Coloured	67.82	9.19	6.44	158.19	35.16	5.05
	(5.61)	(1.34)	(2.76)	(6.60)	(3.12)	(1.62)
Indian	40.05	2.81	0.14	102.09	18.40	7.81
	(6.33)	(1.11)	(0.14)	(13.27)	(4.71)	(5.78)
White	69.65	8.20	1.85	148.91	17.40	6.56
	(6.48)	(1.46)	(0.56)	(8.54)	(2.58)	(2.90)
N	*38975*			*38838*		

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. For the 2000 data all differences are significant at p<0.05 with the exception of community work performed by Coloured, Indian and White individuals and care and community work performed by Indian females. For the 2010 data, all differences are significant at p<0.1 with the exception of community work for both Indian males and females. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

6.2.3 Time-use by marital status

As per the previous tables, the data again show that individuals, regardless of marital status, decreased time spent on non-SNA and non-productive activities and increased time spent on SNA activities (Table 6.14). Individuals who had never been married had the greatest increase in time spent on SNA work, while they also had the greatest decrease in time spent on non-productive activities. Interestingly, married and cohabiting individuals had the greatest change in average time spent on non-SNA activities. Given the complex living arrangements in South Africa, this decrease in time would not simply be explained by living arrangements with a partner, but would require further investigation which specifically considers the household composition of married and cohabiting individuals (Sienaert, 2008; Stats SA, 2019c).

There were no clear patterns by marital status in terms of the type of activity performed over time, but in 2000, ‘never married’ individuals spent the most time out of all the groups on SNA and non-SNA activities, while separated individuals spent the most time on non-productive activities. In 2010, on the other hand, separated individuals spent the most time on SNA activities, while married and cohabiting individuals spent the most time on non-SNA activities and individuals who had never been married spent the most time on non-productive activities relative to individuals in other marital states.

Table 6.14: Mean overall time-use by marital status (minutes per day), 2000 and 2010

	2000			2010		
	SNA	**non-SNA**	**non-Productive**	**SNA**	**non-SNA**	**non-Productive**
Never married	307.34	164.30	1174.67	462.37	133.29	994.44
	(9.67)	(5.70)	(11.34)	(5.89)	(2.90)	(5.97)
Married/Cohabiting	387.19	169.43	1098.47	456.10	131.23	994.49
	(8.85)	(5.55)	(9.14)	(5.56)	(2.82)	(5.40)
Separated	333.99	212.38	1068.95	398.12	181.22	1006.84
	(18.76)	(13.10)	(21.52)	(14.11)	(8.62)	(11.47)
N	*14248*			*39018*		

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. All differences significant at p<0.01. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

Disaggregated by gender, Table 6.15 shows that the general increase in time spent on SNA activities and the decrease in time spent on non-SNA and non-productive activities held for both men and women in 2000 and 2010. The increase in time spent on SNA work between the two periods was greater for individuals who had never been married than individuals in other marital states. This was true for both men and women.

In terms of non-SNA work, on the other hand, the decrease between the two periods was greater for separated men, while the greatest decrease was amongst females who had never been married. These data thus show that individuals who had never been married in 2000 spent far more time on non-SNA work than did individuals who had never been married in 2010. For women, this is indicative of a possible change in gender norms over the period. Women who had never been married before possibly also do not carry the same burden others do in relation to non-SNA work.

The table also shows that the traditional gender patterns still held over the two periods. Men spent more time on non-productive activities and SNA work than did females, and females spent on average more time on non-SNA work compared to males, regardless of marital status. The only exception was for separated individuals, where women spent on average more time than men on SNA work. Separated women would likely have a greater need to work specifically where loss of income of a male breadwinner is evident. However, this observation cannot be confirmed with these data and would require further analysis.

Table 6.15: Mean overall time-use by marital status (minutes per day), disaggregated by gender, 2000 and 2010

	2000	
	Male	**Female**

	SNA	non-SNA	non-Productive	SNA	non-SNA	non-Productive
Never married	320.70	109.95	1221.27	290.21	233.90	1114.98
	(13.28)	(6.09)	(15.80)	(14.11)	(9.40)	(15.13)
Married/Cohabiting	423.62	94.69	1126.62	333.10	280.43	1056.67
	(12.44)	(5.94)	(13.12)	(11.36)	(8.65)	(11.80)
Separated	314.69	157.17	1195.75	340.16	230.05	1028.37
	(33.77)	(17.00)	(43.23)	(22.22)	(15.99)	(22.87)
N		*14255*			*14257*	
	2010					
	Male			**Female**		
	SNA	**non-SNA**	**non-Productive**	**SNA**	**non-SNA**	**non-Productive**
Never married	477.60	100.58	1009.10	443.01	174.85	975.80
	(8.39)	(3.21)	(8.83)	(8.18)	(4.98)	(7.59)
Married/Cohabiting	488.38	74.81	1008.11	404.86	220.78	972.88
	(7.39)	(2.69)	(7.43)	(8.18)	(4.81)	(7.57)
Separated	443.42	114.54	1018.49	380.86	206.63	1002.39
	(22.84)	(11.17)	(20.21)	(17.24)	(10.61)	(13.75)
N		*38975*			*38838*	

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. All differences significant at p<0.01. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

Looking at non-SNA work only, the time spent on unpaid reproductive labour decreased over the two periods. The smallest decrease was in care work, while the greatest decline was in time spent on household maintenance.

In both periods, married and cohabiting individuals spent the least amount of time on household maintenance while they spent the greatest amount of time on care work. Individuals who had never been married, on the other hand, spent the least amount of time on care work and separated individuals spent the most time on household maintenance.

Table 6.16: Mean non-SNA labour time-use by marital status (minutes per day), 2000 and 2010

	2000			2010		
	Household	**Care**	**Community**	**Household**	**Care**	**Community**
Never married	143.96	14.46	5.88	119.56	9.46	4.26
	(4.85)	(1.56)	(2.11)	(2.58)	(0.70)	(0.70)
Married/Cohabiting	135.91	26.46	7.06	112.75	14.23	4.25
	(4.48)	(1.97)	(2.27)	(2.56)	(0.71)	(0.58)
Separated	175.97	24.68	11.73	159.82	13.36	8.04
	(10.50)	(4.58)	(4.11)	(7.85)	(1.64)	(2.62)
N		*14248*			*39018*	

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. All differences significant at p<0.05. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

The time spent on unpaid reproductive labour broken down by gender (Table 6.17) shows that for all household maintenance and care activities, the average amount of time spent was higher in 2000 than it was in 2010. However, there is an exception for males who had never married performing care work. Never married males spent on

average 1.69 minutes a day on care work in 2000 compared to 2.52 minutes on care work in 2010. The time spent on care work for this group is marginal in both periods. Although the increase is an interesting deviation, specifically because men, especially employed single men, are less likely than women to live with people who would require care (Chant, 2007; Rubiano-Matulevich & Viollaz, 2019). Their female counterparts spent almost a third less of their time on care work in 2010 compared to 2000.

In addition, all female groups spent more time on household maintenance and care work compared to men over the two periods with the greatest gender difference being between married individuals for household maintenance. On the other hand, the gender difference in time spent on care work was greatest for individuals who had never been married in 2000 while in 2010 the difference was greatest between separated men and women. Men who had never been married in 2000 and separated men in 2010 spent on average less than 10% of the time women spent on care work. Furthermore, the gender difference in time-use on unpaid reproductive labour was smaller in 2010 than it was in 2000, with the exception of the time-use of married and cohabiting individuals on household maintenance and the time-use of separated individuals on care work. This would suggest that the unpaid reproductive labour burden had become more equally spread between men and women, although this pattern was only consistent for individuals who had never been married, across all the activities.

Over both time periods, married women spent more time on average, on household maintenance and care work than never married and separated women, even though the time spent on these activities declined over the period. On the other hand, married men spent the least time, on average, on household maintenance while they did spend more time on care work compared to their counterparts who had never married or were separated. This data show that although individuals who had never married seemed to use their time in a more liberal manner, the institution of marriage still entrenches gender roles. This is evident in the time-use patterns of those who were married as well as those who had previously been married.

Table 6.17: Mean non-SNA labour time-use by marital status (minutes per day), disaggregated by gender, 2000 and 2010

	2000

	Male			Female		
	Household	**Care**	**Community**	**Household**	**Care**	**Community**
Never married	101.20	1.69	7.06	198.73	30.81	4.37
	(5.07)	(0.57)	(3.50)	(8.11)	(3.27)	(1.74)
Married/Cohabiting	76.64	9.79	8.26	223.93	51.22	5.28
	(4.45)	(1.56)	(3.70)	(7.25)	(4.13)	(1.28)
Separated	142.73	4.96	9.48	186.60	30.99	12.46
	(15.87)	(3.09)	(5.14)	(12.71)	(5.80)	(5.17)
N		*14255*			*14257*	
	2010					
	Male			**Female**		
	Household	**Care**	**Community**	**Household**	**Care**	**Community**
Never married	94.67	2.52	3.38	151.20	18.28	5.37
	(2.98)	(0.73)	(0.78)	(4.37)	(1.27)	(1.25)
Married/Cohabiting	65.03	6.24	3.53	188.50	26.90	5.38
	(2.48)	(0.60)	(0.69)	(4.46)	(1.54)	(1.02)
Separated	102.95	1.65	9.94	181.49	17.82	7.32
	(8.83)	(0.66)	(7.58)	(9.84)	(2.24)	(2.18)
N		*38975*			*38838*	

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. All differences significant at p<0.1 with the exception of care and community work for separated individuals in 2000 and community work for separated individuals in 2010. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

6.2.4 Time-use by the number of children

This section looks at the relationship between having children in the household and time-use on various activities. The first part looks at 'young' children, who are defined as those who are pre-school going age, younger than 7 years old, while the second part looks at 'older' children who are of school-going age, i.e. between 7 and 15 years old (inclusive).

6.2.4.1 Young children

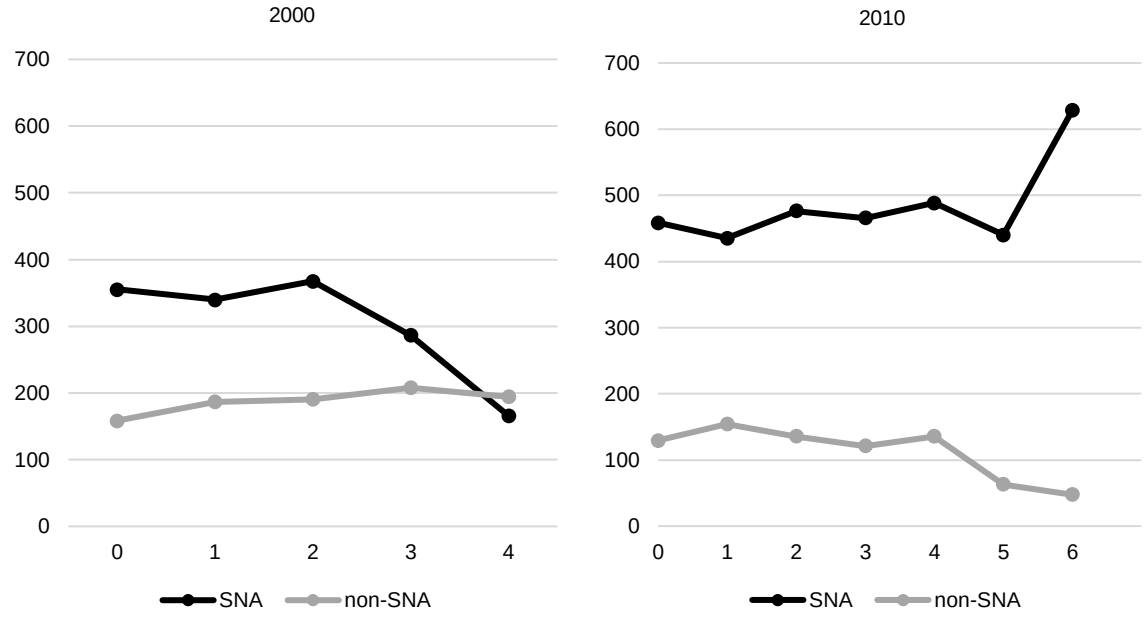
Figure 6-1 shows the time-use of individuals by the number of young children who were co-resident with them in the household. The figure shows that in both 2000 and 2010, an initial increase was evident in non-SNA work time and an initial decrease in SNA work time when there was one child in the household, compared to when there were none. In 2000, a sharp decline in the amount of time spent on SNA work when there were two or more children in the household was evident, while the average amount of time spent on non-SNA work increased marginally the more young children there were in the household.

The two figures confirm what all the previous data have shown, that employed individuals spent far more time on SNA work in 2010 than they did in 2000, while the average amount of time spent on non-SNA work was lower in 2010 than it was in 2000. A further difference between the two periods was that working individuals spent more,

not less, time, on SNA activities in 2010, the more children were in the home. This could indicate that employed individuals may have employed help from outside of the household to look after children in the home, or alternatively have made use of childcare facilities, or have leaned on other households to assist with this responsibility.

It is also possible that these households could have benefitted from government's increased commitment to make early childhood development services and facilities more accessible. Government's early childhood development programme is aimed at children from birth to nine-years-old and greater emphasis has been placed on this development tool through increased funding via conditional grants (Department of Education, 2001; Giese & Budlender, 2011).[53]

Figure 6-1: Mean overall time-use by number of co-resident young children (minutes per day), 2000 and 2010



Source: TUS 2000 and TUS 2010. Note: Data are weighted. Number of children on x-axis and average time-use on y-axis. Non-productive activities excluded. All differences significant at p<0.5. Significance levels included are comparisons of categories within each survey year.

Looking at these patterns disaggregated by gender shows that the initial increase in non-SNA work and decrease in SNA work when one child was in the household, was not applicable to men in 2000. Instead, men had a slight increase in SNA work time

[53] Although the enrolment numbers in early childhood development facilities in 2009 showed that only a third of children between the ages of 0 and 4-years-old were attending an educational institution, the percentage of 5-year-olds and those enrolled in grade R were 78.3% and 60.3%, respectively (Department of Basic Education, 2010).

and a decrease in non-SNA work time when there was one child present in the household, against when there was none. Again, two children were the threshold at which the amount of time spent on SNA work decreased drastically; this was true for both males and females. Beyond three children, the decline was sharper for females than they were for males. Furthermore, both men and women generally increased their time spent on non-SNA work the more children were in the household, although this time increased more drastically when there were more than three children in the household.

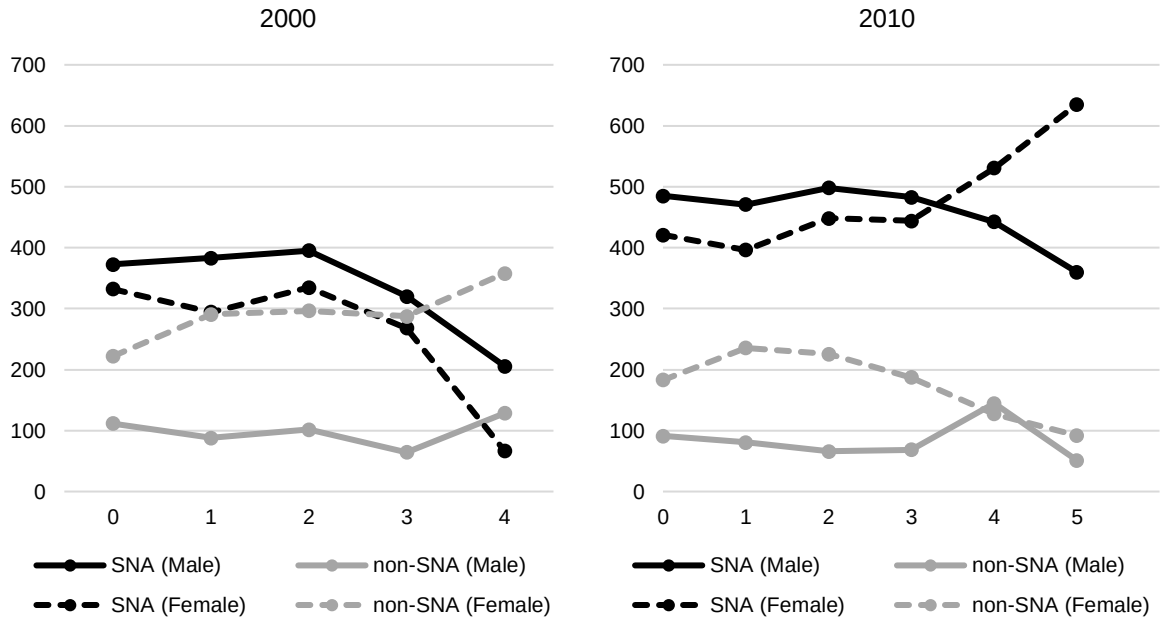
The 2000 data indicate what is expected of traditional gender roles, that men likely work more to earn more, the greater the number of children in the household. But that women step back from activity in the productive sphere when more children are present in the household, particularly young children. The causality of these events, however, could also run in the opposite direction, where families could choose to have more children if the household already has access to sufficient resources or women could choose to have more children, given that they already spend limited time in the productive sphere.

The pattern in 2010 was very different for women, who increased the amount of time spent on SNA work when more than one child was present in the household and decreased the amount of time spent on non-SNA activities. This increase in SNA work was sharpest when more than three children were present in the household. This is a deviation from the 2000 graph and could indicate that employed women might have been able to afford childcare or benefit from government subsidised educational facilities in 2010 and thus not have a limitation on their time related to childcare. Alternatively, they could choose to have more children if they were already able to afford the care requirements which accompany having those children. This would also suggest a change in the time-use patterns for women over the period.

For men, on the other hand, these patterns seemed to remain the same over the period. An increase in the number of children in the household meant that less time was spent on SNA activities and more on non-SNA activities. However, the amount spent on non-SNA activities initially declined and only increased once there were more than three children in the household.

The 2010 data suggest a deviation from previously cited literature on labour force participation and employment probabilities for women, but also indicate the need to have a closer look at the factors which traditionally result in gender differences in the labour market, and what effect these have on the quality of work which women are employed in. In addition, a better understanding of how women might be interacting with these factors differently once they secure employment would also be useful.

Figure 6-2: Mean overall time-use by number of young children (minutes per day), disaggregated by gender, 2000 and 2010



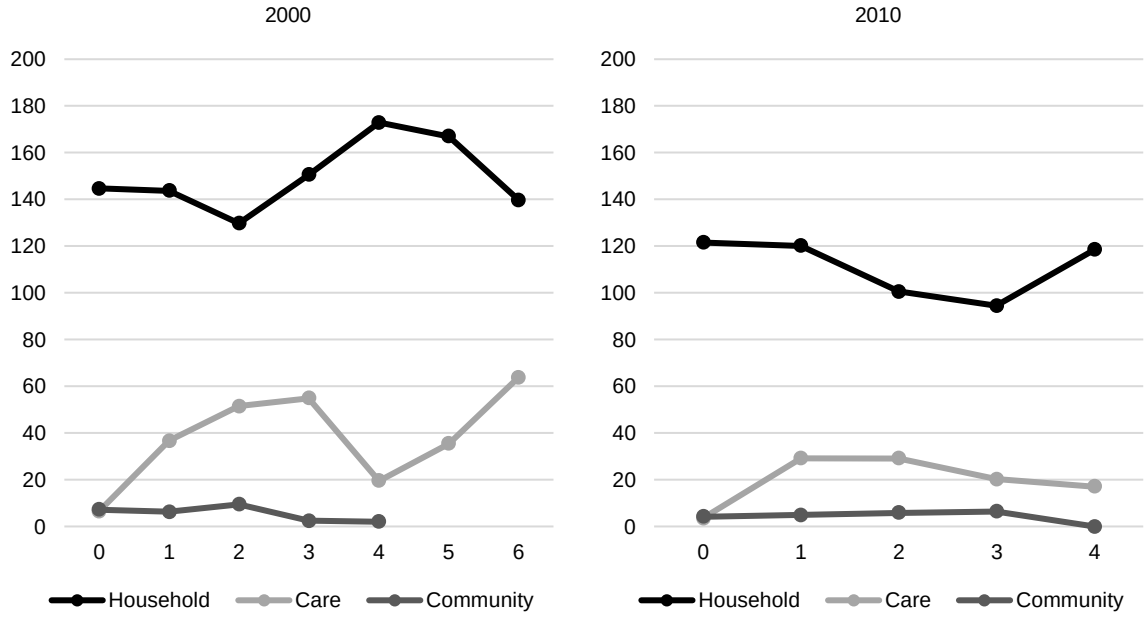
Source: TUS 2000 and TUS 2010. Note: Data are weighted. Number of children on x-axis and average time-use on y-axis. Non-productive work excluded. All 2000 differences significant at p<0.1 except for non-SNA time spent by males with 4 children. For 2010 all differences significant at p<0.1. Significance levels included are comparisons of categories within each survey year.

Non-SNA time-use when young children were present in the household showed that there was a general increase in the amount of time spent on care work in 2000 (Figure 6-3). Time spent on this activity increased drastically when one or more children were in the household, although this time-use decreased with more than four children in the household and then increased again after five. Time spent on household maintenance decreased initially and then increased when three or more children were present. The inverse shapes of the care work and household maintenance curves suggest that performing more care work resulted in fewer hours spent on household maintenance, and vice versa. Having more children in the household would suggest that more time is needed for these activities, more money to pay workers to perform this labour, or

alternatively having to support additional household members who can perform this labour unpaid

In 2010, on the other hand, this inverse pattern was not evident and could indicate that individuals possibly had fewer constraints in terms of time and/or money. Despite this, the graphs show that the more children in the household, the less time individuals spent on care work, but that there was also a general decrease in the amount of time spent on household maintenance; however, an increase was evident when there were more than three young children present in the household. These graphs suggest that in 2010, the association between the number of children and time-use was not as great as it was in 2000 and could perhaps suggest a change in how people choose to spend their time, but also their increased ability to delegate activities to others – whether within or outside the household.

Figure 6-3: Mean non-SNA labour time-use by number of co-resident young children (minutes per day), 2000 and 2010



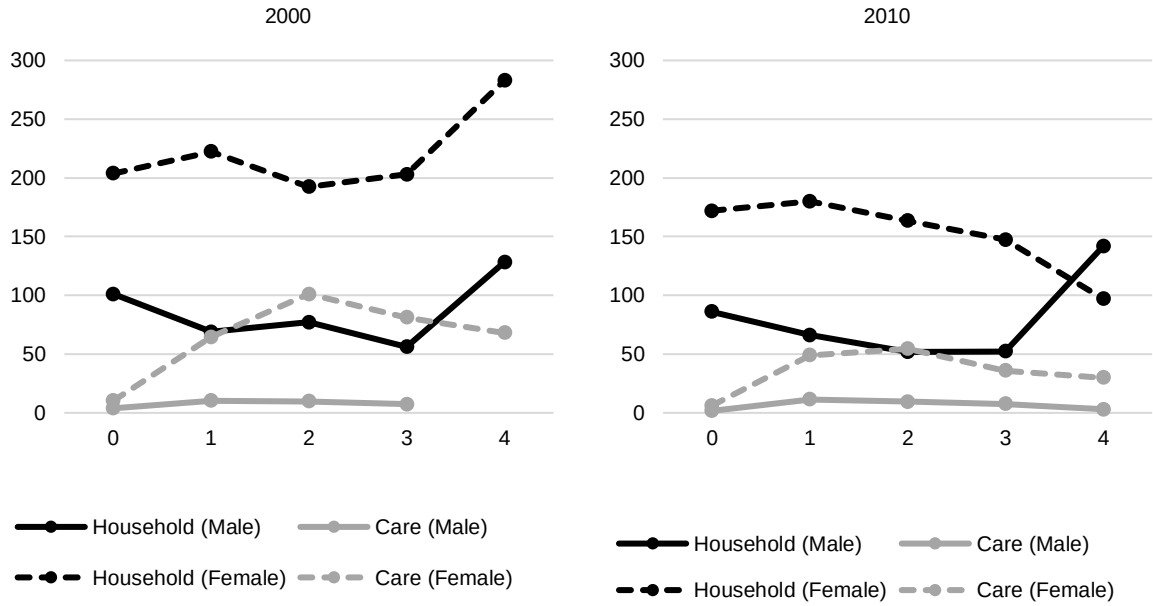
Source: TUS 2000 and TUS 2010. Note: Data are weighted. Number of children on x-axis and average time-use on y-axis. All 2000 differences significant at p<0.1 except for care work with 5 or more children and community work with 4 or more children. For 2010 all differences are significant at p<0.05 except for community work performed by those with 3 children in the household. Significance levels included are comparisons of categories within each survey year.

Disaggregated by gender (Figure 6-4) the data show that in 2000 the household maintenance patterns of men and women roughly moved in the same direction when there were children in the household, although women spent far more time on household maintenance than men. Time spent on household maintenance declined

initially and then increased when three or more children were present in the household. For women, the care work and household maintenance graphs moved in opposite directions again, suggesting that they were likely trading off these activities with the available hours in their day. For men this was not evident and their time spent on care work was in fact negligible regardless of how many young children were co-resident with them in the household.

This pattern is also evident in the male graph for 2010 which shows that they spent even less time on household maintenance than they did in 2000, although time-use on this activity did increase when more than three children were in the home. Similar to the pooled graphs, women's time-use on household maintenance and care work increased when there was one child present in the household, compared to when there were none, and then decreased the more children were co-resident. This again suggests that being employed at a time when overall quality of work was relatively good possibly provided women with the ability to 'outsource' this work to paid reproductive labourers outside the household.

Figure 6-4: Mean non-SNA labour time-use by number of co-resident young children (minutes per day), disaggregated by gender, 2000 and 2010



Source: TUS 2000 and TUS 2010. Note: Data are weighted. Number of children on x-axis and average time-use on y-axis. Community work excluded. For the 2000 data all male differences are significant at p<0.05 except for males performing care work with 4 children in the household and all females differences significant at p<0.01. For the 2010 data all differences are significant at p<0.1 except care work by males with 4 children in the household, while for females all differences are significant at p<0.05. Significance levels included are comparisons of categories within each survey year.

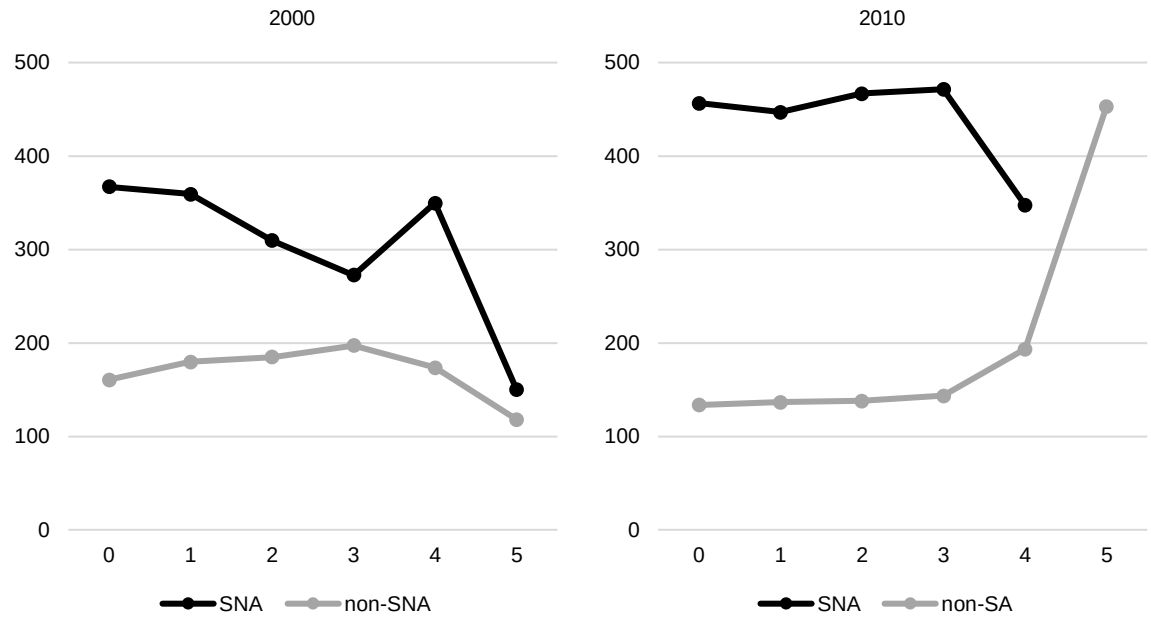
6.2.4.2 Older children

The patterns for older children, who do not need as much active child rearing, but who are also more likely to be attending an educational facility for a number of hours during the day, shows a similar pattern to the figures for young children. However, the time spent on SNA activities did not change as drastically according to the number of children in the household. Figure 6-5 shows that a slight increase was evident in the amount of time spent on non-SNA activities the more children were in the household and a decrease in SNA activities was also evident in 2000. The SNA time graph did have a downward slope the more children were in the home, although a sharp increase was evident for individuals who lived with four children. Although, in the 2000 data, individuals who lived with four children made up only 1.34% of the sample. It is possible that some of these individuals uncharacteristically inflated their reported SNA time-use, given the general trend of the graph.

In addition, the 2010 data also show a sharp decline in SNA time-use when there are four children in the household. (This number further decreased to 125 minutes when there were five children present, although this mean difference was not significant). The 2010 data thus support the assertion that the movement of the SNA graph for the 2000 data is unusual, although the two graphs further differ in that the time spent on these two categories remained largely constant in 2010; only changing once there were more than three children in the household.

The two figures further differ in the direction in which the non-SNA time graphs move. For the 2000 data, the more children are present in the home, the less time is spent on non-SNA time with more than three children in the household. While for the 2010 data, the time spent on non-SNA work increases when more than three children are present. This reflects the hypothesis that working individuals had less support in their household in 2010 than they did in 2000; driving up the time they spent on non-SNA time.

Figure 6-5: Mean overall time-use by number of co-resident older children (minutes per day), 2000 and 2010



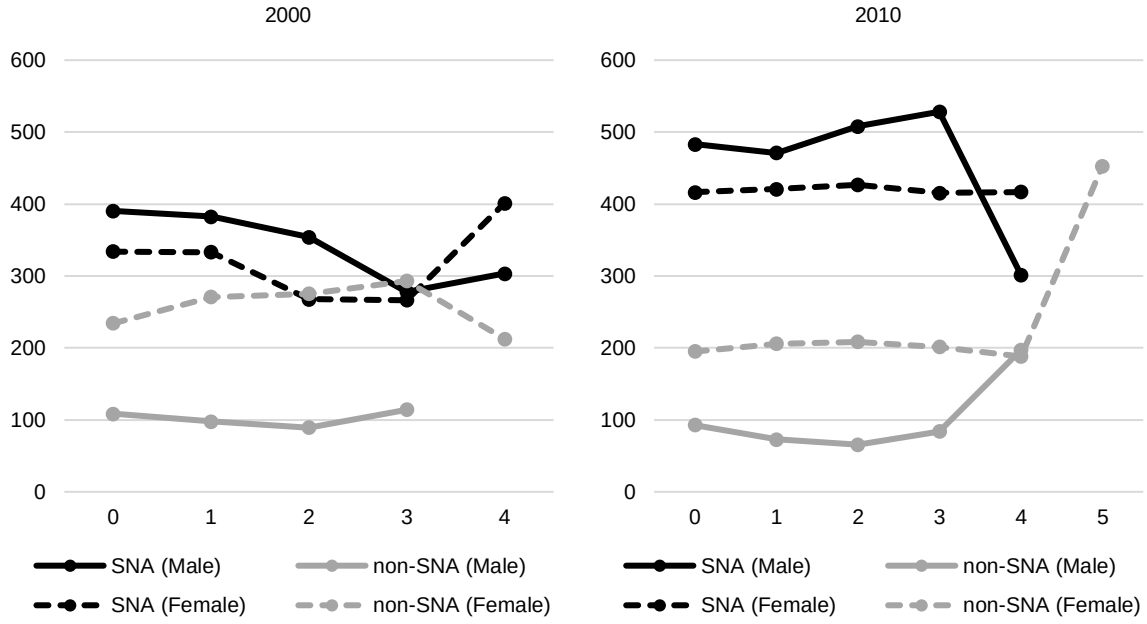
Source: TUS 2000 and TUS 2010. Note: Data are weighted. Number of children on x-axis and average time-use on y-axis. Non-productive activities excluded. All 2000 differences significant at p<0.5 (except non-SNA work for 5 children, which is not significant) and all 2010 differences significant at p<0.01. Significance levels included are comparisons of categories within each survey year.

Disaggregated by gender, Figure 6-6 shows that for men, having older children in the household resulted in a decrease in time spent on SNA activities and an increase (initial decrease) in the time spent on non-SNA activities in 2000. For women, non-SNA time-use initially increased then decreased, while the opposite was true for SNA time-use.

In 2010, women's time-use on SNA and non-SNA activities remained relatively constant until more than three children were co-resident in the household. More than three children resulted in an increase in the time spent on non-SNA activities. For men, the number of older children in the household resulted in a decrease in the time spent on both SNA and non-SNA activities (from 0 to 1 child), then an increase in SNA time-use and a decrease when four children were present. The time spent on non-SNA time gradually declined and then increased when 3 or more children were present.

This again suggests that the number of children in the household was not as much of a deterrent to SNA activities in 2010 than it was in 2000 and that attendance at educational institutions was likely a relief on the time-use of employed individuals.

Figure 6-6: Mean overall time-use by number of co-resident older children (minutes per day), disaggregated by gender, 2000 and 2010



Source: TUS 2000 and TUS 2010. Note: Data are weighted. Number of children on x-axis and average time-use on y-axis. Non-productive activities excluded. All 2000 differences significant at p<0.05 (except non-SNA work for men with 3 children in the home) and 2010 differences signficiant at p<0.01. Significance levels included are comparisons of categories within each survey year.

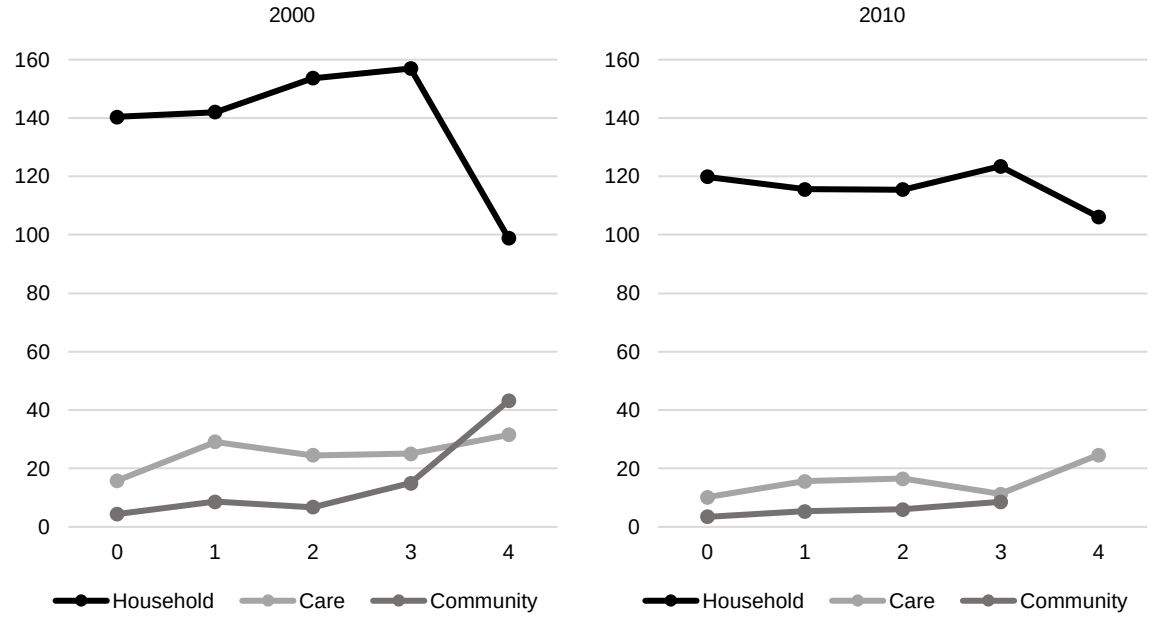
Figure 6-7, which shows the time spent on unpaid reproductive labour activities by the number of co-resident older children in the household, indicates that time spent on care work was marginal compared to care work performed when there were younger children co-resident in the houshold. This is indicative of the different types of care needs children have at different life stages. Also notable in Figure 6-7 is the increased amount of time-use dedicated to community work, despite the fact that it still made up a small proportion of overall unpaid reproductive time-use.

Studies have shown that individulas who had children were more likely to dedicate more time towards community service or volunteer work, although individuals who had recently become parents were unlikely to engage in this type of activity (Ajrouch, Antonucci, & Webster, 2016; Niebuur, Van Lente, Liefbroer, Steverink, & Smidt, 2018). Although individuals often act out of goodwill when performing commuity service, they do derive some benefit from it. For instance, Mueller (1975, p. 326) indicated that "'better schools' is the output of the PTA [parent-teacher association], and 'higher property values' is the output of the neighborhood civic association". Individuals raising children would likely see greater benefit in building a sense of community around them.

The graphs showed a greater responsiveness between the number of children and the amount of time spent on community service in 2000 (as the amount of children increase, the amount of community work increases, although the figure for four children is not significant). A lack of services from government or support in the workplace would likely also necessitate a greater need to engage in community related activities and this could be a possible reason for the difference between the 2000 and 2010 curves.

The bulk of unpaid reproductive time was dedicated to household maintenance in both periods, as was the case with younger children in the household. The amount of time spent on household maintenance reaches its peak when there are three children in the household in both periods, although in both samples, households with four or more childen make up a relatively small percentage of the sample (resulting in large standard errors), and it is thus not possible to accurately describe the time-use of these households with this data.

Figure 6-7: Mean non-SNA labour time-use by number of co-resident older children (minutes per day), 2000 and 2010



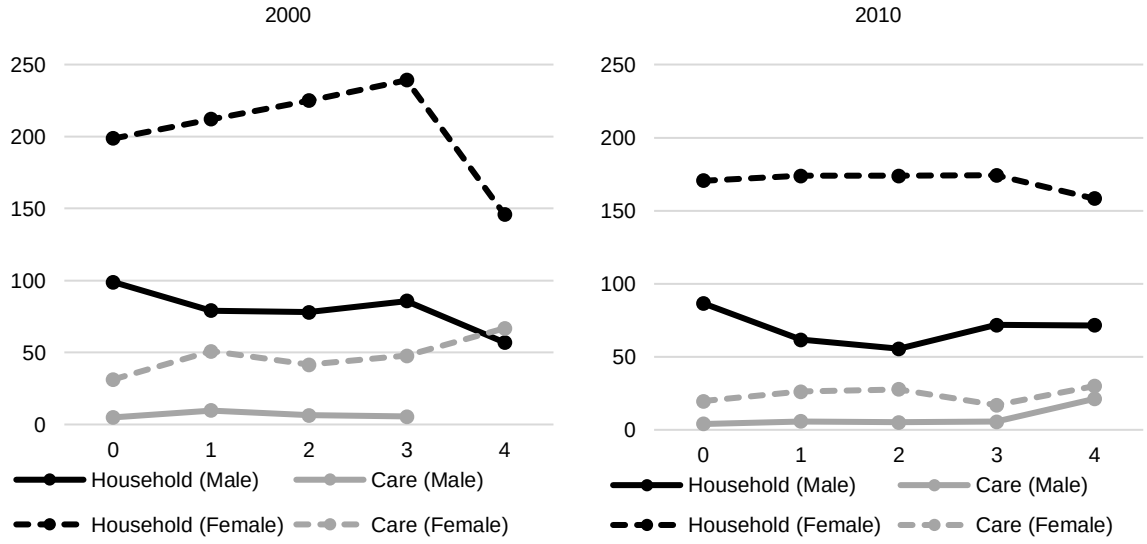
Source: TUS 2000 and TUS 2010. Note: Data are weighted. Number of children on x-axis and average time-use on y-axis. In 2000 all differences are significant at p<0.1 except community work for those with 4 children in the household. For 2010 all differences are significant at p<0.1. Significance levels included are comparisons of categories within each survey year.

Lastly, Figure 6-8 shows the time spent on unpaid reproductive labour disaggregated by gender. Men's time-use on household maintenance was less than half that of

women's in 2000, while in 2010 the deviation was smaller. The small movements in the household maintenance graphs for women also suggest that women dedicated a large part of their day to this type of labour, regardless of how many children were present in the household. This is likely reflective of the gender roles women are socialised into from a young age and that they perform this type of labour for themselves and others, regardless of who is co-resident in the household. This is different to men who may benefit from the unpaid reproductive labour of the women who live with them.

The amount of care work performed by men was marginal in both periods, although for women, there was a decline in 2010, compared to the 2000 graph. Both the care graphs and household maintenance graphs were more responsive to a change in the number of co-resident children in the 2000 data than they were for the 2010 data. In the 2010 data, the graphs remain relatively constant for women, who possibly experience the greatest care burden relief as children age.

Figure 6-8: Mean non-SNA labour time-use by number of co-resident older children (minutes per day), disaggregated by gender, 2000 and 2010



Source: TUS 2000 and TUS 2010. Note: Data are weighted. Number of children on x-axis and average time-use on y-axis. Community work excluded. For the 2000 data all differences significant at p<0.05 except males performing care work with 3 children in the household which is not significant. For the 2010 data, all differences significant at p<0.01 except care work for males with 3 or more children in the household and care work for females with 4 children in the household – these differences are not significant. Significance levels included are comparisons of categories within each survey year.

This section showed that women's time-use was undoubtedly more affected by children in the home than men's. The data also highlighted the constraints placed on women's time when they had younger children in the household. Although having

children in the home also affected the time-use of men, changes in their time-use were only notable when two to three or more children were co-resident. The data do, however, show a narrowing of gender differences in the 2010 data when compared to the 2000 data. This indicates that the various policies implemented between the two survey periods had important implications for inequality in time-use in relation to children in the home.

6.2.5 Time-use by education level

Average time-use by education level is presented in Table 6.18. The table shows that for individuals at all education levels the time spent on SNA work increased between 2000 and 2010 and the time spent on non-SNA work and non-productive activities decreased.

The greatest increase in SNA time-use was evident amongst individuals with an incomplete secondary schooling, while the same group also had the greatest decrease in non-SNA time. In addition, those with a diploma or degree spent the most amount of time on SNA work in 2000, while in 2010 this group spent the least time on SNA work. The average DWI at all education levels, with the exception of those with a degree or diploma, decreased or remained constant over this time period. The greater increase in SNA time was thus not accompanied by an increase in the quality of work.

Table 6.18: Mean overall time-use by education level (minutes per day), 2000 and 2010

	2000			2010		
	SNA	**non-SNA**	**non-Productive**	**SNA**	**non-SNA**	**non-Productive**
No Schooling	331.13	180.25	1101.82	421.41	155.50	1008.65
	(18.62)	(11.72)	(20.66)	(18.55)	(12.91)	(16.40)
Incomplete Primary	333.26	180.72	1126.07	438.33	139.59	1012.29
	(14.71)	(9.11)	(15.16)	(10.99)	(6.20)	(11.00)
Incomplete Secondary	324.71	172.36	1154.73	462.32	137.84	988.71
	(9.88)	(6.05)	(12.08)	(5.92)	(3.24)	(5.80)
Complete Secondary	359.95	153.06	1143.82	475.74	126.87	974.96
	(16.94)	(9.96)	(17.29)	(6.78)	(3.37)	(6.78)
Diploma/Degree	393.96	171.64	1085.79	418.31	140.88	1030.33
	(13.56)	(8.71)	(14.11)	(10.50)	(4.78)	(10.21)
N	14260			38988		

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. All differences significant at p<0.01. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

Disaggregated by gender, the data show that males with a diploma or degree did the most non-SNA work in both 2000 and 2010 compared to males at other education

levels. The data also show that for females, those who performed the most SNA work were at the higher end of the educational spectrum (diploma or degree in 2000 and complete secondary in 2010) while those who spent the most time on non-SNA work had lower levels of education (incomplete primary in 2000 and no schooling in 2010). This likely indicates that men with higher levels of education are likely to be in jobs which provide them with the flexibility to dedicate time towards non-SNA work, while women have fewer labour market options due to their domestic responsibilities. Although at higher education levels, individuals could also have more resources to delegate non-SNA work to individuals outside the home.

The gender differences in 2010 were greatest amongst individuals with no schooling and narrower between those with a diploma or degree for both SNA and non-SNA work. Similarly, in 2000, the smallest gender differences were evident amongst those with a complete secondary schooling for SNA work and those with a diploma or degree for non-SNA work. In addition, the greatest gender differences in 2000 were between men and women with no schooling for SNA work and those with an incomplete secondary schooling for non-SNA work. This is a further indication that higher levels of education assist in narrowing gender differences between men and women.

Table 6.19: Mean overall time-use by education level (minutes per day), disaggregated by gender, 2000 and 2010

	2000					
	Male			**Female**		
	SNA	**non-SNA**	**non-Productive**	**SNA**	**non-SNA**	**non-Productive**
No Schooling	397.21	98.94	1120.46	273.32	251.38	1085.51
	(28.01)	(9.15)	(31.05)	(24.87)	(18.58)	(27.09)
Incomplete Primary	363.43	108.17	1162.57	288.92	287.31	1072.46
	(20.00)	(8.61)	(19.44)	(20.77)	(16.01)	(23.86)
Incomplete Secondary	349.57	94.03	1209.89	293.86	269.54	1086.30
	(14.06)	(5.08)	(17.09)	(13.70)	(9.74)	(15.33)
Complete Secondary	366.18	96.00	1207.19	352.95	217.18	1072.62
	(24.69)	(12.32)	(25.40)	(23.04)	(15.28)	(21.33)
Diploma/Degree	420.88	120.44	1107.35	361.64	233.09	1059.93
	(20.27)	(11.45)	(21.56)	(16.57)	(12.02)	(17.45)
N	14262			14262		
	2010					
	Male			**Female**		
	SNA	**non-SNA**	**non-Productive**	**SNA**	**non-SNA**	**non-Productive**
No Schooling	484.74	79.04	1001.63	337.80	256.44	1017.93
	(22.04)	(8.49)	(22.36)	(26.45)	(20.74)	(23.80)
Incomplete Primary	458.79	88.67	1034.44	404.66	223.38	975.83
	(14.64)	(5.33)	(14.86)	(17.05)	(13.87)	(14.46)
Incomplete Secondary	488.95	89.27	1004.19	421.85	211.63	965.20
	(7.92)	(3.28)	(8.29)	(8.74)	(5.61)	(7.43)
Complete Secondary	502.99	81.95	984.22	440.63	184.76	963.02
	(9.38)	(3.34)	(10.03)	(9.72)	(5.82)	(8.62)
Diploma/Degree	441.74	90.03	1050.34	395.70	189.97	1011.02

	(16.67)	(5.83)	(16.09)	(12.98)	(6.76)	(12.71)
N	38957			38826		

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. All differences significant at p<0.01. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

Looking at unpaid reproductive time-use only, shows that the pattern by education level did not change over the period. In both 2000 and 2010, workers with no schooling spent the most time on household maintenance, compared to those at other education levels. Workers with a diploma or degree, on the other hand, spent the most time on care work and community service in both time periods.

Those who performed the least household maintenance were workers with completed secondary schooling, in both periods, while the same was true for care work performed by those with no schooling. These data indicate that at higher levels of education workers were less likely to spend a large amount of time on household maintenance and more time on care work. Given that higher levels of education are associated with better quality work, this could indicate that workers might 'prefer' care work, given the choice.

Table 6.20: Mean non-SNA labour time-use by education level (minutes per day), 2000 and 2010

	2000			**2010**		
	Household	**Care**	**Community**	**Household**	**Care**	**Community**
No Schooling	162.61	15.26	2.38	144.27	6.67	4.55
	(10.76)	(2.67)	(1.50)	(11.51)	(2.25)	(1.86)
Incomplete Primary	157.67	17.91	5.14	127.83	7.29	4.46
	(8.17)	(2.52)	(1.78)	(5.80)	(0.96)	(1.59)
Incomplete Secondary	145.64	22.35	4.37	121.64	11.72	4.48
	(5.00)	(2.18)	(1.06)	(2.85)	(0.81)	(0.73)
Complete Secondary	123.57	21.44	8.05	110.05	13.43	3.39
	(7.51)	(3.55)	(5.26)	(3.07)	(0.92)	(0.65)
Diploma/Degree	134.39	24.37	12.89	120.46	14.14	6.27
	(6.75)	(2.77)	(4.66)	(4.40)	(1.13)	(1.27)
N	14260			38988		

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. For the 2000 data all differences are significant at p<0.5 except for the community work averages for those with no schooling and complete secondary schooling. All 2010 differences are significant at p<0.1. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

Disaggregated by gender, Table 6.21 shows that the differences between males and females generally decreased the higher the level of education; however, the differences did not necessarily narrow with time. For instance, in 2000, males with no schooling spent about 15% of the time women with no schooling spent on care work. In 2010, that percentage had decreased to just 5%. This indicates that there had been an increase in the disparity in time-use of men and women with no schooling on care

work. For those with incomplete primary schooling, men spent only 4% of the time women spent on care work in 2000, while in 2010 this proportion was 12%; thus, showing a decrease in the inequality of time-use on care work.

In 2000, the greatest difference between men and women for household maintenance was for those with incomplete secondary schooling and incomplete primary schooling for care work. In 2010, however, the higher the level of education, the lower the inequality in the time-use patterns of men and women – this was true for both household maintenance and care work. The differences between those with diplomas and degrees remained roughly the same over the two periods.

The empirical literature on the role of education on socialised gender roles vary in their findings (Adebayo & Isiakpona, 2012; Brewster & Padavic, 2000; Kulik, 2002), although the findings here support the notion that education acts as a tool which empowers women. Alternatively, increased educational attainment results in more egalitarian thinking amongst men, which may induce them to spend more time performing unpaid reproductive labour.

Lastly, for both survey periods, for men the most household maintenance was performed by those with incomplete primary schooling and the most care work by those with diplomas and degrees. For women, the most time on household maintenance was spent by those with no schooling and the most on care work by those with incomplete secondary schooling. This implies that men may prefer care work when given the flexibility to perform it. But as noted above, this could be indicative of more liberal thinking amongst educated men.

Table 6.21: Mean non-SNA labour time-use by education level (minutes per day), disaggregated by gender, 2000 and 2010

	2000					
	Male			**Female**		
	Household	**Care**	**Community**	**Household**	**Care**	**Community**
No Schooling	91.11	3.88	3.95	225.17	25.21	1.00
	(7.95)	(2.01)	(3.12)	(16.94)	(4.61)	(0.42)
Incomplete Primary	101.83	1.88	4.46	239.71	41.46	6.14
	(8.41)	(0.95)	(1.81)	(14.22)	(5.68)	(3.49)
Incomplete Secondary	85.84	4.63	3.55	219.82	44.33	5.38
	(4.87)	(1.11)	(1.22)	(7.94)	(4.32)	(1.84)
Complete Secondary	79.02	5.59	11.38	173.62	39.24	4.31
	(7.10)	(1.70)	(9.70)	(12.62)	(7.02)	(2.04)
Diploma/Degree	91.72	12.96	15.77	185.60	38.06	9.42
	(8.08)	(2.91)	(8.06)	(9.74)	(4.90)	(3.32)

N	14262			14262		
	2010					
	Male			**Female**		
	Household	**Care**	**Community**	**Household**	**Care**	**Community**
No Schooling	75.22	0.78	3.05	235.44	14.46	6.55
	(8.11)	(0.43)	(2.30)	(17.91)	(4.99)	(3.06)
Incomplete Primary	81.94	1.98	4.76	203.36	16.04	3.98
	(4.96)	(0.53)	(2.39)	(12.86)	(2.39)	(1.47)
Incomplete Secondary	81.59	3.64	4.04	182.49	24.00	5.14
	(2.98)	(0.77)	(0.95)	(4.91)	(1.59)	(1.15)
Complete Secondary	73.26	5.68	3.01	157.45	23.43	3.88
	(3.07)	(0.79)	(0.97)	(5.34)	(1.79)	(0.79)
Diploma/Degree	79.51	6.90	3.61	159.99	21.13	8.84
	(5.53)	(1.22)	(0.90)	(6.32)	(1.87)	(2.31)
N	38957			38826		

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. For the 2000 data, care and community work for males with no schooling, community work for males with a diploma or degree, and care work for females with incomplete primary schooling is insignificant, all other differences are significant at p<0.1. For the 2010 data, differences significant at p<0.1 except for community and care work performed by males with no schooling. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

6.2.6 Time-use by age bracket

An age analysis over time requires noting that those who were in one age bracket in one period will definitely have moved onto the next bracket over the 10-year period. Thus, observing similarities in the same age bracket over time will not necessarily be an indication of changes within a particular cohort, but rather of norms which exist once people reach a certain change. This is referred to as the ‘age’ effect versus the ‘cohort’ effect by Branson and Wittenberg (2007); or ‘generational’ versus ‘life-cycle’ effects (Grün, 2003). These refer to whether a particular group of people are inclined to behave in a certain way – a behaviour which is unique to that particular cohort (cohort or generation effect) – or whether particular phenomena are due to the fact that individuals are at an age where behaviour or events generally tend to happen (age or life-cycle effects). For instance, women at peak childbearing age may have lower labour force participation, and this could be interpreted as a life-cycle effect given most women tend to have (or are able to have) children within a particular window, regardless of the time-period in which they are being studied.

Thus, if the data in these tables show that a particular pattern is visible for the 45 to 54-year-old age bracket in 2000 and that pattern is then visible for the 55 to 64-year-old age group in 2010, it may be due to a cohort effect. However, if a pattern is visible for the 45 to 54-year-old age group in 2000 and that pattern persists for that same age group in 2010, that could be interpreted as an age or life-cycle effect. However, given

that only two cross sections are being analysed here, drawing such connections from these data should be undertaken with caution.

The time-use patterns by age are presented in Table 6.22 and the data show that the greatest increase in time spent on SNA work was in the 15 to 24-year-old age bracket over the two survey periods, while for non-SNA work, this was true for those in the 55 to 64-year-old age bracket. The smallest increase in time-use was evident amongst those in the 45 to 54-year-old age bracket for both SNA and non-SNA work. These data suggest that although overall time-use of employed individuals had changed over the two time periods, differing associations were evident amongst individuals of different ages.

Table 6.22: Mean overall time-use by age bracket (minutes per day), 2000 and 2010

	2000			2010		
	SNA	**non-SNA**	**non-Productive**	**SNA**	**non-SNA**	**non-Productive**
15-24	258.81	160.07	1236.48	454.42	116.99	1008.46
	(13.35)	(8.49)	(16.49)	(10.81)	(4.92)	(10.89)
25-34	366.81	172.37	1114.61	472.93	136.87	977.59
	(11.40)	(6.59)	(12.54)	(6.43)	(3.36)	(6.22)
35-44	390.20	180.65	1074.13	451.51	143.70	995.25
	(11.09)	(7.84)	(11.33)	(7.23)	(3.96)	(7.16)
45-54	376.89	161.97	1099.95	431.95	132.57	1015.07
	(17.23)	(10.25)	(17.42)	(9.78)	(4.62)	(9.45)
55-64	331.68	188.68	1104.77	439.19	132.53	1009.38
	(21.24)	(12.71)	(22.23)	(15.94)	(8.15)	(15.98)
N	14264			39018		

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. All differences significant at p<0.01. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

Disaggregated by gender, the data show that the greatest increase in SNA work was amongst those in the 15 to 24-year-old age bracket. Both men and women between the ages of 15 and 24 in 2010 spent more than three times the amount of time which men and women in the same age bracket spent on SNA work in 2000. In 2010, women in the 15 to 24-year-old age bracket spent more time on SNA work than women in any other age bracket. This is an interesting development, given that women in that age group are considered to be at peak childbearing age and may face constraints in the labour market from both the demand and supply sides as age and gender intersect to put them at a disadvantage.

This group of women also had the greatest decline in time spent on non-SNA activities over the two periods. This could suggest shifting gender norms amongst women in

this age cohort. Updated data would serve to confirm whether this is in fact a continuing trend.

In 2000, amongst most of the age groups, women spent at least twice as much time on non-SNA activities as did men. The gender differences narrowed slightly in 2010 for most age cohorts, although the changes were not drastic. In fact, for the 45 to 54-year-old and 55 to 64-year-old age groups the gender differences in time spent on non-SNA work saw a slight increase in 2010. The narrowing difference between the two time periods, amongst the younger age cohorts, could be indicative of changing cultural norms amongst younger people and a more traditional stance towards gender roles amongst the older cohort of the working population.

Table 6.23: Mean overall time-use by age bracket (minutes per day), disaggregated by gender, 2000 and 2010

	2000					
	Male			**Female**		
	SNA	**non-SNA**	**non-Productive**	**SNA**	**non-SNA**	**non-Productive**
15-24	260.65	108.19	1288.95	255.82	244.34	1151.26
	(16.95)	(8.99)	(21.23)	(21.77)	(15.71)	(22.99)
25-34	399.28	99.29	1154.20	327.61	260.60	1066.80
	(16.40)	(6.08)	(17.76)	(15.57)	(10.75)	(16.92)
35-44	437.81	97.53	1109.31	339.20	269.71	1036.43
	(14.82)	(7.52)	(17.30)	(15.43)	(11.39)	(14.62)
45-54	407.06	113.39	1121.49	340.44	220.65	1073.91
	(26.50)	(14.59)	(26.88)	(18.93)	(13.22)	(21.23)
55-64	375.33	107.19	1137.35	294.28	258.53	1076.83
	(32.29)	(15.78)	(30.76)	(27.78)	(17.34)	(30.89)
N	14264			14264		
	2010					
	Male			**Female**		
	SNA	**non-SNA**	**non-Productive**	**SNA**	**non-SNA**	**non-Productive**
15-24	466.02	88.11	1026.96	437.35	159.46	981.26
	(13.49)	(5.57)	(14.61)	(17.90)	(8.65)	(15.90)
25-34	504.62	87.99	988.01	428.93	204.74	963.13
	(8.46)	(3.28)	(8.77)	(9.63)	(5.87)	(8.62)
35-44	477.78	90.25	1012.78	418.46	210.95	973.19
	(10.36)	(4.12)	(10.51)	(10.16)	(6.55)	(9.13)
45-54	459.52	78.48	1027.48	398.66	197.90	1000.09
	(14.65)	(5.18)	(14.58)	(12.29)	(6.56)	(11.09)
55-64	477.40	80.30	1019.87	387.53	203.14	995.18
	(23.16)	(6.64)	(23.64)	(18.76)	(14.38)	(19.93)
N	38975			38838		

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. All differences significant at p<0.01. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

Non-SNA time-use by age bracket is presented in Table 6.24 and it shows that between the two time periods the greatest decrease in time spent on household maintenance was amongst the 55 to 64-year-old age group, with the smallest being

the 45 to 54-year-old age group. Over both time periods the 15 to 24-year-old group spent the least time and the 55 to 64-year-old group spent the most time on household maintenance compared to other age groups. This thus looks like a life-cycle effect for these age groups as it possible that those in the 55 to 64-year-old age group are more likely to live with co-resident household members.

In terms of care work, the greatest decrease was amongst the 55 to 64-year-old age group and the smallest amongst the 35 to 44-year-old group. Furthermore, those in the 25 to 34-year-old age group spent the most time on care work in both time periods, indicating the possible presence of a life-cycle effect. It is possible that both men and women between the ages of 25 and 34-years-old are likely to be living with young children in the home, given that this age bracket forms part of the peak childbearing years in a person's life, although this is more likely for women.

Table 6.24: Mean non-SNA labour time-use by age bracket (minutes per day), 2000 and 2010

	2000			2010		
	Household	**Care**	**Community**	**Household**	**Care**	**Community**
15-24	132.52	21.18	6.37	101.43	11.67	3.89
	(6.76)	(3.08)	(3.71)	(4.14)	(1.64)	(1.66)
25-34	139.08	27.42	5.87	117.76	15.74	3.37
	(5.41)	(2.51)	(1.38)	(2.98)	(0.92)	(0.65)
35-44	152.13	20.28	8.24	124.73	13.76	5.21
	(6.83)	(2.28)	(2.58)	(3.61)	(0.97)	(0.82)
45-54	136.24	14.78	10.95	119.46	6.15	6.96
	(7.51)	(2.73)	(6.32)	(4.23)	(0.64)	(1.33)
55-64	173.30	13.86	1.52	125.72	4.88	1.93
	(11.80)	(2.84)	(0.62)	(7.87)	(0.94)	(0.56)
N	14264			39018		

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. Community work for the 15 to 24-year-old and 45 to 54-year-old age group is not significant in 2000 and all other means are significant at p<0.1. All 2010 differences significant at p<0.1. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

Looking at the disaggregated data (Table 6.25), however, shows that the pooled trends are only evident amongst women, where those in the 55 to 64-year-old age group spent more time than any other age bracket on household maintenance and the same is applicable for care work in the 25 to 34-year-old age bracket. For men, this pattern is not necessarily apparent. Men in the 25 to 34-year-old age bracket actually spent the least amount of time on care work compared to men of other ages in 2000 and they spent less than 10% of the time that women spent on care work. This difference had narrowed slightly in 2010. These patterns are indicative of the household structures in South Africa where only a small percentage of children live

with their fathers and if they do not live with their mothers, there is usually another female family member providing care (Stats SA, 2019c).

Furthermore, although women spent on average more than double the amount of time on both care work and household maintenance compared to their male counterparts, the differences in time spent on care work did narrow the older the group became. Interesting, however, is that although these differences narrowed between 2000 and 2010 for those below the age of 44, they became larger for those 45 years and older. This again suggests that older individuals are more likely to observe the customs of traditional gender roles.

Table 6.25: Mean non-SNA labour time-use by age bracket (minutes per day), disaggregated by gender, 2000 and 2010

	2000					
	Male			**Female**		
	Household	**Care**	**Community**	**Household**	**Care**	**Community**
15-24	93.93	5.54	8.72	195.20	46.58	2.56
	(6.55)	(2.34)	(5.86)	(12.99)	(6.77)	(1.85)
25-34	87.22	5.22	6.85	201.70	54.21	4.69
	(5.93)	(0.99)	(1.91)	(8.55)	(4.95)	(1.97)
35-44	85.83	5.81	5.89	223.17	35.78	10.76
	(6.64)	(1.31)	(3.87)	(9.89)	(4.29)	(3.41)
45-54	89.63	9.35	14.41	192.55	21.33	6.77
	(8.59)	(3.31)	(11.34)	(11.32)	(4.58)	(2.56)
55-64	99.21	7.80	0.19	236.80	19.06	2.66
	(14.73)	(3.55)	(0.13)	(16.22)	(4.21)	(1.16)
N		14264			14264	
	2010					
	Male			**Female**		
	Household	**Care**	**Community**	**Household**	**Care**	**Community**
15-24	82.64	3.05	2.41	129.05	24.35	6.06
	(4.91)	(2.02)	(1.14)	(7.31)	(2.67)	(3.70)
25-34	80.73	4.35	2.91	169.18	31.55	4.00
	(3.11)	(0.67)	(0.80)	(5.16)	(1.88)	(1.09)
35-44	79.46	6.89	3.90	181.69	22.41	6.86
	(3.77)	(0.90)	(1.02)	(5.95)	(1.86)	(1.35)
45-54	68.25	3.28	6.95	181.28	9.63	6.98
	(4.65)	(0.64)	(2.06)	(6.04)	(1.16)	(1.57)
55-64	76.54	2.91	0.85	192.20	7.54	3.40
	(6.41)	(1.01)	(0.36)	(14.05)	(1.75)	(1.18)
N		38975			38838	

Source: TUS 2000 and TUS 2010. Note: Data are weighted. Standard errors in parentheses. For the 2000 data community work for males aged 15 to 24-years-old, and 35 and older and females aged 15 to 24-years-old is not significant, all other differences are significant at p<0.1. All 2010 differences are significant at p<0.1 except for care work performed by 15 to 24-year-old males and community work performed by 15 to 24-year-old females. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.

Conclusions

This chapter explored how workers spent their time in 2000 and 2010. The data showed that between the two periods under consideration both men and women generally increased their time spent on SNA work and decreased the time spent on

non-SNA work and non-productive activities. Working individuals thus worked more in 2010 than they did in 2000, but the decrease in time spent on non-SNA work possibly indicates an outsourcing of this labour, given that household sizes had also decreased over the two periods.

Overall, men spent more time on SNA activities and they also spent more time than women on non-productive activities. However, what was notable in the data was that the differences in time spent on SNA activities between men and women were smaller than the differences in time spent on non-SNA work. This indicates that women spent a significant amount of time on both SNA work and non-SNA work.

Further evidence which was notable related to race, where Africans bore the greatest burden in terms of time spent on non-SNA time over both time periods. African households also had the greatest differences between men and women in terms of the distribution of care work. The intersection of race and gender thus puts African women in an extremely disadvantaged position in relation to the burden of care work.

The data further showed that gender differences in time spent on non-SNA work had narrowed between the two periods, although this was only true for individuals who had never married. This indicates that the institution of marriage was still accompanied by entrenched societal gender roles. This was also true for the number of children in the home, by which women's time-use was more severely affected compared to that of men. The data did, however, show a narrowing of gender differences in time-use activities between the two periods.

By level of education, the data showed that the higher the level of education, the lower the differences in time-use between men and women. The results for education showed that education could possibly be a tool of empowerment for women, or it could result in more egalitarian thinking amongst men, who may choose to share the burden of unpaid reproductive labour more equitably. This assertion would, however, require further investigation.

In the next chapter, correlates of productive and unpaid reproductive time are looked at. This is followed by the presentation of regression results which depict the

relationship between time spent on productive and unpaid reproductive work and the quality of that work.

CHAPTER 7: PRODUCTIVE VERSUS UNPAID REPRODUCTIVE TIME

"A woman realtor makes very good sense. Women know more about kitchens than men. By and large it's the woman who buys the house. Most men, in my experience, let the wife decide, as long as the price is right and the schools are okay and he can get to the train."

Margaret Richards, Realty Broker (Turkel, 1974, p. 429)

Introduction

The theorisation of women's unpaid reproductive labour responsibilities has been well documented in the literature (Antonopoulos, 2009; Duffy, 2005; Folbre, 1994; Gupta et al., 2006; Jefferson & King, 2001; World Bank, 2012). Many studies, however, do not provide empirical evidence, given the lack of data on unpaid reproductive work. Furthermore, studies which have made use of time-use data have often looked at the time-use of the general population. This study deviates from this by limiting the analysis to individuals in paid employment (including those who work unpaid in a family business).

Including only those who worked for a wage (excluding the self-employed) and for whom a DWI could be calculated, this chapter draws on inferential analyses and starts with a look at the correlates of time spent on productive and unpaid reproductive labour. This is followed by a presentation of the results of the regressions which depict the relationship between time spent on productive and unpaid reproductive work and the quality of work. Lastly, a discussion section is included which draws together the findings of the last three results chapters and this one.

7.1 The correlates of productive versus unpaid reproductive time

As noted in chapter 6, the main activities which occupied working individuals in the 'productive' sphere was time spent working in an establishment and time spent in primary production. For unpaid reproductive labour, these were household maintenance and care work. As such, this chapter starts by looking at the correlates of time spent on each one of these categories. The first section includes results for

productive sphere time-use and the second for the unpaid reproductive labour activities.

7.1.1 Correlates of productive time

The first set of regressions looks at time spent working in an establishment and the dependent variable is formatted as the proportion of the day spent on this type of activity. The regressions thus show which factors were significant in determining what proportion of the day someone dedicated to working in an establishment. Only some coefficients were significant for this set of regressions and many of these were significant for both the 2000 and the 2010 regressions.

Table 7.1 shows that females were more likely to spend less time working in an establishment, as per the findings of the descriptive statistics presented in chapter 6. The results show that being a woman meant that you spent on average 3.2% less time in 2000 and 3.9% less of your time working in an establishment than men (both coefficients were highly significant).

Age was also significant, although only in 2000. The older one became the more likely they were to spend a greater proportion of their day working in an establishment. This was significant for the pooled and disaggregated regressions, with the coefficient for men being greater than that for women, suggesting that age was more important for men than it was for women.

Another interesting result was of the number of pensioners living in the household. This would normally signal an increase in employment probabilities for women, and a negative predictor of employment for men (Ardington, Case, & Hosegood, 2009; Bertrand, Mullainathan, & Miller, 2003; Duflo, 2000; Posel et al., 2006). Given that the sample is limited to employed individuals this same logic might not necessarily apply. For many unemployed individuals, the elderly provide a safety net, although for the employed they might present a care burden, provided that the employed individual does not form part of the working poor. The working poor argument, however, is likely given that pensioners could still assist in supplementing incomes. This is likely the case given that the number of pensioners negatively affects the time spent on work in

establishments for men, although this variable was weakly significant for men and only in 2010. Given that previous literature (Bertrand et al., 2003; Sienaert, 2008) has shown that there is a relationship between men's employment status (and labour force participation) when pensioners were present in the home, this result could reflect the possibility that pensioners supplement incomes even for employed men. This is further plausible given the limited amount of care work which men perform in the household. The pensioners are thus unlikely to be a care burden for them.

The last notable result from this table is education, which is significant for women, but not for men. The higher the level of education, the more time women tended to spend on labour in an establishment. In 2000, women with complete secondary education spent 9% more time than women with no schooling working in an establishment. In 2010, complete secondary education also resulted in the largest coefficient amongst the levels of education. This could be an indication of the types of jobs which may have been available to women with at least a complete secondary education and that they are likely to have higher returns on their time than women with no schooling or incomplete primary schooling. This confirms the findings of earlier literature on the relationship between education and labour market outcomes for women (Bhorat & Goga, 2013; Klasen & Pieters, 2012; Ntuli & Wittenberg, 2013). The correlates of time spent working in an establishment thus roughly follows the same patterns related to employment probabilities for the coefficients which are significant. Education, however, stands out as a key variable and is a factor which appropriate public policy interventions can remedy.

Table 7.1: Correlates of time spent working in an establishment (marginal effects), 2000 and 2010

Fractional Probit Regression						
Dependent variable: Proportion of the day spent working in an establishment						
	2000			**2010**		
	All	**Male**	**Female**	**All**	**Male**	**Female**
Gender (Ref: Male)						
Female	-0.032***			-0.039***		
	(0.01)			(0.01)		
Age	0.016***	0.020***	0.011***	0.002	0.003	0.002
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Age Squared	-0.000***	-0.000***	-0.000***	-0.000	-0.000	-0.000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Race (Ref: African)						
Coloured	0.018	0.009	0.030	0.012	-0.001	0.035*
	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)
Indian	0.039**	0.036	0.044*	0.001	-0.023	0.032*
	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)
White	0.016	0.027	0.006	-0.003	0.000	-0.001
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)

Marital Status (Ref: Never married)						
Married/Cohabiting	0.003	0.003	-0.005	0.003	0.023*	-0.017
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Separated	-0.007	-0.065**	0.011	-0.017	0.008	-0.029*
	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)
No of young children	0.009	0.016*	-0.001	-0.007	-0.013	-0.003
	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)
No of older children	-0.001	-0.006	0.001	-0.007	-0.009	-0.006
	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)
No of pensioners	-0.020	-0.024	-0.020	-0.027**	-0.037**	-0.006
	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
No of women	-0.010**	-0.011*	-0.009	0.005	0.005	0.003
	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
No of men	-0.007	-0.004	-0.008	0.002	0.007	-0.000
	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Education (Ref: No schooling)						
Incomplete Primary	0.019	-0.002	0.044	0.016	-0.005	0.047
	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
Incomplete Secondary	0.022	-0.008	0.053*	0.038*	0.016	0.073**
	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)
Complete Secondary	0.043**	-0.002	0.093***	0.049**	0.028	0.082**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Diploma/Degree	0.041**	0.002	0.082***	0.017	-0.013	0.058*
	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Province (Ref: Gauteng)						
Western Cape	0.025*	0.030	0.022	-0.004	0.009	-0.021
	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)
Eastern Cape	-0.053***	-0.082***	-0.023	-0.035***	-0.030*	-0.043**
	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
Northern Cape	0.050***	0.053**	0.045	0.008	0.027	-0.017
	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)
Free State	0.021	0.024	0.020	-0.013	0.003	-0.037*
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.02)
KwaZulu-Natal	0.014	0.024	0.005	0.045***	0.043***	0.049***
	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
North West	-0.015	-0.009	-0.026	-0.021	-0.020	-0.022
	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)
Mpumalanga	-0.005	-0.013	0.016	0.029***	0.033**	0.022
	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
Limpopo	-0.022	-0.028	-0.004	-0.052***	-0.055***	-0.045**
	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)
N	14193	14193	14193	38926	38883	38747

*Source: TUS 2000 and 2010. Note: The data are weighted, standard errors in parentheses. *** p<0.01 ** p<0.05 * p<0.10. All regressions restricted to ages 15 to 64. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.*

Table 7.2 shows the results for the proportion of the day spent in primary production. This includes activities such as tending animals, hunting, collecting water and crop farming, amongst others.

Although not many of the covariates were significant, given the small sample who engaged in these types of activities, in 2000 the number of young children and men co-resident in the household were significant for women. Women spent a greater proportion of their day engaged in primary production the more younger children they lived with in the home, and fewer hours the more working-age men lived with them in the household. It is possible that women choose (or are 'pushed') to engage in this

type of work if they have more young children in the household, as the activities classified under primary production are more conducive to being performed around the house. Having more men around the house could mean that there are more hands in the household to help with these types of activities and this could explain why the coefficient for the number of men is negative for women; indicating possible relief on their time-use and a reduced need to subsist.

The level of education was significant for most of the variables. The coefficient was greatest for those with completed secondary schooling for the pooled results. Individuals with completed secondary schooling in 2000 spent 4.2% less time in primary production compared to those with no schooling and this number decreased to 1.8% in 2010. This was also the case for the disaggregated results, where both men and women with incomplete secondary schooling and higher were significantly less likely to spend time on primary production, with the exception of men with a diploma or degree in 2000. These coefficients were weaker in 2010 than they were in 2000, indicating that education had become less important as an indicating factor of time spent on primary production over the two periods, but could also be an indicator of increased investment in agriculture (or rural development), which would be the main sector for primary production.

Although labour market studies have called for disaggregated analyses by race, age, and gender specifically, the findings between these sets of regressions and those presented in Table 7.1 indicate that analyses disaggregated by type of employment is equally important as different activities would require different types of policy interventions.

Table 7.2: Correlates of time spent in primary production (marginal effects), 2000 and 2010

Fractional Probit Regression						
Dependent variable: Proportion of the day spent in primary production						
		2000			**2010**	
	All	**Male**	**Female**	**All**	**Male**	**Female**
Gender (Ref: Male)						
Female	-0.003			-0.002		
	(0.00)			(0.00)		
Age	-0.002*	-0.003	-0.001	-0.000	-0.001	0.000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Age Squared	0.000*	0.000	0.000	0.000	0.000	-0.000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Race (Ref: African)						
Coloured	-0.024**	-0.010	-0.040***	-0.005	-0.005	-0.006
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)

Indian	-0.099***	-0.181***	-0.072***	0.002	0.003	0.000
	(0.02)	(0.03)	(0.02)	(0.00)	(0.00)	(0.00)
White	-0.003	0.003	-0.007	-0.003	-0.004	-0.002
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Marital Status (Ref: Never married)						
Married/Cohabiting	0.001	0.000	0.001	0.001	0.001	0.001
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Separated	-0.001	0.002	-0.007	0.004*	0.005	0.003
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
No of young children	0.004	-0.002	0.011**	0.000	-0.000	0.000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
No of older children	0.001	0.000	0.002	0.001	0.001	0.001
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
No of pensioners	0.008	0.007	0.005	0.001	0.001	-0.000
	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
No of women	0.000	0.002	-0.002	-0.001	-0.000	-0.001
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
No of men	0.000	0.004	-0.004**	0.000	0.000	0.001
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Education (Ref: No schooling)						
Incomplete Primary	-0.016**	-0.007	-0.019**	-0.004*	-0.007	-0.001
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Incomplete Secondary	-0.027***	-0.020*	-0.024***	-0.010***	-0.012**	-0.007**
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Complete Secondary	-0.042***	-0.029*	-0.045***	-0.018***	-0.021***	-0.012***
	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.00)
Diploma/Degree	-0.039***	-0.023	-0.047***	-0.015***	-0.016***	-0.013***
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Province (Ref: Gauteng)						
Western Cape	0.015	0.013	0.015	0.004	0.004	0.006
	(0.01)	(0.02)	(0.01)	(0.00)	(0.00)	(0.00)
Eastern Cape	0.050***	0.049**	0.046***	0.016***	0.020***	0.013***
	(0.01)	(0.02)	(0.01)	(0.00)	(0.01)	(0.00)
Northern Cape	0.036*	0.035*	0.039**	0.001	0.002	0.000
	(0.02)	(0.02)	(0.01)	(0.00)	(0.00)	(0.00)
Free State	0.024	0.029*	0.022**	0.005*	0.007*	0.004
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
KwaZulu-Natal	0.041**	0.030	0.047***	0.010***	0.009**	0.010**
	(0.01)	(0.02)	(0.01)	(0.00)	(0.00)	(0.00)
North West	0.012	0.014	0.013	0.008**	0.011**	0.006*
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Mpumalanga	0.027*	0.028	0.026**	0.005*	0.007*	0.004
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Limpopo	0.042**	0.032*	0.044***	0.014***	0.016**	0.012***
	(0.01)	(0.02)	(0.01)	(0.00)	(0.00)	(0.00)
N	14193	14193	14193	38926	38883	38747

*Source: TUS 2000 and 2010. Note: The data are weighted, standard errors in parentheses. *** p<0.01 ** p<0.05 * p<0.10. All regressions restricted to ages 15 to 64. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.*

7.1.2 Correlates of unpaid reproductive time

The correlates of the proportion of time spent on household maintenance, one of the main unpaid reproductive labour activities, are displayed in Table 7.3. The results show that for both periods, women were more likely to spend a greater proportion of their day on household maintenance, compared to men. The coefficient was greater in 2000 (9.3%) than it was in 2010 (7.3%). This indicates that although gender remained a significant variable over the two periods, its importance decreased over

time and more favourable labour market conditions could possibly explain this change between the two periods.

Furthermore, White workers spent significantly less time on household maintenance compared to African workers. They spent 2.1% less time in 2000 and 1.7% less time in 2010 compared to African workers, suggesting that just as with gender, the association of race had declined over time, although the coefficient for the female regressions increased between the two periods. African women spent 2.5% more of their time on household maintenance in 2000 compared to White women, and that percentage was 3% in 2010. This difference had thus increased for women; although it was only significant for African men in 2000. This would suggest that there was possibly greater equity between White and African men over the two time periods, but that the opposite was notable for their female counterparts. The differences between Coloureds and Africans had also increased over time although this was not the case for Indians. This would suggest that although women had been relieved to an extent of their household maintenance burden, Coloured and White women were the greatest beneficiaries of this change, and that some changes were large enough to widen the significant differences between them and African women.

The coefficients for marital status were only significant for the disaggregated regressions and only for those who were married or cohabiting (except married or cohabiting women in 2000). These displayed a clear gender difference and showed that in both 2000 and 2010, married and cohabiting men were significantly less likely to spend time on household maintenance compared to men who had never been married. Married and cohabiting women on the other hand, were significantly *more* likely to spend a greater proportion of their day on household maintenance compared to women who had never been married. (This difference was positive but not significant for the 2000 results). The results suggest that married and cohabiting men possibly lean on the support of partners who provide in the household, while men who had never been married are unlikely to benefit from this living arrangement. The positive coefficient for women serves to support this suggestion.

Furthermore, having children in the household, was only significant for the 2010 regressions (for men) and the pooled regressions showed that more time was spent

on household maintenance when there were children in the household; this is significant for both young and older children. Interestingly, the coefficient for young children was not significant in the female regression, but was in the male regressions (2010 results only). Men were likely to spend more time on household maintenance when there were older and young children in the household, while only the coefficient for older children was significant for women. The fact that only the 2010 results are significant could be the result of declining household sizes over the two survey periods, and possibly fewer adults around the house assisting with household maintenance, but perhaps fewer children requiring care too.

Leaning on women in the household was further emphasised by the coefficient for the number of working-age women in the household. The more working-age women were co-resident in a household, the smaller the coefficient for time spent on household maintenance was for all the regressions, over both survey periods. The coefficients were greater for 2010 than they were for 2000 and they were also greater for women than they were for men. Women spent 1% less time in 2000 and 1.1% in 2010 on household maintenance for each additional woman in the household. Men in 2010 also benefitted from having other men in the household. In 2010 they spent 0.06% less time on household maintenance for each additional working-age man present in the household. Again, the larger (and significant) coefficients for 2010 could be an indicator of reduced household size making the correlates of those who did have more men and women in the home more pronounced.

The education coefficients were mostly insignificant, although they were significant for women in 2010, who spent less time on household maintenance the more educated they were, compared to their counterparts with no schooling. The greatest coefficient was again amongst those with completed secondary schooling, who spent 3.1% less time on household maintenance compared to their counterparts with no schooling. This coefficient was 3% for those with a degree or diploma, confirming the importance of education on women's time-use. Although the coefficient for those with incomplete primary schooling was not significant.

Table 7.3: Correlates of time spent on household maintenance (marginal effects), 2000 and 2010

Fractional Probit Regression
Dependent variable: Proportion of the day spent on household maintenance

	2000			2010		
	All	**Male**	**Female**	**All**	**Male**	**Female**
Gender (Ref: Male)						
Female	0.093***			0.073***		
	(0.01)			(0.00)		
Age	-0.000	-0.001	0.000	0.001	-0.000	0.002
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Age Squared	0.000	0.000	-0.000	-0.000	0.000	-0.000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Race (Ref: African)						
Coloured	-0.023*	-0.016	-0.031*	-0.039***	-0.026**	-0.055***
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)
Indian	-0.038***	-0.037**	-0.037*	-0.020***	-0.010	-0.030***
	(0.01)	(0.01)	(0.02)	(0.00)	(0.01)	(0.01)
White	-0.021**	-0.019*	-0.025*	-0.017***	-0.009	-0.030***
	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)
Marital Status (Ref: Never married)						
Married/Cohabiting	-0.005	-0.020**	0.016	-0.005	-0.020***	0.021***
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Separated	-0.009	0.012	-0.013	0.000	-0.007	0.011
	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)
No of young children	0.002	-0.001	0.003	0.005*	0.006*	0.005
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
No of older children	0.004	-0.001	0.007	0.008***	0.006*	0.009*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
No of pensioners	0.000	0.000	0.005	0.009*	0.009	0.001
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)
No of women	-0.009***	-0.004	-0.010**	-0.013***	-0.010***	-0.011***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
No of men	-0.001	-0.003	0.001	-0.003	-0.006***	-0.001
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Education (Ref: No schooling)						
Incomplete Primary	0.008	0.009	0.013	-0.006	0.004	-0.016
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Incomplete Secondary	0.001	0.001	0.006	-0.008	0.006	-0.022*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Complete Secondary	-0.012	-0.003	-0.022	-0.015*	0.003	-0.031**
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)
Diploma/Degree	-0.003	0.012	-0.015	-0.011	0.011	-0.030**
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)
Province (Ref: Gauteng)						
Western Cape	0.007	0.003	0.009	0.017***	0.012*	0.023**
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)
Eastern Cape	0.018*	0.005	0.028*	0.020***	0.006	0.037***
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)
Northern Cape	0.006	-0.003	0.019	0.001	-0.004	0.007
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)
Free State	-0.000	-0.004	0.004	0.014**	0.012*	0.015
	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)
KwaZulu-Natal	0.012	0.005	0.019	-0.001	-0.004	0.002
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)
North West	0.022**	0.020*	0.016	-0.001	-0.003	0.001
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)
Mpumalanga	0.020*	0.007	0.031*	0.006	0.005	0.008
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)
Limpopo	-0.003	-0.005	-0.002	0.003	-0.001	0.007
	(0.01)	(0.01)	(0.02)	(0.00)	(0.01)	(0.01)
N	14193	14193	14193	38926	38883	38747

*Source: TUS 2000 and 2010. Note: The data are weighted, standard errors in parentheses. *** p<0.01 ** p<0.05 * p<0.10. All regressions restricted to ages 15 to 64. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.*

Care work, presented in Table 7.4 shows a slightly different picture to the household maintenance results. This type of work is traditionally the domain of women, and the results confirm this.

As expected, the gender coefficient was significant and positive for both 2000 and 2010, indicating that women spent a significantly greater proportion of their time on care work compared to men. As per the results in Table 7.3, the coefficient was greater for the 2000 regressions than it was for the 2010 results, indicating that gender had become less important as an explanatory variable of care work over the two survey periods.

Other notable results in the table include those for married and cohabiting individuals who spent a greater proportion of their time on care work compared to their counterparts who had never married. The coefficients were also greater for 2000 than they were for 2010 and also greater for women than they were for men. (The coefficient for men was not significant in the 2000 results.) The pooled regressions showed that married and cohabiting individuals spent on average 1.2% (2000) and 0.4% (2010) less of their time on care work. These coefficients were 1.6% for women in 2000, while it was 0.7% for men in 2010. The declining magnitude of the coefficients suggests a shift to a more egalitarian distribution of care work over the two survey periods. Specifically, given that the result for men had become significant in 2010, from one which was not significant for the 2000 results.

For both the pooled and disaggregated female regressions, separated workers were likely to spend significantly more time on care work compared to their counterparts who had never been married. Although these coefficients were not as great as those of the married and cohabiting individuals, they do reflect the vulnerability of separated women (Guimarãaes, 2012; Ntuli & Wittenberg, 2013; Saunders & Dalziel, 2017).

The number of young and older children in the household produced positive and significant coefficients. The pooled results show that having young children in the household increased the proportion of time spent on care work by 1.5% while for older children this was 0.4% for 2000. For 2010, these coefficients were 0.8% and 0.2% respectively for young and older children. The average number of children living with

employed individuals over the two time periods also decreased, and it is likely that employed individuals would have been more likely to move out of households where there are many dependents – possibly their own dependents or those of other household members. But this could also be a reflection of the increased investment in early childhood development centres and related policy interventions.

The coefficients for young children in the disaggregated regressions were positive for both men and women, and were expectedly greater for women, who spent 2.8% (2000) and 1.4% (2010) more time on care work for every additional young child in the household. For men, the coefficients were 0.4% (2000) and 0.2% (2010). These were thus not as great as those for women, but positive nonetheless. For older children these coefficients were not significant for men, but did result in women spending 0.7% (2000) and 0.7% (2010) more time on care work for every additional older child in the household. This indicates that the effect of children in the home had declined over the two periods, and this could be seen as a positive development, as far as time spent on care work hinders labour market success and by extension the financial, mental, and emotional well-being of workers and their households.

Having pensioners in the household was interestingly not significant, indicating that in the South African context, the elderly often act as a support mechanism rather than a care burden (Akintola, 2006; Van Der Stoep, 2008). Having additional household members of working-age, however, did act as a positive aspect in terms of time spent on care work. Women in the household were especially advantageous for women as they likely allow sharing of responsibilities in relation to care work. For the pooled regression, individuals spent on average 0.3% (2000) and 0.2% (2010) less time on care work for every additional woman in the household. For the female regressions, these numbers were 0.7% and 0.4% for 2000 and 2010, respectively.

Women clearly also benefitted from having additional men of working-age in their homes and spent 0.4% (2000) and 0.2% (2010) less time on care work for every additional man, although the 2010 coefficient was not significant. This indicates the positive effect of additional household members on relieving the burden of care work of women and the gender roles which persist in the greater coefficients for additional

female household members compared to additional male household members. This is also evident in the coefficients for the male regressions which were not significant.

The last interesting result from this table is the education variables, which has been proven to be a key outcome variable for women in the labour market (Bhorat & Goga, 2013; Gama & Willemse, 2015; Ntuli & Wittenberg, 2013). Coefficients for the female regressions were not significant in either of the time periods. For men, on the other hand, they were significant for those with a diploma or degree in both periods and included those with completed secondary schooling in 2010. What is notable about the results for the male regressions are the positive signs which indicate that men likely adopt a more egalitarian view of the distribution of care work, the more educated they become. For women, the results simply show that education does not necessarily determine how much or how little care work is performed by a woman. Thus, although the descriptive statistics indicated that at lower levels of education, women spent more time on household maintenance and care work, the differences were possibly not large enough to produce significant results in Table 7.4.

Table 7.4: Correlates of time spent on care work (marginal effects), 2000 and 2010

Fractional Probit Regression						
Dependent variable: Proportion of the day spent on care work						
	2000			**2010**		
	All	**Male**	**Female**	**All**	**Male**	**Female**
Gender (Ref: Male)						
Female	0.027***			0.013***		
	(0.00)			(0.00)		
Age	-0.001	-0.002	-0.001	0.000	0.000	0.001
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Age Squared	0.000	0.000	-0.000	-0.000**	-0.000	-0.000**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Race (Ref: African)						
Coloured	0.009**	0.005	0.012*	0.001	-0.001	0.003
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
Indian	0.005	0.009	0.003	0.004***	0.001	0.006**
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
White	0.009***	0.004	0.013*	0.002	0.002**	0.000
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
Marital Status (Ref: Never married)						
Married/Cohabiting	0.012***	0.012	0.016***	0.004***	0.001*	0.007***
	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Separated	0.008*	0.010	0.013*	0.003*	-0.001	0.007**
	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
No of young children	0.015***	0.004*	0.028***	0.008***	0.002***	0.014***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
No of older children	0.004***	0.002	0.007***	0.002**	0.000	0.004**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
No of pensioners	0.001	0.001	0.003	0.001	-0.000	0.004
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
No of women	-0.003***	-0.000	-0.007***	-0.002***	-0.000	-0.004***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
No of men	-0.002**	-0.002	-0.004**	-0.001	-0.000	-0.002

	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Education (Ref: No schooling)						
Incomplete Primary	0.003	-0.002	0.006	0.001	0.002	0.001
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)
Incomplete Secondary	0.005	0.003	0.007	0.004	0.003	0.004
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
Complete Secondary	0.003	0.004	0.002	0.004	0.004*	0.002
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
Diploma/Degree	0.005	0.008*	0.002	0.005	0.004*	0.003
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
Province (Ref: Gauteng)						
Western Cape	-0.006	-0.002	-0.009	0.002	0.001	0.001
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
Eastern Cape	0.001	-0.002	0.004	0.002	0.001	0.004
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
Northern Cape	-0.000	0.002	-0.001	0.002	0.001	0.000
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
Free State	-0.007*	0.001	-0.014*	0.001	0.001	0.000
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
KwaZulu-Natal	-0.004	-0.008	-0.003	-0.003*	0.000	-0.008**
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
North West	-0.003	-0.005	-0.000	0.001	-0.001	0.004
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
Mpumalanga	0.002	-0.001	0.005	-0.001	-0.001	0.000
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
Limpopo	-0.008	-0.001	-0.015	-0.003	-0.002	-0.004
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
N	14193	14193	14193	38926	38883	38747

*Source: TUS 2000 and 2010. Note: The data are weighted, standard errors in parentheses. *** p<0.01 ** p<0.05 * p<0.10. All regressions restricted to ages 15 to 64. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.*

7.2 Occupation rank and time-use

This section presents the results for the ordered logit regressions which ultimately aim to answer the overarching research question – whether time spent on unpaid reproductive labour is significant in explaining quality of work. These regressions use the occupation rank (proxy for quality of work) of an individual as the dependent variable and time spent on paid work (includes working unpaid in a family enterprise) and unpaid reproductive work as explanatory variables – they also include additional covariates.

Table 7.5 shows that in 2000, time spent on non-SNA work was significant in explaining quality of work and the coefficient shows that this effect was negative. Thus, the greater the proportion of the day spent on non-SNA work in 2000, the lower the quality of work of the individual. The model I result for 2010 was, however, not significant, although the sign of the coefficient was still negative.

Model II and III included the proportion of time spent on SNA work and this variable was not significant in either of the survey periods when controlling for non-SNA work, although it was significant for model III which excluded time spent on non-SNA work (2000 only). Despite the fact that the SNA time variable was not significant in model II, the magnitude of the non-SNA coefficient in 2000 did decline when controlling for the proportion of time spent on SNA work. This indicates that the time spent on unpaid reproductive labour was negatively associated with on the quality of work in 2000, but that the opposite was true for SNA work. However, when both variables were included, only non-SNA work was still significant, indicating that the negative effect of non-SNA time was greater than the positive effect of SNA time.

The other covariates included in the regression indicated results as expected. Being female meant that an individual would be more likely to be lower on the occupation rank and the coefficients for this variable were greater in 2010 than they were in 2000. Women also had longer days than men (excluding non-productive activities) in both survey periods, and this increased between the two time periods (see Table 6.8). Thus, women's increased time-use on SNA work was not necessarily met by an increase in the quality of work.

Age was significant in both survey periods, indicating that the older the worker, the more likely they are to be higher up the occupation rank. This increase in age is also likely to be accompanied by an increase in the experience of the worker – a variable which has been found to be a significant covariate in the labour economics literature (Brookes & Hinks, 2004; Mlatsheni & Rospabé, 2002; Worth, 2016).

All race groups (except Coloured workers in 2000) were significantly more likely to rank higher than African workers. Furthermore, although the coefficients for Indian workers were greater in 2000 than they were in 2010, the coefficients for White workers were greater in 2010 than 2000. This indicates that racial disparities may have widened between some groups and narrowed between others, but that African workers were still the most disadvantaged group in terms of quality of work.

Being married was a positive contributor to moving up the occupation rank in both survey periods, with the coefficient being greater for 2000 than 2010. Lastly, the higher

the level of education of the worker, the more likely they were to be further up the occupation rank. This was true for both 2010 and 2000 across all the models, although the differences were not significant between those with an incomplete primary schooling and no schooling.

Table 7.5: Correlates of SNA and non-SNA time on occupation rank (coefficients), 2000 and 2010

Ordered Logit Regression						
Dependent Variable: Occupation Rank						
Year	**2000**			**2010**		
Model	**I**	**II**	**III**	**I**	**II**	**III**
Non-SNA time	-1.515***	-1.166**		-0.200	-0.259	
	(0.39)	(0.43)		(0.25)	(0.29)	
SNA time		0.441	0.739***		-0.060	0.002
		(0.25)	(0.22)		(0.15)	(0.13)
Gender (Ref: Male)						
Female	-0.249*	-0.272**	-0.388***	-0.543***	-0.540***	-0.559***
	(0.10)	(0.10)	(0.09)	(0.06)	(0.06)	(0.06)
Age	0.156***	0.149***	0.144***	0.046**	0.046**	0.046**
	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)
Age Squared	-0.002***	-0.002***	-0.002***	-0.000*	-0.000*	-0.000*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Race (Ref: African)						
Coloured	0.283	0.289	0.294	0.920***	0.919***	0.926***
	(0.19)	(0.19)	(0.19)	(0.16)	(0.16)	(0.16)
Indian	0.873***	0.880***	0.902***	0.571***	0.570***	0.574***
	(0.19)	(0.19)	(0.19)	(0.09)	(0.09)	(0.09)
White	0.452**	0.452**	0.463**	1.188***	1.186***	1.190***
	(0.16)	(0.16)	(0.16)	(0.09)	(0.09)	(0.09)
Marital Status (Ref: Never married)						
Married/Cohabiting	0.280*	0.277*	0.266*	0.202***	0.202***	0.202***
	(0.12)	(0.12)	(0.12)	(0.05)	(0.05)	(0.05)
Separated	0.143	0.146	0.146	0.055	0.055	0.055
	(0.18)	(0.18)	(0.18)	(0.13)	(0.13)	(0.13)
No of young children	-0.011	-0.026	-0.055	0.017	0.018	0.015
	(0.08)	(0.08)	(0.08)	(0.04)	(0.04)	(0.04)
No of older children	-0.067	-0.067	-0.076	-0.001	-0.001	-0.003
	(0.06)	(0.06)	(0.06)	(0.05)	(0.05)	(0.04)
No of pensioners	-0.145	-0.141	-0.148	-0.068	-0.070	-0.069
	(0.14)	(0.14)	(0.14)	(0.08)	(0.08)	(0.08)
No of women	0.006	0.014	0.030	0.033	0.033	0.036
	(0.04)	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)
No of men	0.007	0.009	0.013	-0.016	-0.016	-0.015
	(0.05)	(0.05)	(0.05)	(0.02)	(0.02)	(0.02)
Education (Ref: No schooling)						
Incomplete Primary	0.305	0.298	0.272	0.020	0.020	0.021
	(0.17)	(0.17)	(0.17)	(0.12)	(0.12)	(0.12)
Incomplete Secondary	0.809***	0.809***	0.793***	0.850***	0.851***	0.851***
	(0.17)	(0.17)	(0.17)	(0.11)	(0.11)	(0.11)
Complete Secondary	2.071***	2.073***	2.063***	2.138***	2.139***	2.140***
	(0.19)	(0.19)	(0.20)	(0.12)	(0.12)	(0.12)
Diploma/Degree	3.124***	3.119***	3.086***	3.935***	3.934***	3.936***
	(0.21)	(0.21)	(0.21)	(0.13)	(0.13)	(0.13)
Province (Ref: Gauteng)						
Western Cape	-0.028	-0.053	-0.078	-0.188	-0.188	-0.193
	(0.19)	(0.19)	(0.18)	(0.10)	(0.10)	(0.10)
Eastern Cape	-0.584***	-0.576***	-0.586***	-0.165*	-0.166*	-0.170*
	(0.15)	(0.15)	(0.15)	(0.08)	(0.08)	(0.08)
Northern Cape	-0.192	-0.228	-0.253	-0.377***	-0.377***	-0.378***
	(0.20)	(0.20)	(0.20)	(0.10)	(0.10)	(0.10)
Free State	-0.231	-0.244	-0.246	-0.011	-0.011	-0.014
	(0.14)	(0.14)	(0.14)	(0.10)	(0.10)	(0.10)
KwaZulu-Natal	-0.314*	-0.335*	-0.357*	0.032	0.034	0.032

	(0.14)	(0.15)	(0.15)	(0.08)	(0.08)	(0.08)
North West	0.133	0.133	0.111	0.017	0.016	0.016
	(0.16)	(0.16)	(0.16)	(0.09)	(0.09)	(0.09)
Mpumalanga	-0.303	-0.311	-0.346*	-0.072	-0.070	-0.074
	(0.17)	(0.17)	(0.17)	(0.09)	(0.09)	(0.09)
Limpopo	-0.177	-0.175	-0.159	-0.017	-0.019	-0.018
	(0.19)	(0.19)	(0.19)	(0.09)	(0.09)	(0.09)
N	14128	14128	14128	38988	38988	38988

*Source: TUS 2000 and 2010. Note: The data are weighted, standard errors in parentheses. *** p<0.01 ** p<0.05 * p<0.10. All regressions restricted to ages 15 to 64. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.*

Tables 7.6 and 7.7 show these results by gender for the two survey periods, separately. The data show that the proportion of time spent on non-SNA work was only significant for females in Model I in 2000. When controlling for the proportion of time spent on SNA work, this coefficient becomes insignificant (Model II). This is also notable for time spent on SNA work in Model III. The SNA coefficient was also only significant for females (Model III) and then became insignificant in Model II when controlling for non-SNA time. Despite the insignificant results for females in Model II, what should be noted is that the non-SNA and SNA variables are not significant for men in all the models, indicating that a gender difference in how time-use affects quality of work was evident in 2000.

The other covariates show that age was significant, as it was in the pooled regressions, and the coefficients were greater for men than they were for women.

The race variables showed that the regression coefficients for White individuals were only significant for males. This indicates that compared to White males, African males were likely to score significantly lower on the occupation rank, although this difference did not exist for women in 2000. For women, the coefficients for Indian workers were the only significant race coefficients.

The marital status variable displayed a gender difference and showed that being married was only significant and positive for men. Indicating that married men were more likely to be higher up the occupation rank compared to men who had never been married. These coefficients were not significant for women and marital status was thus not a significant predictor of job quality for women when controlling for time-use.

Lastly, while none of the household composition variables produced significant results, the education coefficients were significant in both survey periods and were greater for women than for men. The coefficients were greatest for those with a diploma or degree which confirms the importance of education for women, but these results show that it was similarly important for men in determining the quality of work.

Table 7.6: Correlates of SNA and non-SNA time on occupation rank (coefficients), by gender, 2000

Ordered Logit Regression						
Dependent Variable: Occupation Rank						
	Male	**Female**	**Male**	**Female**	**Male**	**Female**
Model	**I**	**I**	**II**	**II**	**III**	**III**
Non-SNA time	-0.816	-1.412**	-0.502	-0.952		
	(0.72)	(0.51)	(0.75)	(0.62)		
SNA time			0.369	0.574	0.453	0.923**
			(0.33)	(0.38)	(0.31)	(0.31)
Age	0.232***	0.091*	0.225***	0.085*	0.224***	0.082*
	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Age Squared	-0.003***	-0.001*	-0.003***	-0.001*	-0.003***	-0.001*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Race (Ref: African)						
Coloured	0.104	0.533	0.112	0.533	0.118	0.533
	(0.18)	(0.34)	(0.18)	(0.34)	(0.18)	(0.33)
Indian	0.365	1.484***	0.373	1.481***	0.386	1.484***
	(0.26)	(0.27)	(0.26)	(0.27)	(0.26)	(0.27)
White	0.480*	0.343	0.477*	0.348	0.485*	0.348
	(0.24)	(0.20)	(0.24)	(0.20)	(0.24)	(0.20)
Marital Status (Ref: Never married)						
Married/Cohabiting	0.411*	0.124	0.413*	0.110	0.419*	0.077
	(0.18)	(0.15)	(0.18)	(0.15)	(0.18)	(0.15)
Separated	0.100	0.168	0.117	0.156	0.113	0.146
	(0.25)	(0.22)	(0.24)	(0.22)	(0.24)	(0.22)
No of young children	0.008	-0.035	-0.001	-0.060	-0.005	-0.101
	(0.12)	(0.10)	(0.12)	(0.11)	(0.12)	(0.10)
No of older children	-0.095	-0.048	-0.092	-0.055	-0.092	-0.069
	(0.10)	(0.08)	(0.10)	(0.08)	(0.10)	(0.08)
No of pensioners	-0.282	-0.005	-0.281	0.006	-0.282	0.001
	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)
No of women	-0.012	0.020	-0.005	0.030	-0.002	0.047
	(0.07)	(0.05)	(0.07)	(0.05)	(0.07)	(0.05)
No of men	0.026	0.031	0.027	0.039	0.028	0.046
	(0.07)	(0.06)	(0.07)	(0.06)	(0.07)	(0.06)
Education (Ref: No schooling)						
Incomplete Primary	0.169	0.311	0.167	0.288	0.159	0.254
	(0.24)	(0.27)	(0.24)	(0.27)	(0.24)	(0.27)
Incomplete Secondary	0.585*	0.984***	0.592*	0.970***	0.590*	0.945***
	(0.23)	(0.25)	(0.23)	(0.25)	(0.23)	(0.25)
Complete Secondary	1.379***	2.771***	1.389***	2.751***	1.385***	2.744***
	(0.27)	(0.29)	(0.28)	(0.29)	(0.28)	(0.28)
Diploma/Degree	2.445***	3.838***	2.442***	3.820***	2.425***	3.803***
	(0.29)	(0.30)	(0.29)	(0.30)	(0.29)	(0.30)
Province (Ref: Gauteng)						
Western Cape	-0.177	0.001	-0.203	-0.018	-0.220	-0.024
	(0.22)	(0.30)	(0.23)	(0.30)	(0.22)	(0.29)
Eastern Cape	-0.935***	-0.211	-0.917***	-0.220	-0.918***	-0.240
	(0.23)	(0.20)	(0.23)	(0.20)	(0.23)	(0.20)
Northern Cape	-0.263	-0.271	-0.298	-0.306	-0.309	-0.327
	(0.26)	(0.33)	(0.26)	(0.32)	(0.26)	(0.32)
Free State	-0.346	-0.299	-0.366	-0.305	-0.370	-0.301
	(0.19)	(0.21)	(0.20)	(0.22)	(0.20)	(0.22)
KwaZulu-Natal	-0.214	-0.398	-0.237	-0.418	-0.246	-0.432
	(0.20)	(0.22)	(0.20)	(0.22)	(0.20)	(0.22)

North West	0.218	-0.078	0.216	-0.069	0.203	-0.076
	(0.22)	(0.23)	(0.22)	(0.23)	(0.22)	(0.22)
Mpumalanga	-0.488*	-0.133	-0.487*	-0.161	-0.496*	-0.205
	(0.22)	(0.27)	(0.22)	(0.28)	(0.22)	(0.27)
Limpopo	-0.194	-0.035	-0.190	-0.040	-0.190	-0.017
	(0.29)	(0.25)	(0.29)	(0.25)	(0.29)	(0.25)
N	14198	14194	14198	14194	14198	14194

*Source: TUS 2000 and 2010. Note: The data are weighted, standard errors in parentheses. *** p<0.01 ** p<0.05 * p<0.10. All regressions restricted to ages 15 to 64. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.*

Although the time-use variables were not significant for men and women in 2010, the signs of the coefficients for males were positive and negative for women, reflecting to some extent the 2000 results. In terms of race, workers of all races were more likely than Africans to have better quality work. In addition, this relationship strengthened for men in 2010, compared to the 2000 results. As per the pooled results, the racial differences had narrowed for some groups and widened for others. This is confirmed in the fact that Indian men did not differ significantly from African men in 2000, although they did so in 2010, while the variables for Indian women were significant for both survey periods, but were weaker for 2010 than they were for 2000. The racial differences thus deviate from the traditional linear pattern of differences between the race groups (i.e. African, Coloured, Indian, Whites, ranked worst to best), but still reflect the persisting disadvantage of Africans.

As per the results in Table 7.6, the coefficients for married and cohabiting men were positive and significant although weaker in 2010 than they were in 2000. The results also show that the greatest coefficient is produced when controlling for non-SNA work compared to the 2000 results which produced the greatest coefficient when controlling for SNA work only. Even with this difference between the two periods, this still confirms the results of Casale and Posel (2010a) in relation to the labour market success of married men.

The presence of pensioners in the household reduced the quality of work for men, again suggesting that pensioners could be a form of supplementing low wages. Lastly, the education level coefficients are as they were in the 2000 regressions, i.e. greater for women than they were for men. However, the magnitude of the coefficients was even greater in the 2010 results, indicating the growing importance of education in determining quality of work.

Table 7.7: Correlates of SNA and non-SNA time on occupation rank (coefficients), by gender, 2010

Ordered Logit Regression						
Dependent Variable: Occupation Rank						
	Male	**Female**	**Male**	**Female**	**Male**	**Female**
Model	**I**	**I**	**II**	**II**	**III**	**III**
Non-SNA time	0.426	-0.141	0.380	-0.085		
	(0.44)	(0.29)	(0.49)	(0.35)		
SNA time			-0.043	0.059	-0.106	0.090
			(0.19)	(0.23)	(0.17)	(0.19)
Age	0.073***	0.066**	0.074***	0.066**	0.074***	0.065**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Age Squared	-0.001**	-0.001*	-0.001**	-0.001*	-0.001**	-0.001*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Race (Ref: African)						
Coloured	0.889***	1.005***	0.888***	1.006***	0.878***	1.008***
	(0.21)	(0.23)	(0.21)	(0.23)	(0.21)	(0.23)
Indian	0.363**	0.816***	0.361**	0.816***	0.356**	0.817***
	(0.13)	(0.12)	(0.13)	(0.12)	(0.13)	(0.12)
White	1.186***	1.152***	1.186***	1.154***	1.182***	1.156***
	(0.12)	(0.13)	(0.12)	(0.13)	(0.12)	(0.13)
Marital Status (Ref: Never married)						
Married/Cohabiting	0.213**	0.130	0.213**	0.130	0.206**	0.128
	(0.08)	(0.09)	(0.08)	(0.09)	(0.08)	(0.09)
Separated	0.153	0.101	0.154	0.101	0.152	0.100
	(0.17)	(0.16)	(0.17)	(0.16)	(0.17)	(0.16)
No of young children	0.014	0.001	0.014	-0.000	0.016	-0.002
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
No of older children	0.018	-0.031	0.018	-0.031	0.020	-0.032
	(0.07)	(0.06)	(0.07)	(0.06)	(0.07)	(0.06)
No of pensioners	-0.274*	0.221	-0.275*	0.222	-0.275*	0.222
	(0.11)	(0.12)	(0.11)	(0.12)	(0.11)	(0.12)
No of women	0.037	0.046	0.037	0.047	0.034	0.048
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
No of men	0.008	-0.015	0.008	-0.015	0.006	-0.015
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Education (Ref: No schooling)						
Incomplete Primary	0.156	-0.340	0.155	-0.342	0.157	-0.342
	(0.19)	(0.18)	(0.19)	(0.18)	(0.19)	(0.18)
Incomplete Secondary	1.016***	0.735***	1.016***	0.733***	1.019***	0.733***
	(0.19)	(0.16)	(0.19)	(0.16)	(0.19)	(0.16)
Complete Secondary	1.975***	2.431***	1.976***	2.429***	1.979***	2.430***
	(0.19)	(0.17)	(0.19)	(0.17)	(0.19)	(0.17)
Diploma/Degree	3.729***	4.100***	3.728***	4.099***	3.730***	4.101***
	(0.21)	(0.17)	(0.21)	(0.17)	(0.21)	(0.17)
Province (Ref: Gauteng)						
Western Cape	-0.361**	-0.061	-0.360**	-0.061	-0.352**	-0.062
	(0.13)	(0.15)	(0.13)	(0.15)	(0.13)	(0.15)
Eastern Cape	-0.456***	0.095	-0.456***	0.095	-0.455***	0.092
	(0.11)	(0.13)	(0.11)	(0.13)	(0.11)	(0.13)
Northern Cape	-0.624***	-0.130	-0.623***	-0.130	-0.620***	-0.130
	(0.14)	(0.16)	(0.14)	(0.16)	(0.14)	(0.16)
Free State	-0.278*	0.234	-0.277*	0.235	-0.272*	0.235
	(0.13)	(0.15)	(0.13)	(0.15)	(0.13)	(0.15)
KwaZulu-Natal	-0.088	0.180	-0.086	0.177	-0.084	0.176
	(0.11)	(0.12)	(0.11)	(0.12)	(0.11)	(0.12)
North West	-0.110	0.037	-0.111	0.037	-0.112	0.037
	(0.11)	(0.15)	(0.12)	(0.15)	(0.12)	(0.15)
Mpumalanga	-0.281**	0.174	-0.280**	0.173	-0.275**	0.172
	(0.11)	(0.14)	(0.11)	(0.14)	(0.11)	(0.14)
Limpopo	-0.234	0.266*	-0.237	0.268*	-0.240	0.268*
	(0.12)	(0.13)	(0.12)	(0.13)	(0.12)	(0.13)
N	38957	38826	38957	38826	38957	38826

*Source: TUS 2000 and 2010. Note: The data are weighted, standard errors in parentheses. *** p<0.01 ** p<0.05 * p<0.10. All regressions restricted to ages 15 to 64. Significance levels included are comparisons of categories within each survey year. In other words, differences are considered within each column.*

The results in Tables 7.6 and 7.7 thus show that unpaid reproductive labour had a negative and significant effect on women's quality of work in 2000, although this relationship was not significant for the 2010 results. The 2010 results do suggest, however, that race and education had become more important predictors of quality of work.

Furthermore, while both SNA and non-SNA time is significant when considered separately in the 2000 results, both the coefficients become insignificant when included together. This suggests that when considering women's overall time-use, their time spent on unpaid reproductive labour was not significant in explaining quality of work, although it could reflect the extended working days of women, who spend their days accommodating both their paid and unpaid work. The second take-away is that although time spent on SNA work had a positive effect on women's quality of work, combining this with the time they spent on non-SNA work served to nullify those gains made from time spent on SNA work. Lastly, it is important to note that these results were only significant for women, supporting the hypothesis that differences in time-use could be a source of gender inequality in the labour market.

7.3 Discussion

This chapter presented the correlates of different types of time-use for employed individuals as well as the relationship between the proportion of time spent on unpaid reproductive (and productive) labour and quality of work. The work presented in chapters 3 and 4 is instrumental in the interpretation of the results of this chapter.

The results in chapters 3 and 4 showed that between 2001 and 2018 there was a general increase in the quality of work, although a closer look showed an initial increase in the quality of work between 2001 and 2011 and a decrease between 2011 and 2018. Th data also showed that the overall increase was not applicable to all occupation groups. The 2001 and 2011 periods, which are mirrored in chapters 6 and 7, were also a time during which macroeconomic growth and employment growth was on a positive trajectory. The literature has shown that 2000 to 2012 was a period during which the government increased its fiscal commitments by expanding employment in

the public sector (Sachs, 2020). It is thus not surprising that these macroeconomic indicators accompanied an increase in the general quality of work.

During times of economic distress, greater pressure is put on households, as governments decrease social spending and businesses reduce benefits to workers or lay-off workers (Alon, Doepke, Olmstead-Rumsey, & Tertilt, 2020; Folbre, 1994). This presents a challenge in relation to the capacity of workers to separate their responsibilities in the reproductive and productive spheres of the economy. For instance, when workers receive less pay or no pay at all, they will be less able or unable to employ help around the household. Similarly, if workers are required to work more hours to sustain the same wage rate, they will have fewer hours for unpaid reproductive labour.

Women tend to be disproportionately affected by these changes during tough economic times (Hayter & Barnes, 1992; Rubery, 2010), not only because they are primarily responsible for unpaid reproductive labour in the household, but also because they form part of the vulnerable labour force.

The increase in quality of work between 2001 and 2011 (based on the results from chapters 3 and 4) could thus help explain the insignificant result of the proportion of time spent on non-SNA work in 2010. This could be an indication that better quality of work allows workers, specifically female workers, to balance their responsibilities in the productive and reproductive spheres.

However, despite this, workers have generally started working more hours in the productive sphere between 2000 and 2010. They also decreased their time spent on non-SNA work and non-productive activities. Overall, workers simply started working more. However, controlling for various factors in 2010 indicated that the proportion of time spent on SNA work was not a significant explanatory variable for the quality of work and this increase in time spent on SNA work could thus not reasonably be interpreted as a reason why the quality of work might have increased over this period. It is thus possible that positive economic conditions extend to many spheres of workers' experiences in the productive labour market as well as outside of it.

The fact that the non-SNA variable in the female regression (2000) becomes insignificant once controlling for SNA time is also worth exploring. The results suggest that increasing time dedicated to SNA work does not do much for increasing quality of work (when controlling for non-SNA work) – this is true for both men and women. Studies have suggested that women's inability to 'commit' to the demands of a full-time job – specifically one with decision-making responsibilities – is part of why women are in a subordinate position in the labour market (Rosenfeld & Birkelund, 1995; Rubiano-Matulevich & Viollaz, 2019). Being able to hand over household and care activities to someone else also comes at a monetary cost to women (Rubiano-Matulevich & Viollaz, 2019).

Furthermore, for the 2000 female regressions, including only SNA time was significant, although the positive coefficient for this variable was not as great as the negative coefficient for non-SNA time. This suggests that how women spend their time is associated with their quality of work – whether this is in the form of increased working hours in the productive sphere or the reproductive sphere. The insignificant results when both are included are likely an indication of the fact that these correlates cancel one another out. In other words, when both results are considered in isolation, they have their positive and negative correlates respectively, although when considered together these positive and negative correlates set one another off. This could be an indication of the prolonged working days which had become the norm for women, balancing both SNA and non-SNA work.

Beyond the time differences for men and women, the results presented in this chapter as well as previous chapters also provide interesting insights about the other covariates included in the regressions. The results show that various aspects of workers' sociodemographic characteristics and their association with labour force participation and employment probabilities overlap here, although with small nuanced differences.

As per the general findings of the labour market literature, race and education come through as important variables in explaining time-use patterns and quality of work. In chapter 4, African workers had a significantly lower DWI compared to White workers, while controlling for all the other covariates. The gender disaggregated regressions

specifically showed that for females an initial decrease in the effect of race was notable between 2001 and 2011, and then a slight increase between 2011 and 2017. As these periods were characterised by good economic conditions between 2000 and 2011 and then a decrease in the performance of the economy in the subsequent period (2011 and 2018), it suggests that the negative correlates tend to affect certain race groups more adversely than others.

In this chapter, it is interesting that differences between Africans and Whites were not significant predictors in the productive time regressions, but were so for the unpaid reproductive time regressions. The design of the apartheid system which is often looked at from the perspective of the exploitation of African male workers could go some way in explaining this, as the exploitation of African females was instrumental in maintaining the exploitation of African males. African women were often employed as domestic workers in White households or were left in the Reserves to care for children and sick men returning from urban areas; often while subsisting within their own households (Bozzoli, 1983). Although there has been a move away from this system through the relocation of African families to (peri) urban areas, African women have largely remained subordinate within the labour market (Burger, Van Der Berg, & Von Fintel, 2015; Nattrass, 2002), working long hours for low pay. It is thus not surprising that there is no significant difference between African and White workers in terms of the proportion of time spent working in an establishment or in primary production, but that the difference is significant when considering unpaid reproductive labour.

African women were significantly more likely to spend a greater proportion of their time on household maintenance than White workers. This was also true for care work, with the exception of 2010 where the difference in time spent on care work was insignificant. This could indicate that African households, being on average poorer than White households, have a reduced capacity to outsource caring and household maintenance responsibilities, leaving this burden to African women.

In addition to the racial differences, there were few significant differences between those with no schooling and incomplete primary schooling. In most of the regressions included in this thesis, the difference between those with no schooling and incomplete primary schooling in explaining the various dependent variables was either

insignificant, weakly significant, or had smaller coefficients than those with at least *some* secondary schooling. This suggests that it would be beneficial to assist workers in *at least* finishing primary school in order to expand the possibilities of increasing their quality of work.

Having pensioners in the household was a significant predictor for men in determining how much time they spent on work in an establishment, but also in determining their quality of work. The more pensioners who were co-resident with male workers, the lower their quality of work. Although this could be an indicator of selection into households with pensioners when someone is already in a poor quality or paying job, the opposite effect has been noted for women in the literature (Duflo, 2000; Posel et al., 2006). The fact that this is not a significant variable for women suggests that this might only be relevant in explaining labour force participation and employment probabilities and not necessarily the type of jobs women tend to obtain. Other household members also made a difference in some instances, although the results changed depending on the dependent variable as well as who the household members were.

By extension, the marital status of an individual also provides a good indicator of who is likely to be co-resident in a household with a worker. Married men have often been able to perform better in the labour market due to the fact that they are able to rely on their partners who are likely to be doing the unpaid reproductive labour around the house. This is evident in the regression for the correlates of time spent on household maintenance, where married men were less likely to spend time on this type of labour, while married women were more likely to do so. However, in the regressions looking at time spent on caring labour, both married men and women were more likely to spend more time on household maintenance than their counterparts who had never married.

However, the combination of the results suggests that not only are married men more likely to have better quality jobs due to the assumptions that are made about the characters of married men (Campbell, 2014; Casale & Posel, 2010a), but that they also possibly take advantage of this by spending more time on care work. Alternatively, they could be ‘forced’ to help around the household with this type of labour –

particularly given that the household sizes of employed persons decreased over the time periods (2000 to 2010).

Looking at time spent in primary production, women were less likely to spend their time engaging in this type of labour if they had more men in the household and fewer children. The location in which this labour tends to be performed (the home) would likely result in assisting workers with an overlap in their productive and unpaid reproductive activities. This also indicates the barrier which working in the productive sphere can present to women who also have responsibilities at home.

Conclusions

This chapter examined the correlates of productive and unpaid reproductive time, but also looked at whether there was a relationship between unpaid reproductive labour and the quality of work an individual was employed in.

Using fractional probit regressions and ordered logit regressions, the results indicated that women were less likely than men to spend time on productive labour (specifically working in an establishment) than men and more likely to spend time on unpaid reproductive labour than men. The data further showed that time spent on unpaid reproductive labour was only significant in explaining quality of work in 2000 and only for women, when the regressions were disaggregated. This indicated that there could possibly exist a relationship between how the productive and reproductive spheres interact during times of economic distress, given that 2010 – the year for which this relationship was not significant – was characterised by increasing economic growth and employment within the country.

Assuming that this is the case, this would confirm the theorisations of feminist scholars who have written about the pressure which is put on households during times of economic distress when governments employ contractionary fiscal measures and businesses scale down by reducing benefits and/or laying workers off.

CONCLUSIONS

Work has become increasingly casualised and informalised in the last few decades (Elson, 1999; Kelly & Kalev, 2006; Mccall, 2016; Mosomane, 2014; Webster et al., 2016). This change in the labour market was accompanied by the feminisation of the labour force and these shifting conditions have largely been attributed to increased liberalisation of markets (including the labour market) by nation states (Asongu, Efobi, Tanankem, & Osabuohien, 2020; Black et al., 2017; Bodibe, 2006; Filipe, Ferreira, Antonio, Fuentes, & Pablo, 2018; Loonat, 2013; Van Staveren, 2010b). As a result, the ILO developed the Decent Work Agenda (DWA) in 1999 with the aim of addressing workers' increasing precarity and powerlessness in relation to other labour market actors.

The ILO's DWA aims at broadening the way we think about labour by expanding debates about labour beyond the usual wage-defined relationship workers have with the labour market and thinking more broadly about the well-being of workers, their work satisfaction, and their personal progression within their work. Also notable about the DWA is the recognition of women's unpaid reproductive labour responsibilities they have outside of their wage work. The aspirational nature of the DWA is thus a step towards encouraging employers and governments to protect the interests of those workers who tend to be on the periphery of the labour market. This is also reflected in the fact that gender equality has been listed as a cross-cutting goal of the DWA (Floro & Meurs, 2009; ILO, 2009).

Studies cited in this thesis have investigated the meaning of decent work (Bescond et al., 2003; Cohen & Moodley, 2012; Duffy et al., 2016; FAO, 2015; Fudge, 2007; Ghai, 2006; Graça et al., 2019; Hauf, 2015; Herath, 2011; Huneeus et al., 2015; Wang et al., 2019), given the loosely defined guidelines provided by the ILO, while others have dug into the various ways in which measurement of decent work can be achieved (Banerjee et al., 2006; Bob, 2019; Ernst et al., 2012; Tomei, 2011; Tomei & Belser, 2011; Wicaksono & Priyadi, 2016). The gender equality goal of the DWA has also received some attention amongst scholars (Bletsas & Charlesworth, 2013; Charlesworth, 2010; Floro & Meurs, 2009), although a tension is present in the DWA

in relation to the gender equality goal, and it is here that this study has attempted to make a contribution.

Through its aspirational statements about how it views decent work, the ILO has highlighted the reproductive burden of women and how this may be a barrier to the decent work aspirations of women *and* the gender equality goal of the DWA (ILO, 2008b). However, in its technical documents, where the ILO provides guidelines on how to measure decent work, the ILO has proceeded to exclude the unpaid reproductive labour women perform in their homes, as has been the tradition in labour market debates (ILO, 2012a, 2013).

Although social reproduction theorists and feminist theorists have repeatedly highlighted the intersecting nature of women's work in the reproductive sphere and outcomes for both men and women in the productive sphere (Bhattacharya, 2017b; Federici, 2009; Luxton, 2006), bodies such as the ILO have continued to ignore this labour *in practice*.

This study has built on the work of feminist and social reproduction scholars by demonstrating that there is in fact an association between time spent on unpaid reproductive labour and the quality of wage work of those who work for a wage. Continuing to ignore the time women spend performing unpaid reproductive labour is thus unlikely to result in gender equality within the labour market as well as within broader society. To achieve this aim, it was necessary to adopt the definition of work provided by the ILO and deliberately exclude the unpaid reproductive labour women perform. As such, the study included only employed individuals in the analysis.

Using nationally representative labour force survey (LFS) and time-use survey (TUS) data published by Stats SA, this study used a weighted decent work index (DWI) as a proxy for the quality of wage work in the South African labour market. The main findings of the study relate to the structural constraints within occupation groups, changes in the labour market in relation to macroeconomic conditions, and the relationship between the household and the broader economy.

The structural constraints in an occupation group were discussed in chapter 4. The analysis looked at the relationship between the proportion of women employed in an occupation group and the average DWI of workers within that occupation group. The results showed that the greater the proportion of women employed in an occupation group, the lower the average DWI of workers in that occupation group tended to be. A key finding from this analysis is that this relationship was significant for both men and women, but also that being female was not a significant predictor of quality of work when the proportion of women in an occupation group was controlled for.

The literature has shown, that women face barriers to entry to better quality jobs and also lack upward mobility in their work (Anker, 1997; Dickerson, 2002; Hughes & Dodge, 1997; Perez Ortiz, Sanchex Diez, & Vinas Apaolaza, 2002; Piazzalunga, 2015). The results of *this* study, however, suggest that these constraints are possibly more structural in nature, where the 'type' of workers employed in female-dominated jobs face greater barriers than those in male-dominated jobs. This also supports the findings of Klein (2017) in which women who self-select into male-typed jobs earn a wage premium in the labour market and men who self-select into female-typed jobs suffer a wage penalty. The findings here show that this relationship exists beyond thinking about jobs in terms of wages, but also applies to a broader definition of work.

The second major finding of the study relates to government interventions in the economy and how these complemented trends in the quality of work in the labour market. The 'initial' period studied (2001-2011) was characterised by an increase in fiscal commitments from government which would have affected quality of work both directly and indirectly. This period was also characterised by an increase in overall quality of work in the economy. The latter period (2011-2018) saw general decreases in both public and private sector investment as well as declines in economic growth and an increase in the already high unemployment rate. This period was not characterised by the same spending trend seen in the initial period and differential correlates were notable in different pockets of the labour market as a result.

Although movements in government spending would have implications for activity in the public sphere, they have similarly important implications for activity in the private sphere. These associations were also notable in the trends observed in the TUS data.

The period during which government had undertaken an expansionary approach in its fiscal policy was also characterised by an increase in time-use on system of national accounts (SNA) work and a decrease in unpaid reproductive work. Increased service delivery, specifically in the form of basic services such as water and electricity provision, in addition to educational facilities, would likely have allowed for a decrease in the amount of time spent on unpaid reproductive work.

Furthermore, an increase in transfer payments to households in the form of grants would have allowed individuals to actively engage in labour market activities, whether it be through increasing job search capabilities or engaging in small scale entrepreneurial activity. These transfers could also possibly have assisted in increasing reservation wages and strengthening the bargaining power of workers. However, this indirect effect of grant payments have a greater likelihood of increasing women's labour market activity than men's (Ardington et al., 2009).

The link between the household and the broader economy has important implications for women and illuminates the gendered effect of changes in fiscal policy. This link is the last major finding of this study and highlights not only the relationship between government and its association with women in the private sphere, but also women's engagement in the public sphere.

As government decreased its fiscal commitments in the latter period (2011-2018) which accompanied an increase in unemployment, a decrease in public sector employment, as well as transfers and investments meant to strengthen service delivery and facilitate private sector investment, women were again adversely affected. As women tend to be disproportionately represented in precarious and informal labour, they are most disposable in times of economic distress.

Furthermore, a lack of service delivery would also affect them adversely as a shortage of basic services such as water and electricity increases the amount of time spent on unpaid reproductive work (Benería & Floro, 2005; Blackden & Wodon, 2006; Deb, Haque, & Thompson, 2015; Giuliano, 2014; Moyo & Kawewe, 2002; United Nations, 2008).

Although the greatest limitation of this study is the limited number of time-use surveys currently available, the evidence based on the 2000 and 2010 TUS provides significant preliminary evidence of a link between the public and private spheres of the economy. The decent work agenda does acknowledge women's unpaid reproductive labour and the important contribution this makes to the economy, although omitting this labour from the practical definition of work is unlikely to address gender inequality in the labour market. Using the traditional definition of work will result in policy interventions which treat the symptoms of gender inequality rather that the causes; inequality in the way men and women use their time being a major contributor to such inequality.

Contribution to knowledge

This study deviated from the dense South African literature on labour force participation and employment probabilities by studying the quality of work of those who are already employed; an aspect of work which is relatively understudied in the South African context. The study demonstrated, with the use of nationally representative LFS data, how a weighted decent work index can be built. By doing so, this study used a broader definition of quality of work, diverging from the wage-defined measures which have characterised the economics literature (Grün, 2003; Hunt & Samman, 2020; Rospabé, 2002; Wittenberg, 2014).

The study further contributed to the few studies which have made use of the TUS data (Floro & Komatsu, 2011a; Valodia & Devey, 2005) by limiting the sample to employed individuals only, but also using the TUS and LFS together. This has allowed for studying conditions outside of the traditional labour market. The study demonstrated how conditions outside of the traditional labour market (work towards the left end of the work continuum), the domain of women, is associated with outcomes within the labour market (work towards the right end of the work continuum). Although feminist economists have theorised about this relationship for decades, this is the first study of its kind in the South African context to the author's knowledge.

The findings of this study show that addressing conditions inside the labour market is not sufficient to achieve gender equality, given the many constraints women face on

their time outside of the labour market. A number of recommendations thus arise from these findings.

Recommendations

A key recommendation related to the findings of this study would include finding mechanisms to ensure individuals complete primary school. The findings showed that few differences existed between workers with no schooling and incomplete primary schooling. Significant differences were, however, apparent for those workers with at least *some* secondary schooling and those with no schooling. Although the school phase advocated for here is compulsory in South Africa (RSA, 2019), an investigation into the degree to which this policy stance is successful is warranted. In addition, interventions where individuals are not completing their primary schooling and investigating what the barriers are to ensuring that this happens would also be valuable. This argument, however, relates to the quantity and not the quality of education, given that the level of completed schooling was the best available variable with which to measure educational competency in this study. In addition to supply side constraints, however, there must be an assurance that individuals will firstly be able to secure jobs once having completed their schooling and that they will receive remuneration and related benefits commensurate with the human capital investment they have made. This thus requires that interventions address both demand and supply side constraints in the labour market.

Although Stats SA has made great strides in data collection amongst agricultural workers, the data available are still not on par with individuals in other occupation groups. Given the precarity of the work arrangements of many of these workers it is necessary to obtain data of a better quality to ensure that policy interventions aimed at agricultural workers are relevant and effective.

A second point on data collection relates to the TUS data which provides valuable information related to the activities of individuals where the LFS is unable to (Budlender, 2007, 2010; Floro & Komatsu, 2011b; Valodia & Devey, 2005). However, the dearth of data renders one unable to undertake analyses over the longer term on time-use patterns. Additional waves of TUS data would thus be valuable to studies such as this one.

The last recommendation related to the limitations of this study concerns the variables available in the LFS with which to measure quality of work. Additional and more subjective questions could be added to the LFS questionnaire to probe workers on how they view their work. Drawing on the questionnaire used by Webster et al. (2015), some of these could include attendance of work-related training, who pays for such training and the usefulness of the skills obtained. Asking about whether someone has been injured at work or if workers are given protective clothing or equipment to do their work could also prove valuable. Further questions could include workers' views on how difficult they think it is to get a job in their sector versus other sectors, whether they fear losing their job in the next 12 months, get to spend enough time with their families, feel safe at work, and whether they think their employer treats different groups of people (e.g. male/female, foreign national/South African, white/black) the same. The sample of interviewees for the labour market module could also be expanded (from 10 years old) to probe the extent to which child labour may be a problem; similar to the methodology used in the October Household Surveys.

Finally, the findings related to the main purpose of this study would suggest that the ILO, in its conceptualisation of decent work, and Stats SA, in its definition of productive work, need to find ways to better quantify or measure unpaid reproductive labour, given the relationship this labour has with outcomes in the productive sphere. Asking people about their time-use activities, as is done in the TUS, rather than limiting answers to the narrow categories provided in the LFS questionnaire is one way in which the definition of work can be broadened, but *perceptions* of what constitutes productive activity could also be changed.

Lastly, the government should consider more carefully the gendered effects their fiscal policy actions could have by systematically considering the gendered implications of each policy decision (or gender mainstreaming such policy decisions). Many toolkits have been developed to assist policy makers in undertaking such a task (Council of Europe, 1998; OECD, 2012, 2018; UN-Habitat, 2008; UNICEF, 2018) and the preliminary findings of this study suggests that this is necessary for the South African government.

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APPENDIX A: DECENT WORK INDEX ELEMENTS

The formulas which were used to construct the decent work *elements*, and the indicators they form part of, are described in this section. Some of the elements below were measured at the individual level (i) while others were measured at the occupational level (o).

Most of the indicators were derived from the ILO's manual on the construction of Decent Work Indicators, although many were excluded due to data availability, some were not appropriate for quantitative measurement, or were still in the process of being developed (ILO, 2013). Others, were included based on their availability in the survey data, but also as a result of their potential to contribute to a meaningful overall DWI.

To build the index, the positive aspects of an answer to a question were coded 1 or close to 1, while the negative aspects of an answer were coded 0 or close to 0. Binary response questions were thus either coded as 1 or 0, while variables with more than two options or continuous variables were coded with values between 0 and 1.

Indicator 1: Time and work/life balance

Longer hours

This indicator was included on the basis of it representing some form of underemployment. In the LFS, respondents were asked whether they want to work longer hours. While not wanting to work longer hours could represent a negative aspect of work, it could also mean that an individual is satisfied with the number of hours they were required to work. This variable was thus coded 0 for those wanting to work longer hours and 1 for everyone else.

Paid leave

Individuals were asked whether they received paid leave (vacation leave) at their work, and those who answered yes, were coded as 1, while those who answered no were coded as 0.

Excess hours

In the LFS questionnaire, workers were asked “how many hours, including overtime” they usually worked. In their manual, the ILO (2012a) provides a guideline to measuring excessive working time. While their indicator aims to measure excessive working time at a macro-level, as the share of workers working excessive working time, this indicator was included as an individual indicator here. As per their guide, everyone who reported working more than 48 hours per week were coded as 0 while those who worked 48 hours or less were coded as 1. Though working less than 48 hours should not be inferred to constitute decent work, as there may be those who wish to work longer hours, due to having to undertake part time work or working in a workplace which can only provide work for a limited number of hours per week or day, the purpose of this indicator was simply to measure work time *in excess*.

Indicator 2: Stability and security

Employed sector

Employed sector distinguished between workers working in the formal and informal sectors. Those working in the informal sector were coded 0, while those working in the formal sector were coded 1.

Informal employment rate

The informal employment rate (IER) was calculated at the occupation level and expressed the proportion of workers in a particular occupation group who were employed in the informal sector.

The following formula was used, as per the ILO’s (2012a) guide:

$$IER = \frac{Number\ of\ employed\ persons\ employed\ in\ informal\ sector\ in\ occupation\ j}{Total\ number\ of\ persons\ employed\ in\ occupation\ j} \quad (11)$$

The inverse of the results was then calculated in order for occupations with smaller shares of individuals in the informal sector to rank closer to 1.

Contract type

Workers were asked about the nature of their employment contracts in the LFS survey. They could choose from three options; permanent, temporary, or casual. The ILO (2012a, p. 61) defines employees with *stable* contracts as "those employees who have had, and continue to have an explicit (written or oral) or implicit contract of employment, or a succession of such contracts, with the same employer on a continuous basis". Although this question does not probe the duration of the contract or whether such a contract is oral or written (measured by subsequent variables), a permanent contract provides for the most continuity amongst the three options available. Furthermore, a temporary (or fixed term) contract provides a greater degree of certainty to workers compared to a casual contract, which is unlikely to provide a commitment to workers in relation to ongoing continuous employment or for a fixed period of time, as the employment agreement can be terminated at short notice.

Workers who reported having permanent contracts were coded as 1, while temporary workers were coded as 0.5 and casual workers as 0.

Duration of employment

Duration of employment reflected the job tenure of the worker and represented stability and security in one's work. As per the logic behind the contract type, this variable represented some degree of continuity in one's job, even if job contracts were continuously renewed with the same employer over time. Though workers may have been at the start of their employment duration of a relatively stable job, this could have been accompanied by conditions of service which must be met within the first few months or years in order to secure employment in the longer term.

This variable thus represented the time a worker had been employed in their current occupation (in months), normalised to reflect a value between 0 and 1. Where workers with longer tenure had values closer to 1.

Written contract

Having a written contract, also linked to the logic of contract type, asked workers whether their employment contracts were written or verbal. While both written and verbal contracts are acknowledged by the ILO, written contracts provide workers with

an additional layer of security in their jobs, specifically in the case of a dispute. Workers with written contract were thus coded 1, while those with verbal contracts were coded 0.

Indicator 3: Treatment and earnings

Low pay rate

The low pay rate (LPR), which was calculated as an occupation level variable, considered the proportion of employees working for low wages. The ILO defines this as those workers working for less than two thirds of the median wage rate, and the following formula was used in the calculation of this variable:

$$LPR = \frac{Number\ of\ persons\ in\ occupation\ j\ paid\ less\ than \frac{2}{3}\ the\ median\ wage}{Total\ number\ of\ persons\ employed\ in\ occupation\ j} \quad (12)$$

The inverse of the results was then calculated in order for occupations with smaller shares of low paid workers to rank closer to 1.

Average earnings

Average earnings, also measured at the occupational level, calculated the average earnings by occupation and then normalised the value to provide each worker with a value between 0 and 1.

This variable, according to the ILO (2012a, p. 75), is “more informative for targeted policy making”. The average earnings for worker i employed in occupation j were calculated as follows:

$$Average\ E_{ij} = \frac{Mean\ E\ in\ occupation\ j - E_{min}}{E_{max} - E_{min}} \quad (13)$$

Where E_{min} represents the average earnings for the occupation which has the lowest average and E_{max} represents the average earnings for the occupation which has the highest average earnings. The mean earnings in occupation j were calculated using the following formula:

$$Mean\ E\ in\ occupation\ j = \frac{\sum Wages_i}{n} \quad (14)$$

Where $Wages_i$ refers to the earnings of individual i employed in occupation j, and n refers to the number of workers employed in occupation j.

Gender occupational segregation

Occupational segregation refers to the "tendency for men and women to be employed in different occupations" (Siltanen, Jarman, & Blackburn, 1995, p. 4). The concentration of men and women in different occupations are often associated with the quality of those jobs. For instance, men tend to have a high concentration in occupations which pay high wages and confer a high degree of responsibility on them, while women tend to have a high concentration in jobs in which responsibilities are limited and in which wages are relatively low. In this thesis, occupational segregation was used as a measure for equal opportunity and treatment in the workplace. Thus, highly segregated occupations were interpreted as occupations in which equal treatment and opportunity were not immediately forthcoming.

There are a number of tools which are available for the measurement of occupational segregation, however, the most commonly used index, the Index of Dissimilarity, was utilised here. Though the index has shortcomings, these shortcomings are forthcoming in most other segregation indices as well, and the index was also suitable for measurement at the occupational level; this was not necessarily the case for all segregation measures.[54]

The Index of Dissimilarity (ID), developed by Duncan and Duncan (1955) was defined by Bertaux (1991, p. 436) as "the proportion of all men or women who would have to change occupations for the sexes to have the same occupational distributions. An index of 0 indicates that men and women are present in each occupation in the same proportion they are present in the labor force – e.g. if women represent 40% of the

[54] For a discussion of the shortcomings of this index as well as other suitable indices for the measurement of gender occupational segregation, see Karmel and Maclachlan (1988), Siltanen et al. (1995), and Blackburn et al. (Blackburn, Siltanen, & Jarman, 1995).

labour force, they will also represent 40% of each and every occupation". The formula is specified as:

$$ID = \frac{1}{2}\sum\left|\frac{F_i}{F} - \frac{M_i}{M}\right| \quad (15)$$

Where F_i is the number of females employed in occupation i, and F the number of females in the workforce (Siltanen et al., 1995). Similarly, M_i is the number of males employed in occupation i, and M the number of males in the workforce.

The inverse of the results was then calculated so that occupation groups with less segregation ranked closer to 1.

Racial occupational segregation

Racial occupational segregation was interpreted in a similar fashion as gender occupational segregation, although the races were collapsed to create a binary variable of 'white' workers and 'non-white' workers.

Given South Africa's complicated history with racial segregation and the different degrees to which individuals in the non-white category of workers were discriminated against, at different periods in time, the simplest way in which to calculate this variable was to segregate it according to the race group which has historically been higher up the occupational hierarchy (white workers).

The Index of Dissimilarity was used again, calculating the proportion of white and non-white workers in each occupation group, and taking the inverse of the result, so that occupation groups with less segregation ranked closer to 1.

Gender pay gap

The gender pay gap (calculated at the occupational level), which is also a measure of equality in an occupation, was calculated using the following formula (ILO, 2012a):

$$Gender\ pay\ gap = \frac{E_m - E_w}{E_m} \quad (16)$$

Where E_m represents the average earnings of men employed in an occupation while E_w represents the average earnings of women in an occupation.

An assumption made in this formula is that the earnings of men will always be higher than the earnings of women, although there are instances in which the mean earnings of women can be higher than the mean earnings of men, specifically in occupations where there is a higher concentration of women. To remedy this, the absolute values of the results from the above formula were calculated to remove negative values from the dataset and obtain a value between 0 and 1 for all observations.

Using this method thus meant that the closer to 1 the value was, the higher the pay disparity between men and women, indicating that an unequal pay distribution, regardless of whether the distribution was in favour of men or women was interpreted as a negative aspect in relation to equality in the occupation.

As a last step, the inverse of the values obtained were calculated in order to allow occupations with more equal pay distributions to contribute positively to the overall DWI (have values closer to 1) and occupations with more unequal pay distributions to contribute negatively to the overall DWI (have values closer to 0).

Indicator 4: Dialogue and representation

Medical aid

Workers were asked whether they receive a medical aid benefit and those who answered ‘yes’ were coded as 1, while those who answered ‘no’ were coded as 0.

Number of workers in company

According to South African legislation, companies employing more than 50 employees are subject to the conditions set out in the Employment Equity Act No. 55 of 1998 (Thomas, 2002). The purpose of this Act is to redress labour market injustices and by doing so contribute positively to the inequality within society.

These companies are thus compelled by law to adhere to certain conditions meant to provide a more level playing field for workers. Workers who reported having more than 50 employees in their workplaces were thus coded as 1, while the rest were coded as 0.

Pension contribution

Workers were asked whether they receive a pension fund contribution and those who answered ‘yes’, were coded as 1, while those who answered ‘no’ were coded as 0.

Unemployment Insurance Fund (UIF) contribution

Workers were asked whether their employer contributed to the Unemployment Insurance Fund (UIF) on their behalf, and those who answered ‘yes’, were coded as 1, while those who answered ‘no’ were coded as 0.

Union membership

Workers were asked whether they belonged to a union, and those who answered ‘yes’ were coded as 1, while those who answered ‘no’ were coded as 0.

Union density

Union density, according to the ILO (2012a, p. 165), “provides a proxy measure of workers’ representation and the influence of trade unions. It gives some indication of the extent of freedom of association and it can help in assessing and monitoring the development of industrial relations”. High union density within an occupation was thus interpreted as a positive aspect for decent work.

Though a variable had already been included for union membership in the index, workers who do not have individual union membership also benefit from the advantages of working in a highly unionised occupation, as they cannot be excluded from the benefits which come about as a result of negotiations unions have with employers, such as wage increases. Both individual union membership and union density by occupation group were thus included in the DWI.

This variable was calculated at the occupation level, using the following formula:

$$Union\ density = \frac{Number\ of\ workers\ in\ occupation\ j\ with\ union\ membership}{Total\ number\ of\ workers\ in\ occupation\ j} \quad (17)$$

APPENDIX B: METHODS FOR DEALING WITH MISSING DATA

Given that the PCA required a complete matrix it was necessary to impute values or delete observations from the dataset where imputation was not possible. A limitation of deleting observations is that it can drastically reduce the sample size available for analysis, thus where imputation was possible, that was the preferred method. In most cases the number of variables being imputed were small, although they collectively accounted for a large number of observations which could be retained in the sample as a result of the imputation. This Appendix describes the methods which were used to obtain the matrix of data used in the PCA.

As noted previously, self-employed individuals were dropped from the sample as they have a different employment relationship compared to 'traditionally' employed individuals and as a result they were not asked all of the questions used in the construction of the index. In 2001 they consisted 18.5% of the employed sample, in 2011, 14.67% of the sample and 14.94% of employed respondents in the 2018 LMD data.

All of the surveys included some employed individuals who had no occupation recorded, but had values for the variables which were used to construct the DWI. These respondents were removed from the sample as the unit of analysis was the occupation group.

Longer hours

Interpreted as a measure of underemployment, wanting to work longer hours was viewed in a negative light in the construction of the DWI. However, there were respondents who did not know whether they wanted to work longer hours or the response was left as 'unspecified'.[55] For these types of responses, the respondent was coded as 0 for this variable.

[55] Unspecified responses could have occurred as a result of a coding error or respondents who refused to answer the question. 'Unspecified' was only included in the 2001 data, for the 2011 and 2018 surveys, respondents were coded as 'don't know' or set as missing.

If someone did answer that they did not know whether they wanted to work longer hours, it was assumed that they did not have a strong desire to do so.

Table B - 1: Number of imputed observations for the 'longer hours' variable

	2001		2011		2018	
Response	No of observations	% of sample	No of observations	% of sample	No of observations	% of sample
Don't know	321	1.44	3 836	5.53	3 217	5.17
Unspecified	117	0.52	-	-	-	-
Total	438	1.96	3 836	5.53	3 217	5.17

Source: LFS 2001/2, LMD 2011, and LMD 2018. Total here includes the sample of employed respondents minus the 'not applicable' or missing values responses.

Paid leave

Respondents who answered that they did not know whether they qualified for paid leave in their jobs were unlikely to make use of this benefit, and they were thus treated as though they did not receive this benefit. Thus, those who responded 'don't know' or were marked as 'unspecified' were coded as 0.

In the LFS data, those who were not employed were coded as 'not applicable', however, in the 2001 LFS data, 1 020 observations who did report being employed were coded as 'not applicable', these observations were coded as 0 to avoid losing these observations in the analysis, this was also the case for the 2011 LMD where values were set to 'missing'. Most notable from the 2001 data were the skilled forestry and fishery occupation group where all the respondents had missing values for this variable. To avoid losing the entire occupation group, all these workers were coded 0. It is possible, however, that some of these respondents would have had access to the paid leave benefit.

Table B - 2: Number of imputed observations for the 'paid leave' variable

	2001		2011		2018	
Response	No of observations	% of sample	No of observations	% of sample	No of observations	% of sample
Don't know	483	2.16	654	0.94	566	0.92
Unspecified	82	0.37	-	-	-	-
Not applicable	1020	4.58	891	1.29	-	-
Total	1585	7.11	1545	2.24	566	0.92

Source: LFS 2001/2, LMD 2011, and LMD 2018. Total here includes the sample of employed respondents minus the number of 'not applicable' who did not report being employed or had missing responses.

Excess hours

For the 2001 LFS data some respondents had missing data or were coded as 'unspecified' for hours worked, and their hours were imputed with the mean hours of their occupation group. For the 2011 LMD data, one respondent reported working 193 hours and their hours were replaced with the maximum number of hours available in a week $(168 = 7\ days \times 24\ hours)$. While it would be impossible to work this number of hours in a week, the normalisation of this variable would simply mean that this worker's value for this variable would be set to 0 (i.e. most undesirable).

Table B - 3: Number of imputed observations for the 'excess hours' variable

	2001		2011		2018	
Response	No of observations	% of sample	No of observations	% of sample	No of observations	% of sample
Unspecified	136	0.61	1	0.001	-	-

Source: LFS 2001/2, LMD 2011, and LMD 2018. Total here includes the sample of employed respondents minus the 'not applicable' or missing responses.

Contract type

In the 2001 LFS data, 1 020 employed respondents were coded as 'not applicable' for the contract type variable and were re-coded as 0. This was also the case for skilled forestry and fishery workers, all of whom were coded as 'not applicable' and their responses were set to 0. In addition, those who responded 'don't know' or 'unspecified' were coded as 0.

Table B - 4: Number of imputed observations for the 'contract type' variable

	2001		2011		2018	
Response	No of observations	% of sample	No of observations	% of sample	No of observations	% of sample
Don't know	160	0.72	-	-	-	-
Unspecified	85	0.38	-	-	-	-
Not applicable	1020	4.58	-	-	-	-
Total	1295	5.81	-	-	-	-

Source: LFS 2001/2, LMD 2011, and LMD 2018. Total here includes the sample of employed respondents minus the 'not applicable' or missing responses.

Duration of employment

For the duration variable, missing values were set to the mean value of the occupation group, although this was not necessary for the 2011 data. For the 2001 LFS data, skilled forestry, fishery, and hunting workers all had missing values ('not applicable') for this variable and their duration was set equal to the mean values of skilled agricultural workers.

Written contract

For the written contract variable in the 2001 LFS data, 1 020 employed respondents were coded as ‘not applicable’, these were re-coded as 0, and all others who responded ‘don’t know’ and ‘unspecified’ were also set to 0. If an employee was unaware of a written contract (which they would presumably have had to sign), it is unlikely that they would have made use of the benefits of the employment arrangement which accompanies a written contract.

Table B - 5: Number of imputed observations for the 'written contract' variable

	2001		2011		2018	
Response	No of observations	% of sample	No of observations	% of sample	No of observations	% of sample
Don’t know	675	3.03	-	-	-	-
Unspecified	106	0.48	287	0.42	-	-
Not applicable	1020	4.58	-	-	-	-
Total	1801	8.08	287	0.42	-	-

Source: LFS 2001/2, LMD 2011, and LMD 2018. Total here includes the sample of employed respondents minus the ‘not applicable’ or missing responses.

Wages

The monthly wage variable was used in the construction of a number of elements (low pay rate, average earnings, gender pay gap), as well as the robustness check of the composite index after the PCA was completed.

For various reasons, wage data tend to be missing in secondary datasets. This could result in biased estimates, specifically as missing data tend to be in the tail end of the earnings distribution (Daniels, 2012; Posel & Casale, 2005). Various methods are thus used to impute values for those with missing data, although here, where available midpoint estimates from earnings brackets were used to impute missing point estimates for those who had bracket data available. This was done in the case of the 2001 LFS data. For the 2011 and 2018 data, respondents who had missing point estimates did not have available bracket responses either.

Those who did not have point estimate data nor bracket response data were excluded from the sample. In addition, extreme outliers were also dropped from the 2001 sample. The one outlier was a White Female with a complete secondary schooling who reported earning R120 000 per month and was a customer service clerk. The other was a Coloured Male with a diploma or degree who reported earning R150 000

per month and was a production and specialised service manager. For the 2011 and 2018 data, all outliers were self-employed individuals and would have been excluded from the sample anyway.

Medical aid contribution

For the medical aid variable, respondents who were coded as ‘don’t know’ or ‘unspecified’ were set to 0, while in the 2011 data, 891 respondents who had reported being employed had this variable set to missing, they were re-coded as 0 as well.

Table B - 6: Number of imputed observations for the 'medical aid contribution' variable

	2001		2011		2018	
Response	No of observations	% of sample	No of observations	% of sample	No of observations	% of sample
Don’t know	409	1.83	496	0.72	526	0.85
Unspecified	67	0.3	891	1.29	-	-
Total	476	2.13	1387	2	526	0.85

Source: LFS 2001/2, LMD 2011, and LMD 2018. Total here includes the sample of employed respondents minus the ‘not applicable’ or missing responses. Unspecified for 2011 data are missing data.

Number of workers

Workers who indicated that they ‘don’t know’ how many employees their firm had, or were captured as ‘unspecified’ were coded as 0.

Table B - 7: Number of imputed observations for the 'number of workers' variable

	2001		2011		2018	
Response	No of observations	% of sample	No of observations	% of sample	No of observations	% of sample
Don’t know	821	3.67	2 974	4.3	-	-
Unspecified	90	0.40	-	-	-	-
Total	911	4.08	2 974	4.3	-	-

Source: LFS 2001/2, LMD 2011, and LMD 2018. Total here includes the sample of employed respondents minus the ‘not applicable’ or missing responses.

Pension contribution

Workers who were captured as ‘don’t know’ and ‘unspecified’ had their values or pension contribution set to 0. Although in the 2011 data, 819 workers who had indicated that they were employed had missing values for the pension variable, they were coded as 0.

Table B - 8: Number of imputed observations for the 'pension contribution' variable

	2001		2011		2018	
Response	No of observations	% of sample	No of observations	% of sample	No of observations	% of sample
Don’t know	663	3.11	919	1.33	-	-
Unspecified	107	0.51	891	1.30	-	-

Total	770	3.62	1810	2.62	-	-

Source: LFS 2001/2, LMD 2011, and LMD 2018. Total here includes the sample of employed respondents minus the 'not applicable' or missing responses.

Unemployment Insurance Fund (UIF) contribution

As per the previous variable, Workers who were captured as 'don't know' and 'unspecified' had values set to 0. While in the 2011 data, 819 workers who had indicated that they were employed had missing values for the pension variable, they were coded as 0.

Table B - 9: Number of imputed observations for the 'UIF contribution' variable

	2001		**2011**		**2018**	
Response	No of observations	% of sample	No of observations	% of sample	No of observations	% of sample
Don't know	796	3.56	749	1.08	-	-
Unspecified	111	0.50	891	1.29	-	-
Total	907	4.06	1640	2.37	-	-

Source: LFS 2001/2, LMD 2011, and LMD 2018. Total here includes the sample of employed respondents minus the 'not applicable' or missing responses.

Union membership

Respondents who were coded 'don't know' and 'unspecified' were set to 0.

Table B - 10: Number of imputed observations for the 'union membership' variable

	2001		**2011**		**2018**	
Response	No of observations	% of sample	No of observations	% of sample	No of observations	% of sample
Don't know	732	3.44	1 350	1.98	1 090	3.02
Unspecified	104	0.49	287	0.42	241	0.67
Total	836	3.93	1637	2.40	1 331	3.69

Source: LFS 2001/2, LMD 2011, and LMD 2018. Total here includes the sample of employed respondents minus the 'not applicable' or missing values responses.

Occupation groups

As occupation groups were the units of analysis, it was important to have an adequate number of observations in each occupation group. Due to limitations in sampling this was not always the case and individuals employed in occupations groups which only had a few respondents were dropped from the sample as there was no way to accurately impute occupation groups.

However, given that the 2011 and 2018 data consisted of pooled surveys, the sample sizes were generally large enough to avoid having to drop any observations. For the 2001 data, however, hospitalist, retail and other service managers had to be dropped as the sample only included 2 observations. In addition, ICT technicians and personal

care workers were dropped as these occupation groups did not reoccur in the 2011 and 2018 samples.

APPENDIX C: SUMMARY STATISTICS OF DECENT WORK INDEX ELEMENTS

Table C - 1: Component summary statistics, by year

	2001			
	Mean	**Standard Deviation**	**Minimum**	**Maximum**
Longer hours	.8435598	.3632804	0	1
Paid leave	.5353924	.4987572	0	1
Excess hours	.6636468	.4724722	0	1
Sector	.7638527	.4247235	0	1
Informal employment rate	.7625241	.2618201	.0113852	1
Contract type	.801693	.3506806	0	1
Duration of employment	.144915	.1404907	0	.9635812
Written contract	.4985129	.5000092	0	1
Low pay rate	.6461942	.2792439	.1471882	.9949749
Average earnings	.1632486	.1790121	0	1
Gender occupational segregation	.972724	.0289802	.9151997	.9998375
Racial occupational segregation	.9746776	.0222289	.9322771	.9998797
Gender pay gap	.7015769	.1734826	.4413871	.9814941
Medical aid	.2481354	.4319407	0	1
Number of workers in company	.2965454	.4567448	0	1
Pension contribution	.4480439	.4973046	0	1
UIF contribution	.4512926	.4976333	0	1
Union membership	.3119652	.4633063	0	1
Union density	.3108738	.1890121	0	.7822671
N	*21855*			
	2011			
	Mean	**Standard Deviation**	**Minimum**	**Maximum**
Longer hours	.8198008	.3843561	0	1
Paid leave	.6486021	.4774105	0	1
Excess hours	.8088413	.3932166	0	1
Sector	.8023156	.3982557	0	1
Informal employment rate	.8016707	.2105561	.0909091	.9955752
Contract type	.7016248	.4223276	0	1
Duration of employment	.1362372	.1473743	0	.9821162
Written contract	.7813393	.4133409	0	1
Low pay rate	.6450214	.2462785	0	.9745989
Average earnings	.2611121	.2248302	0	1
Gender occupational segregation	.97552	.0244598	.9249799	.999836
Racial occupational segregation	.9728243	.0227043	.9271946	.9998729
Gender pay gap	.7422169	.147231	.5389773	.996955
Medical aid	.3209646	.4668506	0	1
Number of workers in company	.346581	.4758844	0	1
Pension contribution	.4701264	.4991104	0	1
UIF contribution	.535427	.498747	0	1
Union membership	.3082373	.4617686	0	1
Union density	.3070109	.1771587	0	.7813582
N	*67886*			
	2018			
	Mean	**Standard Deviation**	**Minimum**	**Maximum**
Longer hours	.8336644	.3723854	0	1
Paid leave	.6170328	.4861153	0	1
Excess hours	.8140837	.389043	0	1
Sector	.785796	.4102731	0	1
Informal employment rate	.784574	.1935256	.1951219	1
Contract type	.6388203	.4390388	0	1
Duration of employment	.1284524	.1273395	0	.8723404
Written contract	.7737386	.4184145	0	1
Low pay rate	.6752132	.1618257	.2926829	.9417808
Average earnings	.1401362	.1900056	0	1
Gender occupational segregation	.9781739	.0222428	.933824	.9999397
Racial occupational segregation	.9771702	.0175219	.9436361	.9999366
Gender pay gap	.763968	.1100326	.3857188	.9778042
Medical aid	.2550105	.4358715	0	1

Number of workers in company	.3487612	.476583	0	1
Pension contribution	.4336644	.495585	0	1
UIF contribution	.5707092	.4949799	0	1
Union membership	.2835189	.4507106	0	1
Union density	.2822024	.1704585	0	.8040254
N	*49845*			

Source: LFS2001/2, LMD 2011, and LMD 2018. Note: Data are not weighted.

APPENDIX D: DIAGNOSTIC TEST RESULTS FOR PCA ANALYSIS

In this appendix, the diagnostic test results for the PCA analysis are presented. These include correlation matrices for the indicators used in the construction of the composite index and results from the Bartlett's test for sphericity and the KMO measure. In addition, the output from the PCA and the accompanying scree plots, as well as results for a robustness check are presented in this section.

One of the steps which form part of the PCA is the rotation of the included components, although as will be seen in Table D - 3, in each of the survey years, only one component explained a sufficient amount of variance in the overall index and a rotation was thus not necessary.

Correlation matrices, Bartlett's test for sphericity, and KMO measure

The PCA analysis requires that the variables used in the building of the index be correlated, the correlation matrices are thus the first part of the analysis. Table D - 1 shows that for all survey periods, the indicators were relatively strongly correlated, with the exception of indicator 1 (decent working time and combining work, family and personal life) and indicator 3 (equal opportunity and treatment, adequate and productive earnings) in all three survey periods which had a low degree of correlation. Although these correlation coefficients could still be considered adequate for the analysis and this was confirmed with additional tests included in this section.

High correlations could lead to double counting, although as the table below shows, none of the indicators were particularly highly correlated, although the threshold above which a correlation is considered high is also subjective, running the risk of introducing bias into the process (OECD, 2008).

Table D - 1: Correlation matrices for indicators, 2001 – 2018

	2011			
	Indicator 1	Indicator 2	Indicator 3	Indicator 4
Indicator 1	1			
Indicator 2	0.442	1		

Indicator 3	0.300	0.598	1	
Indicator 4	0.500	0.677	0.519	1
		2011		
	Indicator 1	Indicator 2	Indicator 3	Indicator 4
Indicator 1	1			
Indicator 2	0.542	1		
Indicator 3	0.326	0.578	1	
Indicator 4	0.555	0.728	0.469	1
		2018		
	Indicator 1	Indicator 2	Indicator 3	Indicator 4
Indicator 1	1			
Indicator 2	0.538	1		
Indicator 3	0.303	0.528	1	
Indicator 4	0.548	0.732	0.460	1

Indicator 1 = Decent working time and combining work, family and personal life. Indicator 2 = Employment opportunity, stability and security at work. Indicator 3 = Equal opportunity and treatment, adequate and productive earnings. Indicator 4 = Social security, dialogue, and workers' and employers' representation. All correlation coefficients significant at p<0.001.

To complement the correlation matrices, the Keiser-Meyer-Olkin (KMO) measure and Bartlett's test for sphericity were then used to confirm whether the correlations were in fact statistically robust. For the Bartlett's test of sphericity, the null hypothesis which was that the variables in the matrix are uncorrelated and a p-value smaller than 0.05 allows for the rejection of this null hypothesis. While for the KMO measure, a rule of thumb is that the statistic should be at least 0.6 in order to proceed with the analysis.

Both the Bartlett's test p-value and KMO measure for all survey periods indicate that the indicators used were in fact correlated and that an analysis with the selected indicators were appropriate for use in the PCA (Table D - 2). The Bartlett's test p-values were smaller than 0.05 and the KMO measures were all above the 0.6 threshold.

Table D - 2: Bartlett's test and KMO measure results, 2011 – 2018

	2001	**2011**	**2018**
Bartlett's test of sphericity			
Chi-square	28453.971	109000	76768.115
Degrees of freedom	6	6	6
p-value	0.000	0.000	0.000
Kaiser-Meyer-Olkin Measure of Sampling Adequacy			
KMO	0.761	0.761	0.761

Principal Components Analysis output

Running the PCA command provided eigenvalues for each of the components. These eigenvalues represent the percentage of variance explained in the dataset, and components with eigenvalues of 1.0 or more are used in the analysis. According to Greyling (2013, p. 15) "an alternative measure is to extract the number of components

that cumulatively contribute to the explanation of the overall variance by more than 50%".

When running the PCA command, it provides the eigenvalues for each of the components, the percentage of variance explained, as well as the factor loadings for each of the included indicators on the components. These factor loadings are the "correlations between the latent components and a variable" (Greyling, 2013, p. 15).

In Table D - 3, the highlighted components were the extracted components and in each of the survey periods, only one component was extracted, based on the eigenvalues (2.54 in 2001, 2.62 in 2011, and 2.57 in 2017). In each survey period, these components explained a sufficient amount of variance as well – 63.45% in 2001, 65.45% in 2011, and 64.42% in 2018.

Worth noting is that measuring over time will present some problems as each time this is done for a different time period a different combination of factor loadings will appear. However, as can be seen in Table D - 3, the factor loadings for the three periods under consideration are not identical, but they are *similar*. Although, the DWIs across the periods are also not interpreted in isolation, but within the broader macroeconomic context.

Table D - 3: Principal Components Analysis (PCA) results, 2001 – 2018

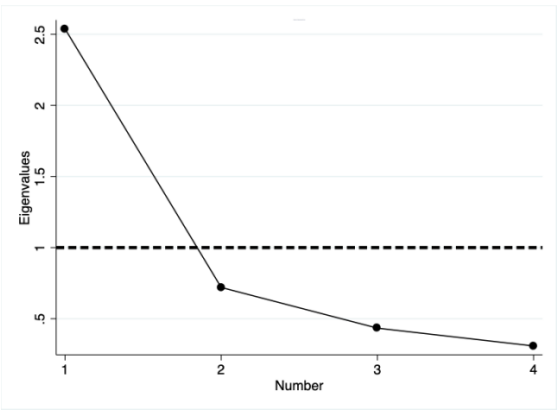
2001					
	Eigenvalue	**Difference**		**Proportion**	**Cumulative**
Comp1	2.537892	1.818015		0.6345	0.6345
Comp2	.7198772	.2860853		0.1800	0.8144
Comp3	.4337919	.1253533		0.1084	0.9229
Comp4	.3084386	.		0.0771	1.0000
Factor loadings					
	Comp1	Comp2	Comp3	Comp4	Unexplained
Indicator 1	.4259796	.803867	.4106167	-.0610995	0
Indicator 2	.5461194	-.1810137	-.323934	-.7510356	0
Indicator 3	.4778374	-.5645223	.640307	.2073474	0
Indicator 4	.5403392	.0484399	-.5625545	.6238746	0
N			20201		
2011					
	Eigenvalue	**Difference**		**Proportion**	**Cumulative**
Comp1	2.617959	1.932709		0.6545	0.6545
Comp2	.6852495	.2440625		0.1713	0.8258
Comp3	.441187	.1855819		0.1103	0.9361
Comp4	.255605	.		0.0639	1.0000
Factor loadings					
	Comp1	Comp2	Comp3	Comp4	Unexplained
Indicator 1	.4583286	-.6451191	.6112483	.0114734	0
Indicator 2	.5531166	.0734895	-.3228285	-.7644888	0

Indicator 3	.4446366	.7467924	.4509634	.2030551	0
Indicator 4	.5350656	-.1439504	-.5646142	.6117139	0
N			68439		
			2018		
	Eigenvalue	**Difference**		**Proportion**	**Cumulative**
Comp1	2.576704	1.872199		0.6442	0.6442
Comp2	.7045052	.2478227		0.1761	0.8203
Comp3	.4566825	.1945744		0.1142	0.9345
Comp4	.2621081	.		0.0655	1.0000
Factor loadings					
	Comp1	Comp2	Comp3	Comp4	Unexplained
Indicator 1	.460363	-.6159186	.6393033	.0012482	0
Indicator 2	.5537345	.0183754	-.379595	-.7409103	0
Indicator 3	.431981	.7789674	.4391752	.1171639	0
Indicator 4	.5429884	-.1162605	-.5043056	.661304	0
N			50293		

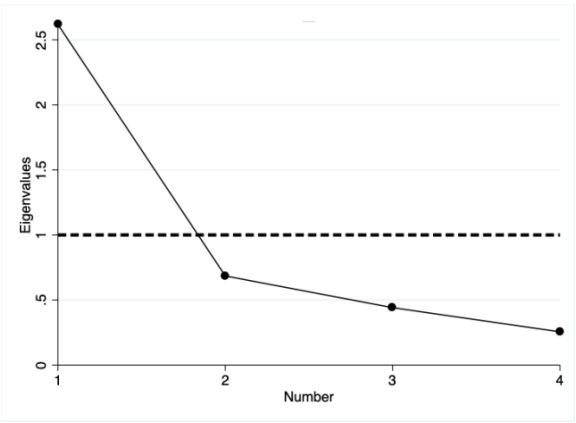
Note: Indicator 1 = Decent working time and combining work, family and personal life. Indicator 2 = Employment opportunity, stability and security at work. Indicator 3 = Equal opportunity and treatment, adequate and productive earnings. Indicator 4 = Social security, dialogue, and workers' and employers' representation.

In addition, the scree test, which is displayed in a scree plot (Figure D - 1), is simply a graphical representation of the eigenvalues, and the components above the threshold (1.0) were used for analysis. These figures confirm the results in Table D - 3, indicating that the use of only one component was necessary in the formation of the composite index for all three survey periods.

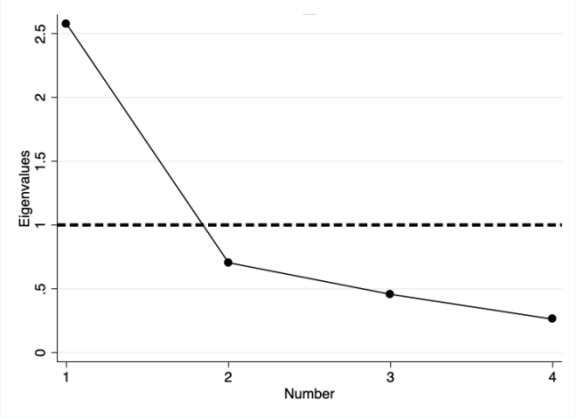
Figure D - 1: Scree Plots for PCA analysis, 2001 – 2018



(a)



(b)



(c)

Note: (a) 2001 (b) 2011 (c) 2018.

Robustness check

Lastly, a robustness check which serves to "correlate the values of the composite index to traditionally used single-dimensional measures" of quality of work was undertaken (Greyling, 2013, p. 26). A shortcoming of this method is that in secondary data, variables are often not available with which to do a robustness check or that the available variables would already have formed part of the composite index.

The latter was the case here, although the fact that the variables used here formed part of a large number of elements which made up the composite index, and that the index was also compiled using the indicators rather than the individual elements, the variables used here were the most appropriate for this test.

The monthly wage and formal sector employment were used as variables with which to complete the robustness check. Both were expected to provide positive correlation coefficients, given that employment in the formal sector was expected to accompany other benefits related to good quality work and thus be positively correlated with the DWI, while a higher wage was also expected to correlate positively with the DWI.

Table D - 4 shows the correlation matrices for the survey periods, and in each period formal sector employment was positively correlated with the DWI, while the wage correlations were not as great (moderately correlated in 2001 and 2011 and a low degree of correlation in 2018), although they were positive and significant, nonetheless.

These results confirm that the DWI was a robust measure for quality of work.

Table D - 4: Correlation matrices for DWI and alternative quality of work measures, 2001 – 2018

	2001			**2011**			**2018**		
	DWI	Formal	Wage	DWI	Formal	Wage	DWI	Formal	Wage
DWI	1			1			1		
Formal	0.669***	1		0.677***	1		0.668***	1	
Wage	0.498***	0.264***	1	0.408***	0.222***	1	0.264***	0.125***	1

** p<0.05, ** p<0.01, *** p<0.001*

APPENDIX E: ELEMENT SCORES BY OCCUPATION GROUP

Table E - 1: Indicator 1 element scores, 2001 – 2018

	2001			2011			2018		
	Longer Hours	**Paid Leave**	**Excess Hours**	**Longer Hours**	**Paid Leave**	**Excess Hours**	**Longer Hours**	**Paid Leave**	**Excess Hours**
Chief executives, senior officials & legislators	0.873	0.774	0.589	0.884	0.914	0.861	0.902	0.802	0.845
Administrative & commercial managers	0.908	0.896	0.692	0.905	0.942	0.824	0.916	0.924	0.857
Production & specialised services managers	0.909	0.798	0.724	0.794	0.744	0.659	0.883	0.683	0.704
Science & engineering professionals	0.868	0.968	0.741	0.909	0.941	0.911	0.886	0.959	0.930
Health professionals	0.942	0.885	0.516	0.891	0.978	0.814	0.946	0.965	0.797
Teaching professionals	0.864	0.894	0.861	0.894	0.878	0.934	0.917	0.937	0.973
Business & administration professionals	0.906	0.901	0.786	0.897	0.904	0.914	0.921	0.875	0.931
Science & engineering associate professionals	0.886	0.832	0.799	0.855	0.884	0.879	0.871	0.884	0.900
Health associate professionals	0.898	0.918	0.714	0.871	0.903	0.804	0.877	0.891	0.830
Business & administration associate professionals	0.870	0.801	0.886	0.882	0.884	0.972	0.901	0.850	0.985
Legal, social & cultural associate professionals	0.870	0.759	0.769	0.856	0.798	0.899	0.887	0.797	0.899
General & keyboard clerks	0.870	0.834	0.847	0.877	0.885	0.929	0.895	0.860	0.939
Customer services clerks	0.842	0.650	0.740	0.820	0.745	0.772	0.847	0.739	0.773
Personal service workers	0.834	0.624	0.502	0.836	0.671	0.648	0.876	0.657	0.665
Sales workers	0.837	0.482	0.586	0.830	0.596	0.658	0.857	0.615	0.676
Skilled agricultural workers	0.777	0.191	0.741	0.764	0.332	0.689	0.867	0.395	0.923
Skilled forestry, fishery & hunting workers	0.783	0.000	0.615	0.803	0.104	0.557	0.904	0.285	0.324
Building & related trades workers	0.814	0.529	0.651	0.810	0.501	0.783	0.811	0.473	0.837
Metal, machinery & related trades workers	0.841	0.620	0.689	0.815	0.731	0.818	0.830	0.732	0.842
Handicraft & printing workers	0.785	0.389	0.689	0.764	0.565	0.765	0.849	0.587	0.758
Electrical & electronic trades workers	0.858	0.483	0.669	0.816	0.620	0.745	0.833	0.634	0.762
Stationary plant & machine operators	0.880	0.803	0.670	0.860	0.847	0.794	0.883	0.827	0.869
Assemblers	0.774	0.616	0.685	0.861	0.814	0.839	0.881	0.780	0.856
Drivers & mobile plant operators	0.861	0.568	0.485	0.836	0.573	0.600	0.850	0.600	0.612
Cleaners	0.810	0.290	0.707	0.751	0.391	0.870	0.751	0.368	0.880
Agriculture, forestry & fishery workers	0.892	0.261	0.466	0.726	0.317	0.777	0.753	0.405	0.817
Mining, construction, manufacturing & transport workers	0.810	0.510	0.659	0.781	0.543	0.784	0.821	0.570	0.812
N	**25367**			**194203**			**152939**		

Source: LFS 2001/2, LMS 2011, and LMD 2018. Note: Data are weighted. Not all differences are significant.

Table E - 2: Indicator 2 element scores, 2001 – 2018

	2001					2011					2018				
	Sector	**Informal Employment Rate**	**Contract Type**	**Duration of Employment**	**Written Contract**	**Sector**	**Informal Employment Rate**	**Contract Type**	**Duration of Employment**	**Written Contract**	**Sector**	**Informal Employment Rate**	**Contract Type**	**Duration of Employment**	**Written Contract**
Chief executives, senior officials & legislators	1.000	1.000	0.914	0.223	0.745	0.967	0.951	0.905	0.243	1.000	0.967	0.958	0.842	0.201	0.997
Administrative & commercial managers	0.978	0.987	0.983	0.196	0.748	0.981	0.980	0.947	0.176	0.977	0.975	0.969	0.938	0.176	0.971
Production & specialised services managers	0.952	0.939	0.930	0.151	0.667	0.900	0.873	0.780	0.146	0.815	0.833	0.771	0.730	0.160	0.728
Science & engineering professionals	0.991	0.991	0.978	0.144	0.720	0.994	0.995	0.933	0.142	0.989	0.989	0.990	0.929	0.134	0.988
Health professionals	0.944	0.969	0.950	0.192	0.743	0.997	0.996	0.975	0.209	0.998	1.000	1.000	0.935	0.199	0.991
Teaching professionals	0.983	0.988	0.959	0.204	0.762	0.970	0.949	0.895	0.223	0.983	0.997	0.998	0.941	0.240	0.996
Business & administration professionals	0.976	0.970	0.978	0.135	0.677	0.963	0.957	0.908	0.144	0.974	0.974	0.968	0.887	0.166	0.978
Science & engineering associate professionals	0.977	0.972	0.954	0.156	0.726	0.973	0.970	0.892	0.157	0.966	0.984	0.981	0.880	0.150	0.977
Health associate professionals	0.975	0.962	0.966	0.199	0.680	0.977	0.976	0.916	0.176	0.978	0.963	0.963	0.909	0.159	0.973
Business & administration associate professionals	0.959	0.957	0.946	0.202	0.713	0.957	0.961	0.889	0.221	0.961	0.949	0.948	0.853	0.210	0.976
Legal, social & cultural associate professionals	0.967	0.965	0.919	0.139	0.716	0.960	0.958	0.861	0.136	0.951	0.941	0.935	0.817	0.124	0.959
General & keyboard clerks	0.975	0.973	0.944	0.149	0.702	0.972	0.968	0.880	0.153	0.969	0.957	0.955	0.856	0.155	0.961
Customer services clerks	0.960	0.955	0.816	0.105	0.593	0.916	0.904	0.761	0.095	0.910	0.912	0.905	0.735	0.092	0.919
Personal service workers	0.905	0.895	0.843	0.118	0.588	0.886	0.876	0.729	0.109	0.878	0.856	0.852	0.668	0.118	0.864
Sales workers	0.877	0.819	0.774	0.095	0.456	0.818	0.791	0.673	0.093	0.766	0.812	0.801	0.648	0.090	0.787
Skilled agricultural workers	0.335	0.326	0.618	0.112	0.183	0.888	0.886	0.526	0.114	0.571	0.867	0.850	0.440	0.092	0.639
Skilled forestry, fishery & hunting workers	0.041	0.011	0.000	0.122	0.000	0.075	0.091	0.097	0.073	0.000	0.200	0.195	0.161	0.113	0.213
Building & related trades workers	0.776	0.756	0.750	0.154	0.522	0.827	0.810	0.566	0.104	0.660	0.753	0.749	0.490	0.119	0.622
Metal, machinery & related trades workers	0.863	0.849	0.850	0.136	0.596	0.924	0.908	0.767	0.129	0.866	0.888	0.887	0.723	0.142	0.846
Handicraft & printing workers	0.624	0.619	0.709	0.111	0.375	0.847	0.811	0.675	0.138	0.691	0.776	0.764	0.606	0.129	0.658
Electrical & electronic trades workers	0.863	0.852	0.824	0.109	0.488	0.900	0.875	0.673	0.108	0.807	0.898	0.899	0.653	0.111	0.824
Stationary plant & machine operators	0.963	0.965	0.939	0.163	0.750	0.979	0.979	0.847	0.152	0.951	0.964	0.968	0.822	0.147	0.928
Assemblers	0.975	0.968	0.883	0.147	0.562	0.977	0.976	0.829	0.150	0.939	0.964	0.965	0.807	0.152	0.936
Drivers & mobile plant operators	0.869	0.882	0.881	0.164	0.525	0.794	0.790	0.641	0.126	0.703	0.778	0.787	0.622	0.120	0.703
Cleaners	0.341	0.314	0.746	0.122	0.230	0.403	0.377	0.481	0.106	0.501	0.426	0.418	0.407	0.110	0.527
Agriculture, forestry & fishery workers	0.792	0.818	0.757	0.128	0.285	0.623	0.633	0.457	0.102	0.474	0.675	0.676	0.458	0.121	0.554
Mining, construction, manufacturing & transport workers	0.902	0.897	0.772	0.126	0.517	0.926	0.921	0.613	0.100	0.795	0.908	0.907	0.590	0.101	0.823
N	**25367**					**194203**					**152939**				

Source: LFS 2001/2, LMS 2011, and LMD 2018. Note: Data are weighted. Not all differences are significant.

Table E - 3: Indicator 3 element scores, 2001 – 2018

	2001					2011					2018				
	Low Pay Rate	**Average Earnings**	**Gender Occupational Segregation**	**Racial Occupational Segregation**	**Gender Pay Gap**	**Low Pay Rate**	**Average Earnings**	**Gender Occupational Segregation**	**Racial Occupational Segregation**	**Gender Pay Gap**	**Low Pay Rate**	**Average Earnings**	**Gender Occupational Segregation**	**Racial Occupational Segregation**	**Gender Pay Gap**
Chief executives, senior officials & legislators	0.926	0.372	1.000	1.000	0.981	0.924	0.843	0.999	0.999	0.972	0.771	0.663	0.999	0.998	0.865
Administrative & commercial managers	0.987	0.777	0.994	0.954	0.763	0.961	0.840	0.992	0.927	0.713	0.905	0.692	0.995	0.944	0.896
Production & specialised services managers	0.963	0.481	0.997	0.985	0.795	0.895	0.639	0.999	0.994	0.646	0.907	0.444	0.999	0.997	0.509
Science & engineering professionals	0.991	1.000	0.998	0.988	0.806	0.975	1.000	0.995	0.983	0.710	0.942	0.984	0.998	0.992	0.525
Health professionals	0.992	0.679	0.998	0.993	0.593	0.944	0.800	0.997	0.994	0.621	0.914	1.000	0.999	0.997	0.705
Teaching professionals	0.981	0.491	0.997	0.989	0.831	0.944	0.773	0.999	0.992	0.738	0.935	0.548	0.996	0.993	0.978
Business & administration professionals	0.995	0.819	1.000	0.984	0.793	0.941	0.714	0.998	0.972	0.742	0.917	0.612	0.999	0.982	0.796
Science & engineering associate professionals	0.964	0.401	0.994	0.982	0.671	0.885	0.419	0.992	0.985	0.806	0.830	0.278	0.996	0.991	0.938
Health associate professionals	0.970	0.324	0.991	0.993	0.946	0.863	0.378	0.989	0.995	0.997	0.821	0.252	0.994	0.996	0.890
Business & administration associate professionals	0.961	0.328	0.989	0.997	0.889	0.887	0.472	0.982	0.992	0.830	0.780	0.245	0.994	0.996	0.821
Legal, social & cultural associate professionals	0.923	0.367	0.999	0.969	0.853	0.868	0.383	0.999	0.967	0.958	0.832	0.219	0.999	0.981	0.775
General & keyboard clerks	0.943	0.270	0.987	0.932	0.924	0.880	0.327	0.980	0.953	0.975	0.805	0.179	0.986	0.972	0.935
Customer services clerks	0.794	0.170	0.986	0.981	0.710	0.751	0.203	0.981	0.997	0.845	0.789	0.098	0.985	0.996	0.846
Personal service workers	0.780	0.154	0.993	0.994	0.636	0.657	0.192	0.996	0.987	0.607	0.692	0.081	0.993	0.980	0.736
Sales workers	0.687	0.112	0.997	0.992	0.601	0.673	0.171	0.998	0.998	0.793	0.727	0.083	0.998	1.000	0.858
Skilled agricultural workers	0.287	0.021	0.987	0.992	0.628	0.299	0.085	0.999	1.000	0.629	0.438	0.007	1.000	1.000	0.618
Skilled forestry, fishery & hunting workers	0.888	0.012	0.999	0.993	0.508	0.000	0.000	1.000	1.000	0.760	0.293	0.000	1.000	1.000	0.942
Building & related trades workers	0.787	0.144	0.965	0.999	0.441	0.699	0.202	0.969	0.997	0.930	0.752	0.118	0.974	0.996	0.824
Metal, machinery & related trades workers	0.820	0.194	0.978	0.983	0.665	0.821	0.297	0.978	0.982	0.739	0.830	0.200	0.982	0.989	0.887
Handicraft & printing workers	0.543	0.104	0.999	1.000	0.926	0.587	0.153	0.999	1.000	0.975	0.623	0.063	0.999	1.000	0.386
Electrical & electronic trades workers	0.630	0.076	0.998	0.997	0.830	0.607	0.126	0.999	0.996	0.727	0.733	0.068	1.000	0.998	0.805
Stationary plant & machine operators	0.862	0.152	0.991	0.996	0.714	0.786	0.240	0.995	0.999	0.705	0.736	0.130	0.996	0.999	0.859
Assemblers	0.791	0.123	1.000	0.992	0.602	0.669	0.159	0.997	0.994	0.539	0.740	0.097	0.997	0.995	0.649
Drivers & mobile plant operators	0.708	0.106	0.955	0.985	0.966	0.675	0.158	0.964	0.986	0.873	0.740	0.088	0.970	0.987	0.750
Cleaners	0.305	0.019	0.915	0.942	0.481	0.307	0.062	0.925	0.938	0.542	0.406	0.000	0.934	0.949	0.642
Agriculture, forestry & fishery workers	0.147	0.000	0.982	0.969	0.866	0.163	0.047	0.977	0.972	0.748	0.507	0.004	0.981	0.974	0.768
Mining, construction, manufacturing & transport workers	0.670	0.088	0.985	0.985	0.705	0.543	0.119	0.982	0.979	0.662	0.641	0.049	0.987	0.981	0.609
N	**25367**					**194203**					**152939**				

Source: LFS 2001/2, LMS 2011, and LMD 2018. Note: Data are weighted. Not all differences are significant.

Table E - 4: Indicator 4 element scores, 2001 – 2018

	2001			2011			2018		
	Medical Aid	**Number of workers**	**Pension**	**Medical Aid**	**Number of workers**	**Pension**	**Medical Aid**	**Number of workers**	**Pension**
Chief executives, senior officials & legislators	0.482	0.175	0.672	0.818	0.573	0.877	0.701	0.573	0.763
Administrative & commercial managers	0.668	0.512	0.811	0.616	0.427	0.760	0.602	0.474	0.785
Production & specialised services managers	0.502	0.338	0.658	0.397	0.322	0.477	0.291	0.360	0.441
Science & engineering professionals	0.759	0.620	0.828	0.729	0.605	0.816	0.756	0.723	0.846
Health professionals	0.778	0.534	0.910	0.913	0.574	0.931	0.872	0.679	0.867
Teaching professionals	0.604	0.163	0.896	0.750	0.517	0.765	0.835	0.223	0.885
Business & administration professionals	0.693	0.515	0.884	0.623	0.409	0.707	0.678	0.500	0.756
Science & engineering associate professionals	0.539	0.540	0.749	0.539	0.569	0.746	0.590	0.636	0.748
Health associate professionals	0.647	0.596	0.854	0.763	0.573	0.813	0.789	0.618	0.817
Business & administration associate professionals	0.546	0.057	0.845	0.754	0.080	0.796	0.661	0.086	0.707
Legal, social & cultural associate professionals	0.601	0.430	0.715	0.480	0.398	0.610	0.429	0.429	0.613
General & keyboard clerks	0.501	0.467	0.724	0.546	0.490	0.710	0.495	0.469	0.689
Customer services clerks	0.304	0.333	0.528	0.233	0.312	0.452	0.182	0.334	0.472
Personal service workers	0.263	0.348	0.486	0.283	0.403	0.463	0.209	0.360	0.438
Sales workers	0.135	0.142	0.359	0.123	0.146	0.347	0.100	0.136	0.420
Skilled agricultural workers	0.055	0.082	0.141	0.026	0.294	0.136	0.050	0.419	0.118
Skilled forestry, fishery & hunting workers	0.031	0.000	0.000	0.000	0.000	0.000	0.080	0.071	0.030
Building & related trades workers	0.229	0.403	0.474	0.218	0.376	0.366	0.200	0.303	0.332
Metal, machinery & related trades workers	0.312	0.356	0.565	0.300	0.421	0.536	0.287	0.415	0.561
Handicraft & printing workers	0.201	0.223	0.342	0.129	0.261	0.330	0.092	0.215	0.345
Electrical & electronic trades workers	0.107	0.242	0.350	0.090	0.393	0.347	0.048	0.372	0.393
Stationary plant & machine operators	0.337	0.698	0.716	0.492	0.695	0.725	0.523	0.691	0.705
Assemblers	0.234	0.627	0.543	0.274	0.659	0.646	0.216	0.605	0.663
Drivers & mobile plant operators	0.200	0.388	0.491	0.204	0.366	0.424	0.201	0.368	0.445
Cleaners	0.068	0.103	0.187	0.083	0.182	0.212	0.079	0.192	0.189
Agriculture, forestry & fishery workers	0.029	0.250	0.125	0.037	0.264	0.106	0.032	0.319	0.135
Mining, construction, manufacturing & transport workers	0.146	0.451	0.447	0.158	0.491	0.356	0.159	0.481	0.365
N	**25367**			**194203**			**152939**		

Source: LFS 2001/2, LMS 2011, and LMD 2018. Note: Data are weighted. Not all differences are significant.

Table E - 5: Indicator 4 element scores, 2001 - 2018 (cont.)

	2001			2011			2018		
	UIF	Union Membership	Union Density	UIF	Union Membership	Union Density	UIF	Union Membership	Union Density
Chief executives, senior officials & legislators	0.387	0.722	0.630	0.204	0.414	0.464	0.334	0.499	0.477
Administrative & commercial managers	0.620	0.262	0.291	0.766	0.248	0.288	0.818	0.302	0.310
Production & specialised services managers	0.529	0.181	0.184	0.677	0.139	0.159	0.526	0.192	0.186
Science & engineering professionals	0.612	0.349	0.321	0.760	0.320	0.333	0.836	0.314	0.325
Health professionals	0.565	0.571	0.611	0.261	0.657	0.699	0.337	0.619	0.652
Teaching professionals	0.365	0.737	0.735	0.390	0.431	0.437	0.291	0.782	0.804
Business & administration professionals	0.436	0.239	0.251	0.702	0.240	0.262	0.702	0.378	0.382
Science & engineering associate professionals	0.649	0.415	0.412	0.790	0.380	0.399	0.835	0.495	0.505
Health associate professionals	0.569	0.576	0.640	0.326	0.615	0.650	0.392	0.689	0.694
Business & administration associate professionals	0.381	0.773	0.782	0.092	0.739	0.781	0.222	0.689	0.718
Legal, social & cultural associate professionals	0.653	0.292	0.275	0.665	0.289	0.301	0.714	0.264	0.265
General & keyboard clerks	0.704	0.418	0.419	0.639	0.406	0.434	0.691	0.423	0.445
Customer services clerks	0.640	0.261	0.242	0.792	0.231	0.239	0.812	0.269	0.272
Personal service workers	0.534	0.374	0.389	0.502	0.356	0.355	0.585	0.310	0.304
Sales workers	0.487	0.190	0.180	0.695	0.186	0.181	0.696	0.217	0.214
Skilled agricultural workers	0.165	0.106	0.111	0.464	0.081	0.080	0.491	0.060	0.075
Skilled forestry, fishery & hunting workers	0.000	0.000	0.000	0.000	0.000	0.000	0.064	0.000	0.000
Building & related trades workers	0.448	0.380	0.368	0.511	0.234	0.280	0.522	0.213	0.217
Metal, machinery & related trades workers	0.630	0.391	0.384	0.787	0.325	0.350	0.759	0.336	0.337
Handicraft & printing workers	0.423	0.244	0.210	0.627	0.194	0.167	0.571	0.217	0.189
Electrical & electronic trades workers	0.533	0.237	0.256	0.737	0.253	0.224	0.733	0.289	0.281
Stationary plant & machine operators	0.670	0.666	0.666	0.860	0.587	0.606	0.826	0.585	0.588
Assemblers	0.731	0.475	0.503	0.898	0.494	0.503	0.868	0.489	0.495
Drivers & mobile plant operators	0.534	0.385	0.377	0.626	0.302	0.315	0.650	0.320	0.322
Cleaners	0.210	0.132	0.127	0.395	0.123	0.126	0.366	0.107	0.102
Agriculture, forestry & fishery workers	0.316	0.069	0.070	0.424	0.061	0.059	0.443	0.058	0.056
Mining, construction, manufacturing & transport workers	0.583	0.354	0.383	0.661	0.265	0.269	0.675	0.272	0.268
N	**25367**			**194203**			**152939**		

Source: LFS 2001/2, LMS 2011, and LMD 2018. Note: Data are weighted. Not all differences are significant.

APPENDIX F: CORRELATION MATRICES FOR ELEMENTS

Table F - 1: Correlation matrix of elements, 2001

	Longer hours	Paid leave	Excess hours	Sector	Informal employment rate	Contract type	Duration of employment	Written contract	Low pay rate	Average earnings	Gender occupational segregation	Racial occupational segregation	Gender pay gap	Medical aid	Number of workers in company	Pension contribution	UIF contribution	Union	Union density
Longer hours	1																		
Paid leave	0.11	1																	
Excess hours	-0.06	0.10	1																
Sector	0.07	0.41	0.03	1															
Informal employment rate	0.05	0.34	-0.01	0.60	1														
Contract type	0.18	0.49	-0.00	0.29	0.21	1													
Duration of employment	0.09	0.30	0.05	0.15	0.10	0.29	1												
Written contract	0.06	0.44	0.09	0.42	0.33	0.33	0.19	1											
Low pay rate	0.01	0.39	0.08	0.42	0.72	0.20	0.11	0.34	1										
Average earnings	0.03	0.35	0.09	0.32	0.55	0.21	0.13	0.28	0.74	1									
Gender occupational segregation	0.03	0.26	-0.00	0.50	0.83	0.12	0.05	0.26	0.59	0.48	1								
Racial occupational segregation	-0.00	0.12	-0.07	0.31	0.50	0.02	0.04	0.15	0.41	0.15	0.61	1							
Gender pay gap	0.07	0.20	-0.02	0.39	0.66	0.16	0.10	0.19	0.30	0.31	0.51	0.11	1						
Medical aid	0.06	0.42	0.11	0.28	0.29	0.27	0.24	0.29	0.39	0.41	0.24	0.09	0.18	1					
Number of workers in company	0.04	0.28	0.03	0.31	0.25	0.15	0.14	0.26	0.21	0.13	0.19	0.11	0.10	0.24	1				
Pension contribution	0.09	0.64	0.11	0.42	0.36	0.43	0.33	0.44	0.45	0.40	0.28	0.15	0.20	0.52	0.31	1			
UIF contribution	0.06	0.41	0.05	0.42	0.30	0.32	0.14	0.36	0.25	0.14	0.24	0.13	0.15	0.22	0.29	0.40	1		
Union	0.05	0.47	0.10	0.33	0.26	0.31	0.31	0.33	0.33	0.22	0.20	0.19	0.14	0.39	0.28	0.57	0.28	1	
Union density	0.01	0.34	0.09	0.37	0.63	0.20	0.15	0.30	0.80	0.51	0.46	0.47	0.34	0.33	0.15	0.41	0.17	0.41	1

Source: LFS 2001/2. Note: All correlation coefficients significant at p<0.001. Data are weighted.

Table F - 2: Correlation matrix of elements, 2011

	Longer hours	Paid leave	Excess hours	Sector	Informal employment rate	Contract type	Duration of employment	Written contract	Low pay rate	Average earnings	Gender occupational segregation	Racial occupational segregation	Gender pay gap	Medical aid	Number of workers in company	Pension contribution	UIF contribution	Union	Union density
Longer hours	1																		
Paid leave	0.15	1																	
Excess hours	-0.03	0.12	1																
Sector	0.12	0.46	0.04	1															
Informal employment rate	0.10	0.36	0.00	0.53	1														
Contract type	0.16	0.66	0.10	0.46	0.34	1													
Duration of employment	0.10	0.33	0.09	0.16	0.12	0.36	1												
Written contract	0.13	0.58	0.12	0.60	0.43	0.65	0.22	1											
Low pay rate	0.12	0.41	0.05	0.45	0.85	0.38	0.17	0.43	1										
Average earnings	0.11	0.35	0.09	0.32	0.60	0.32	0.19	0.32	0.79	1									
Gender occupational segregation	0.08	0.27	-0.06	0.47	0.89	0.27	0.07	0.35	0.64	0.49	1								
Racial occupational segregation	0.02	0.09	-0.11	0.29	0.54	0.09	0.00	0.17	0.30	-0.03	0.63	1							
Gender pay gap	0.06	0.20	0.02	0.30	0.56	0.19	0.09	0.21	0.56	0.29	0.41	0.33	1						
Medical aid	0.13	0.49	0.16	0.34	0.34	0.46	0.39	0.36	0.43	0.43	0.24	0.06	0.23	1					
Number of workers in company	0.07	0.25	0.02	0.36	0.21	0.24	0.12	0.29	0.16	0.11	0.18	0.07	0.08	0.28	1				
Pension contribution	0.15	0.65	0.14	0.42	0.36	0.60	0.38	0.48	0.43	0.38	0.26	0.09	0.22	0.67	0.31	1			
UIF contribution	0.07	0.35	-0.02	0.28	0.16	0.35	-0.01	0.41	0.12	0.05	0.15	0.05	0.06	-0.08	0.16	0.14	1		
Union	0.12	0.44	0.11	0.32	0.26	0.42	0.36	0.34	0.28	0.19	0.17	0.15	0.14	0.57	0.28	0.57	-0.07	1	
Union density	0.10	0.33	0.08	0.35	0.67	0.31	0.22	0.35	0.72	0.49	0.45	0.40	0.37	0.42	0.09	0.39	-0.08	0.38	1

Source: LMD 2011. Note: All correlation coefficients significant at p<0.001. Data are weighted.

Table F - 3: Correlation matrix of elements, 2018

	Longer hours	Paid leave	Excess hours	Sector	Informal employment rate	Contract type	Duration of employment	Written contract	Low pay rate	Average earnings	Gender occupational segregation	Racial occupational segregation	Gender pay gap	Medical aid	Number of workers in company	Pension contribution	UIF contribution	Union	Union density
Longer hours	1																		
Paid leave	0.17	1																	
Excess hours	-0.06	0.10	1																
Sector	0.14	0.43	0.05	1															
Informal employment rate	0.14	0.35	-0.02	0.47	1														
Contract type	0.17	0.63	0.09	0.47	0.36	1													
Duration of employment	0.09	0.21	0.08	0.10	0.11	0.27	1												
Written contract	0.13	0.55	0.13	0.62	0.39	0.64	0.13	1											
Low pay rate	0.14	0.37	-0.01	0.43	0.91	0.37	0.13	0.36	1										
Average earnings	0.11	0.29	0.07	0.26	0.55	0.30	0.17	0.25	0.71	1									
Gender occupational segregation	0.13	0.29	-0.06	0.43	0.92	0.30	0.08	0.33	0.80	0.46	1								
Racial occupational segregation	0.08	0.17	-0.08	0.31	0.65	0.17	0.02	0.20	0.60	0.07	0.70	1							
Gender pay gap	0.09	0.26	0.03	0.26	0.56	0.26	0.13	0.22	0.68	0.44	0.50	0.34	1						
Medical aid	0.12	0.43	0.14	0.30	0.33	0.45	0.32	0.31	0.38	0.41	0.25	0.11	0.30	1					
Number of workers in company	0.08	0.28	0.03	0.38	0.19	0.28	0.10	0.32	0.16	0.11	0.16	0.09	0.06	0.30	1				
Pension contribution	0.17	0.61	0.10	0.41	0.36	0.62	0.29	0.46	0.39	0.34	0.29	0.17	0.28	0.62	0.32	1			
UIF contribution	0.13	0.48	0.01	0.40	0.23	0.47	0.01	0.53	0.22	0.10	0.20	0.13	0.11	0.05	0.24	0.33	1		
Union	0.11	0.42	0.09	0.31	0.28	0.46	0.29	0.33	0.28	0.21	0.22	0.19	0.20	0.58	0.29	0.59	0.12	1	
Union density	0.13	0.34	0.04	0.35	0.74	0.34	0.19	0.34	0.75	0.54	0.58	0.51	0.53	0.43	0.13	0.39	0.08	0.38	1

Source: LMD 2018. Note: All correlation coefficients significant at p<0.001. Data are weighted.

APPENDIX G: LABOUR FORCE SURVEY SUMMARY STATISTICS

Table G - 1: Labour force survey sample summary statistics, by year

	2001			
	Mean	**Standard Deviation**	**Minimum**	**Maximum**
Male	.465191	.4987909	0	1
Female	.534809	.4987909	0	1
Age	32.78535	13.35259	15	64
African	.7808361	.4136833	0	1
Coloured	.1212582	.3264297	0	1
Indian	.0234818	.1514293	0	1
White	.0744239	.2624616	0	1
Urban	.5793683	.4936645	0	1
Rural	.4206317	.4936645	0	1
Not married	.6238628	.484419	0	1
Married	.3761372	.484419	0	1
Household size	3.642427	2.026468	1	25
No Schooling	.0802027	.2716089	0	1
Incomplete primary	.1906422	.3928107	0	1
Incomplete secondary	.4853214	.4997886	0	1
Complete secondary	.1795966	.3838542	0	1
Diploma/Degree	.0642371	.2451768	0	1
Gauteng	.1475725	.3546786	0	1
Western Cape	.1108975	.3140077	0	1
Eastern Cape	.1306729	.337045	0	1
Northern Cape	.0481461	.2140765	0	1
Free State	.0871961	.2821244	0	1
KwaZulu-Natal	.178722	.3831225	0	1
North West	.1027547	.3036406	0	1
Mpumalanga	.0842718	.2777972	0	1
Limpopo	.1097665	.3126011	0	1
Agriculture	.1406715	.3476904	0	1
Mining	.0641748	.2450697	0	1
Manufacturing	.139847	.3468362	0	1
Utilities	.0098484	.0987514	0	1
Construction	.0490129	.2158998	0	1
Trade	.1535889	.3605625	0	1
Transport	.0449361	.2071686	0	1
Financial	.0727864	.2597915	0	1
Community	.1935779	.395111	0	1
Private household	.131556	.3380152	0	1
DWI	.5289923	.2279908	0	1
N	*61895*			
	2011			
	Mean	**Standard Deviation**	**Minimum**	**Maximum**
Male	.4500299	.497498	0	1
Female	.5499701	.497498	0	1
Age	34.06812	14.03386	15	64
African	.786519	.4097655	0	1
Coloured	.1215315	.3267448	0	1
Indian	.022184	.1472818	0	1
White	.0697655	.2547521	0	1
Urban	.6188415	.4856726	0	1
Rural	.3811585	.4856726	0	1
Not married	.6608899	.4734085	0	1
Married	.3391101	.4734085	0	1
Household size	12.28818	8.816515	1	79
No Schooling	.0489687	.2158031	0	1
Incomplete primary	.115113	.3191591	0	1
Incomplete secondary	.5159094	.4997481	0	1
Complete secondary	.2295246	.4205282	0	1

Diploma/Degree	.0904843	.286875	0	1
Gauteng	.1607239	.367277	0	1
Western Cape	.1111344	.3142993	0	1
Eastern Cape	.1131934	.3168298	0	1
Northern Cape	.052701	.2234364	0	1
Free State	.0884599	.2839634	0	1
KwaZulu-Natal	.1765367	.3812771	0	1
North West	.0843879	.2779695	0	1
Mpumalanga	.0960777	.2946985	0	1
Limpopo	.1167851	.3211649	0	1
Agriculture	.0582381	.2341949	0	1
Mining	.0310234	.1733821	0	1
Manufacturing	.1220213	.3273128	0	1
Utilities	.0075588	.086613	0	1
Construction	.0634914	.2438464	0	1
Trade	.1780414	.3825504	0	1
Transport	.0516132	.2212464	0	1
Financial	.1179355	.3225341	0	1
Community	.2590728	.4381288	0	1
Private household	.1110041	.3141395	0	1
DWI	.5700645	.2311491	0	1
N	*195727*			
	2018			
	Mean	**Standard Deviation**	**Minimum**	**Maximum**
Male	.4613791	.4985077	0	1
Female	.5386209	.4985077	0	1
Age	34.81626	13.63816	15	64
African	.8249704	.3799936	0	1
Coloured	.0985631	.2980754	0	1
Indian	.0215136	.1450892	0	1
White	.054953	.2278891	0	1
Urban	.9633233	.1879673	0	1
Rural	.0366767	.1879673	0	1
Not married	.6673737	.4711554	0	1
Married	.3326263	.4711554	0	1
Household size	12.08648	9.131667	1	79
No schooling	.0304206	.1717422	0	1
Incomplete primary	.0837146	.2769601	0	1
Incomplete secondary	.5061361	.4999639	0	1
Complete secondary	.2738793	.4459492	0	1
Diploma/Degree	.1058494	.3076458	0	1
Gauteng	.2321035	.422176	0	1
Western Cape	.1091865	.3118741	0	1
Eastern Cape	.1230224	.328464	0	1
Northern Cape	.0409248	.1981166	0	1
Free State	.0621779	.2414791	0	1
KwaZulu-Natal	.1854732	.3886822	0	1
North West	.0632818	.2434699	0	1
Mpumalanga	.0830279	.2759252	0	1
Limpopo	.1008019	.3010671	0	1
Agriculture	.059305	.2361965	0	1
Mining	.0278824	.1646373	0	1
Manufacturing	.108217	.3106567	0	1
Utilities	.0094349	.0966748	0	1
Construction	.0780935	.2683209	0	1
Trade	.1665313	.3725599	0	1
Transport	.0548068	.2276045	0	1
Financial	.1456967	.3528047	0	1
Community	.2494154	.4326782	0	1
Private household	.1006171	.3008235	0	1
DWI	.5420738	.2260456	0	1
N	*161247*			

Source: LFS2001/2, LMD 2011, and LMD 2018. Note: Data are not weighted.

APPENDIX H: OCCUPATION GROUP BY SECTOR

Table H - 1: Occupation group by sector, 2001 (%)

	Agriculture	Mining	Manufacturing	Utilities	Construction	Trade	Transport	Financial	Community	Private Households
Chief executives, senior officials & legislators	0.000	0.000	0.000	0.000	0.000	0.000	2.088	0.000	97.912	0.000
Administrative & commercial managers	0.256	3.769	24.298	3.550	1.740	20.406	11.693	20.908	13.380	0.000
Production & specialised services managers	8.361	0.390	12.884	0.902	2.739	45.931	6.472	16.010	6.310	0.000
Science & engineering professionals	1.202	5.313	33.702	3.263	6.813	7.537	5.344	23.427	13.399	0.000
Health professionals	0.000	1.642	3.185	0.000	0.000	5.387	0.000	5.116	84.671	0.000
Teaching professionals	0.000	0.000	0.000	0.232	0.000	0.000	0.000	0.000	99.768	0.000
Business & administration professionals	0.176	2.859	13.954	0.274	0.188	1.746	2.359	47.301	31.144	0.000
Science & engineering associate professionals	0.622	4.879	26.401	2.886	1.293	6.229	13.703	26.206	17.780	0.000
Health associate professionals	0.000	0.289	3.449	0.324	0.000	2.132	0.000	1.459	92.199	0.148
Business & administration associate professionals	0.000	0.000	0.090	0.000	0.000	0.030	0.047	0.000	99.834	0.000
Legal, social & cultural associate professionals	0.908	0.991	16.121	0.410	1.608	19.904	3.160	35.687	21.212	0.000
General & keyboard clerks	1.694	3.970	16.879	1.317	1.348	15.930	9.122	20.692	29.049	0.000
Customer services clerks	0.399	1.220	5.686	0.560	0.769	42.522	8.449	26.324	14.071	0.000
Personal service workers	1.051	1.574	2.375	0.620	0.599	23.985	2.827	25.011	40.992	0.967
Sales workers	0.262	0.204	5.631	0.000	0.355	90.679	0.761	1.483	0.625	0.000
Skilled agricultural workers	18.841	0.128	0.668	0.292	0.000	0.683	0.149	7.374	12.299	59.566
Skilled forestry, fishery & hunting workers	99.872	0.000	0.000	0.000	0.000	0.128	0.000	0.000	0.000	0.000
Building & related trades workers	0.811	28.399	10.378	3.329	48.094	3.511	1.577	0.394	3.507	0.000
Metal, machinery & related trades workers	2.473	6.831	36.953	1.292	7.418	34.025	6.380	3.056	1.572	0.000
Handicraft & printing workers	0.000	0.706	80.121	0.000	1.179	4.739	0.769	5.043	7.442	0.000
Electrical & electronic trades workers	0.501	0.000	66.642	0.000	0.687	28.501	0.836	1.107	1.726	0.000
Stationary plant & machine operators	4.787	53.151	30.341	9.011	0.688	0.924	0.000	0.192	0.906	0.000
Assemblers	0.233	0.922	92.842	0.000	0.178	3.517	0.147	0.912	1.249	0.000
Drivers & mobile plant operators	17.633	21.403	14.848	1.061	3.156	8.711	26.894	1.760	4.448	0.086
Cleaners	0.333	0.761	4.019	0.414	0.335	10.654	2.106	5.960	13.635	61.785
Agriculture, forestry & fishery workers	98.977	0.161	0.384	0.000	0.000	0.247	0.000	0.000	0.231	0.000
Mining, construction, manufacturing & transport workers	2.738	8.757	37.513	1.108	17.087	22.364	5.169	1.506	3.757	0.000
Total	**11.561**	**5.941**	**15.370**	**1.004**	**5.270**	**16.275**	**4.996**	**9.381**	**19.149**	**11.054**

Source: LFS 2001/2. Note: Not all differences are significant. Data are weighted.

Table H - 2: Occupation group by sector, Males only, 2001 (%)

	Agriculture	Mining	Manufacturing	Utilities	Construction	Trade	Transport	Financial	Community	Private Households
Chief executives, senior officials & legislators	0.000	0.000	0.000	0.000	0.000	0.000	4.253	0.000	95.747	0.000
Administrative & commercial managers	0.314	5.022	24.119	4.227	2.340	18.506	12.179	20.991	12.302	0.000
Production & specialised services managers	10.210	0.503	14.785	0.716	2.661	36.749	8.340	19.140	6.895	0.000
Science & engineering professionals	1.466	6.481	35.707	3.981	8.312	9.195	5.682	16.784	12.391	0.000
Health professionals	0.000	4.584	5.666	0.000	0.000	7.081	0.000	2.617	80.052	0.000
Teaching professionals	0.000	0.000	0.000	0.591	0.000	0.000	0.000	0.000	99.409	0.000
Business & administration professionals	0.000	4.358	14.594	0.484	0.000	2.481	1.606	46.112	30.364	0.000
Science & engineering associate professionals	0.246	5.718	24.564	3.726	1.669	7.053	16.003	23.487	17.534	0.000
Health associate professionals	0.000	2.500	15.200	2.802	0.000	4.026	0.000	12.625	62.847	0.000
Business & administration associate professionals	0.000	0.000	0.248	0.000	0.000	0.082	0.000	0.000	99.670	0.000
Legal, social & cultural associate professionals	0.565	1.553	18.576	0.391	1.698	23.320	1.898	26.235	25.764	0.000
General & keyboard clerks	1.638	7.334	18.835	1.404	2.183	16.364	12.823	11.337	28.083	0.000
Customer services clerks	1.059	4.610	4.702	1.360	0.435	33.804	14.077	27.758	12.194	0.000
Personal service workers	1.366	2.376	2.531	0.982	0.948	17.148	3.315	33.942	37.236	0.156
Sales workers	0.171	0.421	5.948	0.000	0.524	91.544	0.497	0.620	0.276	0.000
Skilled agricultural workers	15.512	0.141	0.736	0.241	0.000	0.533	0.000	8.130	12.537	62.169
Skilled forestry, fishery & hunting workers	99.884	0.000	0.000	0.000	0.000	0.116	0.000	0.000	0.000	0.000
Building & related trades workers	0.768	29.549	10.140	3.413	46.915	3.545	1.668	0.417	3.586	0.000
Metal, machinery & related trades workers	2.547	7.036	37.058	1.236	7.565	33.677	6.571	2.892	1.419	0.000
Handicraft & printing workers	0.000	1.054	80.785	0.000	0.624	6.136	0.000	6.043	5.358	0.000
Electrical & electronic trades workers	0.280	0.000	59.689	0.000	1.611	34.909	1.201	1.250	1.061	0.000
Stationary plant & machine operators	4.201	54.883	28.993	9.107	0.715	0.960	0.000	0.199	0.942	0.000
Assemblers	0.359	1.357	91.856	0.000	0.312	3.377	0.256	1.594	0.888	0.000
Drivers & mobile plant operators	17.823	21.718	14.623	1.079	2.993	8.775	26.657	1.790	4.453	0.087
Cleaners	0.484	3.511	10.690	1.372	0.809	23.075	8.649	11.209	30.089	10.111
Agriculture, forestry & fishery workers	99.108	0.234	0.201	0.000	0.000	0.207	0.000	0.000	0.250	0.000
Mining, construction, manufacturing & transport workers	1.526	11.174	34.144	1.424	19.509	20.052	6.378	1.485	4.308	0.000
Total	**13.886**	**9.897**	**17.822**	**1.506**	**8.143**	**15.293**	**6.988**	**8.654**	**14.725**	**3.085**

Source: LFS 2001/2. Note: Not all differences are significant. Data are weighted.

Table H - 3: Occupation group by sector, Females only, 2001 (%)

	Agriculture	Mining	Manufacturing	Utilities	Construction	Trade	Transport	Financial	Community	Private Households
Chief executives, senior officials & legislators	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	100.000	0.000
Administrative & commercial managers	0.090	0.135	24.818	1.584	0.000	25.918	10.281	20.666	16.509	0.000
Production & specialised services managers	1.953	0.000	6.295	1.549	3.009	77.747	0.000	5.162	4.284	0.000
Science & engineering professionals	0.000	0.000	24.586	0.000	0.000	0.000	3.811	53.623	17.980	0.000
Health professionals	0.000	0.000	1.799	0.000	0.000	4.441	0.000	6.511	87.249	0.000
Teaching professionals	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	100.000	0.000
Business & administration professionals	0.405	0.904	13.119	0.000	0.433	0.789	3.341	48.851	32.159	0.000
Science & engineering associate professionals	1.914	1.996	32.718	0.000	0.000	3.398	5.796	35.552	18.626	0.000
Health associate professionals	0.000	0.000	1.914	0.000	0.000	1.884	0.000	0.000	96.034	0.167
Business & administration associate professionals	0.000	0.000	0.000	0.000	0.000	0.000	0.073	0.000	99.927	0.000
Legal, social & cultural associate professionals	1.320	0.314	13.167	0.432	1.500	15.791	4.679	47.062	15.733	0.000
General & keyboard clerks	1.728	1.914	15.683	1.263	0.838	15.666	6.860	26.410	29.639	0.000
Customer services clerks	0.182	0.106	6.010	0.298	0.878	45.386	6.600	25.853	14.688	0.000
Personal service workers	0.510	0.202	2.107	0.000	0.000	35.688	1.992	9.723	47.422	2.354
Sales workers	0.347	0.000	5.334	0.000	0.196	89.866	1.009	2.295	0.953	0.000
Skilled agricultural workers	51.311	0.000	0.000	0.786	0.000	2.145	1.604	0.000	9.975	34.179
Skilled forestry, fishery & hunting workers	99.857	0.000	0.000	0.000	0.000	0.143	0.000	0.000	0.000	0.000
Building & related trades workers	1.564	8.566	14.497	1.879	68.433	2.911	0.000	0.000	2.151	0.000
Metal, machinery & related trades workers	0.000	0.000	33.459	3.183	2.502	45.631	0.000	8.542	6.684	0.000
Handicraft & printing workers	0.000	0.000	78.772	0.000	2.306	1.901	2.331	3.012	11.678	0.000
Electrical & electronic trades workers	0.666	0.000	71.814	0.000	0.000	23.734	0.564	1.000	2.222	0.000
Stationary plant & machine operators	19.833	8.659	64.984	6.524	0.000	0.000	0.000	0.000	0.000	0.000
Assemblers	0.063	0.340	94.161	0.000	0.000	3.704	0.000	0.000	1.732	0.000
Drivers & mobile plant operators	6.352	2.784	28.162	0.000	12.790	4.878	40.911	0.000	4.121	0.000
Cleaners	0.297	0.104	2.425	0.184	0.222	7.686	0.542	4.706	9.704	74.130
Agriculture, forestry & fishery workers	98.689	0.000	0.787	0.000	0.000	0.334	0.000	0.000	0.190	0.000
Mining, construction, manufacturing & transport workers	6.404	1.451	47.699	0.154	9.764	29.356	1.511	1.572	2.090	0.000
Total	**8.344**	**0.468**	**11.978**	**0.310**	**1.296**	**17.634**	**2.239**	**10.386**	**25.267**	**22.078**

Source: LFS 2001/2. Note: Not all differences are significant. Data are weighted.

Table H - 4: Occupation group by sector, 2011 (%)

	Agriculture	Mining	Manufacturing	Utilities	Construction	Trade	Transport	Financial	Community	Private Households
Chief executives, senior officials & legislators	0.474	0.000	3.687	1.001	0.000	2.461	2.436	9.016	80.925	0.000
Administrative & commercial managers	1.205	2.287	14.096	0.872	3.934	26.184	7.342	23.012	21.069	0.000
Production & specialised services managers	11.891	1.398	3.127	0.531	7.433	47.513	11.051	5.131	11.924	0.000
Science & engineering professionals	0.104	5.078	14.191	4.583	7.887	3.390	8.895	42.041	13.831	0.000
Health professionals	0.179	0.543	2.331	0.000	0.000	1.809	0.409	3.795	90.935	0.000
Teaching professionals	0.000	0.507	0.210	0.000	0.000	0.000	0.165	0.000	99.117	0.000
Business & administration professionals	0.185	1.989	7.885	0.906	1.636	11.028	4.566	43.487	28.318	0.000
Science & engineering associate professionals	0.772	4.572	25.818	2.883	15.019	6.824	9.743	19.839	14.530	0.000
Health associate professionals	1.139	0.277	1.245	0.000	0.267	3.002	0.000	0.684	93.387	0.000
Business & administration associate professionals	0.000	0.050	0.128	0.000	0.000	0.000	0.000	0.034	99.788	0.000
Legal, social & cultural associate professionals	0.197	0.495	12.834	0.816	1.630	18.910	4.164	35.131	25.822	0.000
General & keyboard clerks	0.340	1.588	13.652	0.953	2.794	15.384	10.388	19.753	35.147	0.000
Customer services clerks	0.319	0.130	2.943	0.259	1.099	56.053	5.107	21.005	13.084	0.000
Personal service workers	0.544	0.524	1.071	0.227	0.316	20.679	1.463	30.728	43.303	1.147
Sales workers	0.237	0.163	3.977	0.294	0.435	90.880	0.873	1.599	1.540	0.000
Skilled agricultural workers	70.966	0.000	9.969	0.000	0.982	3.338	0.000	6.831	7.913	0.000
Skilled forestry, fishery & hunting workers	96.902	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.098
Building & related trades workers	0.591	9.934	11.516	2.252	65.322	3.266	0.471	1.143	5.284	0.221
Metal, machinery & related trades workers	1.512	6.562	38.742	1.257	6.970	31.581	3.966	7.428	1.982	0.000
Handicraft & printing workers	0.133	0.000	75.404	0.000	5.858	11.831	0.000	1.025	5.534	0.215
Electrical & electronic trades workers	1.767	0.311	52.888	0.000	0.066	40.846	0.383	1.105	2.633	0.000
Stationary plant & machine operators	1.891	34.628	48.504	8.967	0.950	1.212	0.169	0.948	2.732	0.000
Assemblers	0.404	2.370	88.451	0.774	0.521	2.342	0.146	2.270	2.722	0.000
Drivers & mobile plant operators	7.013	7.266	17.356	0.517	4.326	12.601	41.490	3.681	5.684	0.066
Cleaners	0.418	0.487	3.972	0.152	1.225	8.959	3.369	10.552	17.332	53.533
Agriculture, forestry & fishery workers	54.014	0.115	2.311	0.106	0.875	2.485	0.159	5.234	6.220	28.481
Mining, construction, manufacturing & transport workers	3.287	7.637	29.253	0.858	22.726	23.097	4.901	3.330	4.820	0.092
Total	**4.899**	**2.786**	**13.895**	**0.753**	**7.058**	**18.021**	**5.716**	**13.379**	**23.407**	**10.086**

Source: LMD 2011. Note: Not all differences are significant. Data are weighted.

Table H - 5: Occupation group by sector, Males only, 2011 (%)

	Agriculture	Mining	Manufacturing	Utilities	Construction	Trade	Transport	Financial	Community	Private Households
Chief executives, senior officials & legislators	0.674	0.000	5.245	0.000	0.000	3.501	0.578	12.123	77.879	0.000
Administrative & commercial managers	1.346	2.833	16.050	0.782	5.640	25.299	8.581	21.420	18.049	0.000
Production & specialised services managers	17.569	1.835	3.791	0.824	8.626	41.321	12.148	5.984	7.902	0.000
Science & engineering professionals	0.131	6.172	15.047	4.464	9.586	3.315	8.494	38.926	13.865	0.000
Health professionals	0.552	1.466	4.197	0.000	0.000	1.051	0.000	8.474	84.259	0.000
Teaching professionals	0.000	1.239	0.000	0.000	0.000	0.000	0.404	0.000	98.357	0.000
Business & administration professionals	0.190	3.157	7.669	0.835	2.114	12.244	4.500	35.881	33.410	0.000
Science & engineering associate professionals	0.509	4.889	24.031	2.764	16.936	8.012	10.713	19.460	12.687	0.000
Health associate professionals	8.621	0.242	5.871	0.000	2.044	2.960	0.000	2.421	77.841	0.000
Business & administration associate professionals	0.000	0.000	0.048	0.000	0.000	0.000	0.000	0.000	99.952	0.000
Legal, social & cultural associate professionals	0.072	0.309	15.837	0.578	1.529	20.498	3.650	31.331	26.196	0.000
General & keyboard clerks	0.435	2.358	16.260	0.904	3.051	17.634	16.572	9.557	33.228	0.000
Customer services clerks	0.482	0.166	1.278	1.112	0.089	47.830	7.248	29.919	11.877	0.000
Personal service workers	0.694	0.776	1.163	0.368	0.369	14.836	1.842	43.800	35.952	0.200
Sales workers	0.000	0.224	4.422	0.480	0.508	91.609	0.748	1.067	0.941	0.000
Skilled agricultural workers	74.800	0.000	12.156	0.000	0.995	4.655	0.000	3.694	3.701	0.000
Skilled forestry, fishery & hunting workers	96.371	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.629
Building & related trades workers	0.586	9.737	11.284	2.254	66.489	2.925	0.493	1.119	4.881	0.232
Metal, machinery & related trades workers	1.509	6.622	37.857	1.277	7.203	32.062	4.091	7.672	1.706	0.000
Handicraft & printing workers	0.168	0.000	75.367	0.000	7.098	13.691	0.000	0.955	2.449	0.272
Electrical & electronic trades workers	0.425	0.587	50.241	0.000	0.125	45.438	0.723	1.338	1.124	0.000
Stationary plant & machine operators	1.988	36.903	46.923	8.277	0.893	1.335	0.186	1.044	2.454	0.000
Assemblers	0.621	3.447	86.611	1.190	0.801	2.158	0.225	2.897	2.050	0.000
Drivers & mobile plant operators	6.965	7.049	17.524	0.534	4.352	12.725	41.375	3.798	5.610	0.068
Cleaners	0.724	1.355	9.663	0.416	2.404	15.150	11.668	16.470	31.987	10.163
Agriculture, forestry & fishery workers	46.173	0.154	1.696	0.143	0.735	2.116	0.183	5.318	6.518	36.966
Mining, construction, manufacturing & transport workers	2.515	9.818	25.323	1.103	26.209	20.510	5.779	3.463	5.162	0.120
Total	**5.862**	**4.438**	**17.140**	**1.038**	**11.134**	**17.586**	**8.147**	**13.359**	**17.387**	**3.908**

Source: LMD 2011. Note: Not all differences are significant. Data are weighted.

Table H - 6: Occupation group by sector, Females only, 2011 (%)

	Agriculture	Mining	Manufacturing	Utilities	Construction	Trade	Transport	Financial	Community	Private Households
Chief executives, senior officials & legislators	0.000	0.000	0.000	3.370	0.000	0.000	6.834	1.665	88.130	0.000
Administrative & commercial managers	0.952	1.306	10.589	1.034	0.871	27.772	5.117	25.868	26.491	0.000
Production & specialised services managers	1.581	0.606	1.921	0.000	5.268	58.755	9.058	3.584	19.226	0.000
Science & engineering professionals	0.000	0.828	10.861	5.046	1.284	3.682	10.454	54.146	13.699	0.000
Health professionals	0.000	0.102	1.438	0.000	0.000	2.171	0.604	1.557	94.127	0.000
Teaching professionals	0.000	0.000	0.356	0.000	0.000	0.000	0.000	0.000	99.644	0.000
Business & administration professionals	0.180	0.956	8.076	0.968	1.213	9.952	4.624	50.217	23.813	0.000
Science & engineering associate professionals	1.853	3.268	33.165	3.371	7.143	1.940	5.758	21.395	22.108	0.000
Health associate professionals	0.017	0.282	0.551	0.000	0.000	3.008	0.000	0.424	95.719	0.000
Business & administration associate professionals	0.000	0.072	0.163	0.000	0.000	0.000	0.000	0.049	99.717	0.000
Legal, social & cultural associate professionals	0.320	0.681	9.846	1.053	1.730	17.330	4.676	38.914	25.449	0.000
General & keyboard clerks	0.289	1.168	12.228	0.979	2.654	14.155	7.011	25.321	36.196	0.000
Customer services clerks	0.270	0.119	3.449	0.000	1.406	58.550	4.458	18.298	13.450	0.000
Personal service workers	0.333	0.172	0.941	0.029	0.242	28.854	0.932	12.438	53.586	2.472
Sales workers	0.613	0.067	3.273	0.000	0.320	89.726	1.071	2.443	2.487	0.000
Skilled agricultural workers	63.388	0.000	5.645	0.000	0.957	0.735	0.000	13.033	16.241	0.000
Skilled forestry, fishery & hunting workers	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Building & related trades workers	0.699	14.032	16.339	2.206	41.067	10.344	0.000	1.648	13.666	0.000
Metal, machinery & related trades workers	1.590	5.132	59.754	0.779	1.419	20.169	0.990	1.636	8.530	0.000
Handicraft & printing workers	0.000	0.000	75.545	0.000	1.190	4.828	0.000	1.287	17.149	0.000
Electrical & electronic trades workers	3.281	0.000	55.875	0.000	0.000	35.665	0.000	0.843	4.334	0.000
Stationary plant & machine operators	0.936	12.166	64.128	15.783	1.512	0.000	0.000	0.000	5.475	0.000
Assemblers	0.000	0.369	91.872	0.000	0.000	2.683	0.000	1.106	3.971	0.000
Drivers & mobile plant operators	8.510	14.048	12.091	0.000	3.533	8.726	45.093	0.000	7.999	0.000
Cleaners	0.334	0.251	2.425	0.081	0.905	7.276	1.114	8.944	13.348	65.321
Agriculture, forestry & fishery workers	77.073	0.000	4.120	0.000	1.284	3.571	0.091	4.987	5.343	3.531
Mining, construction, manufacturing & transport workers	5.177	2.298	38.875	0.258	14.197	29.432	2.749	3.007	3.983	0.025
Total	**3.680**	**0.696**	**9.791**	**0.392**	**1.902**	**18.571**	**2.639**	**13.405**	**31.022**	**17.902**

Source: LMD 2011. Note: Not all differences are significant. Data are weighted.

Table H - 7: Occupation group by sector, 2018 (%)

	Agriculture	Mining	Manufacturing	Utilities	Construction	Trade	Transport	Financial	Community	Private Households
Chief executives, senior officials & legislators	0.000	0.000	1.461	0.000	1.600	2.040	0.257	5.994	88.649	0.000
Administrative & commercial managers	0.833	1.725	13.763	2.029	4.596	23.731	8.797	24.323	20.203	0.000
Production & specialised services managers	28.795	0.000	5.659	0.000	11.661	17.960	13.862	9.687	12.374	0.000
Science & engineering professionals	0.000	8.911	10.807	11.935	8.524	0.343	5.611	45.105	8.765	0.000
Health professionals	0.000	0.000	3.367	0.000	0.000	6.195	0.000	4.657	85.781	0.000
Teaching professionals	0.000	0.000	0.000	0.039	0.139	0.135	0.316	0.252	99.119	0.000
Business & administration professionals	0.366	0.657	8.189	0.975	1.044	3.008	3.749	41.615	40.397	0.000
Science & engineering associate professionals	0.797	6.872	18.694	8.772	8.001	4.420	7.513	25.619	19.313	0.000
Health associate professionals	1.000	0.076	2.622	0.000	0.079	3.058	0.000	1.312	91.853	0.000
Business & administration associate professionals	0.000	0.000	0.000	0.000	0.000	0.000	0.086	0.182	99.731	0.000
Legal, social & cultural associate professionals	0.348	0.329	12.571	0.565	1.096	9.750	4.993	45.083	25.265	0.000
General & keyboard clerks	1.354	1.982	9.900	1.143	3.159	13.610	8.714	20.219	39.919	0.000
Customer services clerks	0.141	0.193	2.752	0.261	0.261	60.091	4.069	19.654	12.579	0.000
Personal service workers	0.450	0.197	0.571	0.046	0.073	16.900	1.050	35.295	44.355	1.064
Sales workers	0.259	0.056	3.197	0.096	0.308	91.138	1.551	2.568	0.826	0.000
Skilled agricultural workers	70.406	0.000	5.477	0.000	0.000	7.469	0.000	1.052	15.596	0.000
Skilled forestry, fishery & hunting workers	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Building & related trades workers	0.679	10.894	6.508	3.269	74.126	2.059	0.494	1.498	0.473	0.000
Metal, machinery & related trades workers	1.625	6.723	31.021	2.518	10.654	27.139	6.421	12.079	1.819	0.000
Handicraft & printing workers	0.000	0.000	70.646	0.000	8.548	11.712	0.800	6.307	1.987	0.000
Electrical & electronic trades workers	3.291	0.398	52.291	0.000	0.837	40.244	0.000	1.684	1.256	0.000
Stationary plant & machine operators	3.141	30.585	34.563	18.038	3.273	4.039	0.370	1.702	4.288	0.000
Assemblers	0.167	1.528	88.277	0.128	1.179	3.080	0.267	4.258	1.115	0.000
Drivers & mobile plant operators	7.949	8.761	13.556	0.618	4.820	9.847	44.994	4.356	5.100	0.000
Cleaners	0.245	0.193	2.813	0.172	0.824	6.894	2.173	13.602	22.909	50.176
Agriculture, forestry & fishery workers	58.852	0.177	0.748	0.065	0.624	1.675	0.261	3.822	10.693	23.084
Mining, construction, manufacturing & transport workers	2.724	9.375	23.474	0.343	30.168	20.517	5.308	4.334	3.644	0.113
Total	**6.512**	**3.016**	**10.718**	**1.074**	**8.080**	**16.069**	**5.644**	**14.910**	**23.672**	**10.306**

Source: LMD 2018. Note: Not all differences are significant. Data are weighted.

Table H - 8: Occupation group by sector, Males only, 2018 (%)

	Agriculture	Mining	Manufacturing	Utilities	Construction	Trade	Transport	Financial	Community	Private Households
Chief executives, senior officials & legislators	0.000	0.000	1.509	0.000	0.000	3.181	0.000	4.561	90.748	0.000
Administrative & commercial managers	1.319	2.238	16.138	2.072	6.091	24.068	10.515	20.755	16.804	0.000
Production & specialised services managers	36.430	0.000	3.578	0.000	15.721	12.950	15.362	8.530	7.429	0.000
Science & engineering professionals	0.000	9.503	11.685	10.354	9.182	0.428	5.083	46.386	7.379	0.000
Health professionals	0.000	0.000	1.918	0.000	0.000	7.042	0.000	5.332	85.708	0.000
Teaching professionals	0.000	0.000	0.000	0.000	0.392	0.000	0.000	0.000	99.608	0.000
Business & administration professionals	0.757	1.011	11.354	1.160	2.021	3.797	2.959	38.037	38.906	0.000
Science & engineering associate professionals	1.088	8.409	18.330	9.623	9.077	4.907	6.978	26.858	14.729	0.000
Health associate professionals	4.898	0.409	7.894	0.000	0.428	8.447	0.000	4.334	73.590	0.000
Business & administration associate professionals	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.698	99.302	0.000
Legal, social & cultural associate professionals	0.000	0.564	15.773	0.604	1.126	10.316	4.443	38.296	28.879	0.000
General & keyboard clerks	1.882	2.129	10.560	1.266	3.696	15.689	13.699	12.866	38.212	0.000
Customer services clerks	0.000	0.000	2.767	0.000	0.000	50.742	5.853	27.072	13.567	0.000
Personal service workers	0.845	0.279	0.396	0.094	0.125	11.546	1.418	55.203	29.925	0.169
Sales workers	0.213	0.096	3.276	0.165	0.440	91.722	1.487	2.321	0.282	0.000
Skilled agricultural workers	66.601	0.000	6.146	0.000	0.000	10.227	0.000	1.440	15.586	0.000
Skilled forestry, fishery & hunting workers	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Building & related trades workers	0.589	10.235	6.695	3.223	74.734	2.156	0.480	1.472	0.417	0.000
Metal, machinery & related trades workers	1.716	6.576	30.888	1.872	11.009	27.695	6.399	12.348	1.497	0.000
Handicraft & printing workers	0.000	0.000	69.743	0.000	10.795	10.447	1.011	7.008	0.996	0.000
Electrical & electronic trades workers	4.036	0.762	45.960	0.000	1.604	43.935	0.000	2.663	1.040	0.000
Stationary plant & machine operators	3.555	34.455	34.727	14.883	2.704	4.136	0.435	1.740	3.363	0.000
Assemblers	0.137	1.580	87.256	0.066	1.421	3.419	0.403	5.719	0.000	0.000
Drivers & mobile plant operators	8.160	8.077	13.887	0.593	4.882	10.005	44.946	4.442	5.007	0.000
Cleaners	0.526	0.603	8.231	0.349	2.473	14.104	7.787	19.739	37.792	8.397
Agriculture, forestry & fishery workers	51.584	0.249	0.659	0.091	0.587	2.019	0.294	4.527	8.524	31.466
Mining, construction, manufacturing & transport workers	1.684	12.599	20.116	0.437	32.079	18.546	6.204	4.344	3.827	0.163
Total	**7.937**	**4.886**	**13.659**	**1.436**	**12.880**	**15.287**	**8.439**	**15.432**	**15.925**	**4.119**

Source: LMD 2018. Note: Not all differences are significant. Data are weighted.

Table H - 9: Occupation group by sector, Female only, 2018 (%)

	Agriculture	Mining	Manufacturing	Utilities	Construction	Trade	Transport	Financial	Community	Private Households
Chief executives, senior officials & legislators	0.000	0.000	1.374	0.000	4.460	0.000	0.716	8.556	84.894	0.000
Administrative & commercial managers	0.000	0.844	9.694	1.956	2.035	23.154	5.854	30.436	26.026	0.000
Production & specialised services managers	6.863	0.000	11.638	0.000	0.000	32.353	9.554	13.011	26.581	0.000
Science & engineering professionals	0.000	6.524	7.268	18.304	5.876	0.000	7.737	39.945	14.347	0.000
Health professionals	0.000	0.000	3.983	0.000	0.000	5.835	0.000	4.370	85.812	0.000
Teaching professionals	0.000	0.000	0.000	0.060	0.000	0.209	0.488	0.391	98.852	0.000
Business & administration professionals	0.000	0.326	5.225	0.801	0.130	2.269	4.489	44.966	41.794	0.000
Science & engineering associate professionals	0.000	2.658	19.690	6.439	5.051	3.087	8.978	22.224	31.872	0.000
Health associate professionals	0.115	0.000	1.424	0.000	0.000	1.834	0.000	0.625	96.003	0.000
Business & administration associate professionals	0.000	0.000	0.000	0.000	0.000	0.000	0.117	0.000	99.883	0.000
Legal, social & cultural associate professionals	0.685	0.101	9.475	0.527	1.067	9.203	5.525	51.647	21.770	0.000
General & keyboard clerks	1.094	1.909	9.575	1.082	2.894	12.584	6.256	23.845	40.761	0.000
Customer services clerks	0.174	0.239	2.749	0.323	0.323	62.323	3.643	17.883	12.344	0.000
Personal service workers	0.075	0.119	0.737	0.000	0.024	21.971	0.701	16.436	58.025	1.911
Sales workers	0.325	0.000	3.087	0.000	0.124	90.319	1.642	2.914	1.589	0.000
Skilled agricultural workers	80.711	0.000	3.665	0.000	0.000	0.000	0.000	0.000	15.624	0.000
Skilled forestry, fishery & hunting workers	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Building & related trades workers	2.581	24.832	2.570	4.248	61.283	0.000	0.789	2.045	1.654	0.000
Metal, machinery & related trades workers	0.000	9.352	33.385	14.024	4.335	17.258	6.814	7.298	7.535	0.000
Handicraft & printing workers	0.000	0.000	74.081	0.000	0.000	16.527	0.000	3.637	5.756	0.000
Electrical & electronic trades workers	2.477	0.000	59.203	0.000	0.000	36.214	0.000	0.614	1.492	0.000
Stationary plant & machine operators	0.778	8.540	33.630	36.009	6.515	3.486	0.000	1.489	9.554	0.000
Assemblers	0.226	1.425	90.290	0.251	0.703	2.413	0.000	1.381	3.311	0.000
Drivers & mobile plant operators	1.890	28.331	4.078	1.318	3.039	5.322	46.364	1.884	7.775	0.000
Cleaners	0.174	0.088	1.432	0.126	0.403	5.056	0.743	12.037	19.115	60.825
Agriculture, forestry & fishery workers	76.741	0.000	0.965	0.000	0.716	0.826	0.181	2.086	16.033	2.452
Mining, construction, manufacturing & transport workers	5.045	2.177	30.972	0.134	25.902	24.916	3.308	4.310	3.236	0.000
Total	**4.835**	**0.815**	**7.258**	**0.649**	**2.432**	**16.989**	**2.356**	**14.296**	**32.786**	**17.585**

Source: LMD 2018. Note: Not all differences are significant. Data are weighted.

APPENDIX I: TIME-USE ACTIVITY CATEGORIES

Table I - 1: Time-use activity by category from manual

1. Employment for establishments
111 Wage and salary employment other than domestic work
112 Outworkers/home-based work for an establishment
113 Domestic and personal services produced by domestic work
114 Unpaid employment in establishment
115 Work as employer/self-employed for an establishment
130 Working in apprenticeship, internship and related positions
140 Short breaks and interruptions from work
150 Seeking employment and related activities
180 Travel to/from work and seeking employment in establishments
190 Employment in establishments not elsewhere classified
2. Primary production activities not for establishments
210 Crop farming and market/kitchen gardening: planting, weeding, harvesting, picking, etc.
220 Tending animals and fish farming
230 Hunting, fishing, gathering of wild products and forestry
236 Collecting fuel, firewood or dung
240 Digging, stone cutting, splitting and carving
250 Collecting water
260 Purchase of goods for and sale of outputs arising from these activities
280 Travel related to primary production activities (not for establishments)
290 Primary production activities (not for establishments) not elsewhere classified
3. Services for income and other production of goods not for establishments
310 Food processing and preservation activities: grain processing, butchering, preserving, curing
320 Preparing and selling food and beverage preparation, baking, confectionery and related activities
330 Making and selling textile, leather and related craft: weaving, knitting, sewing, shoemaking, tanning, products of wood
340 Building and extensions of dwelling: laying bricks, plastering, thatch, roofing, maintaining and repairing buildings; cutting glass, plumbing, painting, carpentering, electric wiring
350 Petty trading, street/door-to-door vending, shoe-cleaning and other services performed in non-fixed or mobile locations
360 Fitting, installing, tool setting, maintaining and repairing tools and machinery
370 Provision of services for income such as computer services, transport, hairdressing, cosmetic treatment, baby-sitting, massages, prostitution
380 Travel related to services for income and other production of goods (not for establishments)
390 Services for income and other production of goods (not for establishments) not elsewhere classified
4. Household maintenance, management and shopping for own household
410 Cooking, making drinks, setting and serving tables, washing up
420 Cleaning and upkeep of dwelling and surroundings
430 Care of textiles: sorting, mending, washing, ironing and ordering clothes and linen
440 Shopping for personal and household goods
441 Accessing government service, such as collecting pension, going to post office
448 Waiting to access government service
450 Household management: planning, supervising, paying bills, etc.
460 Do-it-yourself home improvements and maintenance, installation, servicing and repair of personal and household goods
470 Pet care
480 Travel related to household maintenance, management and shopping
490 Household maintenance, management and shopping not elsewhere classified
491 Chopping wood, lighting fire and heating water not for immediate cooking purposes
5. Care for children, the sick, elderly and disabled for own household
511 Physical care of children: washing, dressing, feeding – mentioned spontaneously
512 Physical care of children: washing, dressing, feeding – not mentioned spontaneously
521 Teaching, training and instruction of household's children – mentioned spontaneously
522 Teaching, training and instruction of household's children – not mentioned spontaneously
531 Accompanying children to places: school, sports, lessons, etc. – mentioned spontaneously
532 Accompanying children to places: school, sports, lessons, etc. – not mentioned spontaneously
540 Physical care of the sick, disabled, elderly household members: washing, dressing, feeding, helping
550 Accompanying adults to receive personal care services: such as hairdresser's, therapy sessions, etc.
561 Supervising children and adults needing care – mentioned spontaneously
562 Supervising children and adults needing care – not mentioned spontaneously
580 Travel related to care of children, the sick, elderly and disabled in the household

590 Care of children, the sick, elderly and disabled in the household not elsewhere classified
6. Community services and help to other households
610 Community organised construction and repairs: buildings, roads, dams, wells, etc.
620 Community organised work: cooking for collective celebrations, etc.
630 Volunteering with or for an organisation
650 Participation in meetings of local and informal groups/caste, tribes, professional associations, union, political and similar organisations
660 Involvement in civic and related responsibilities: voting, rallies, etc.
671 Caring for non-household children – mentioned spontaneously
672 Caring for non-household children – not mentioned spontaneously
673 Caring for non-household adults
674 Other informal help to other households
680 Travel related to community services
690 Community services not elsewhere classified
7. Learning
710 School, technikon, college or university attendance
720 Homework, studies and course review
730 Additional study, non-formal education and courses during free time
740 Work-related training
780 Travel related to learning
790 Learning not elsewhere classified
8. Social and Cultural Activities
810 Participating in cultural activities, weddings, funerals, births, and other celebrations
820 Participating in religious activities: religious services, practices, rehearsals, etc.
831 Socialising with family
832 Socialising with non-family
833 Socialising with both family and non-family
840 Arts, making music, hobbies and related courses
850 Indoor and outdoor sports participation and related courses
860 Games and other pastime activities
870 Spectator to sports, exhibitions/museums, cinema/theatre/concerts and other performances and events
880 Travel related to social, cultural and recreational activities
890 Social, cultural and recreational activities not elsewhere classified
9. Mass media use
910 Reading
920 Watching television and video
930 Listening to music/radio
940 Accessing information by computer
950 Visiting library
980 Travel related to mass media use and entertainment
990 Mass media use and entertainment not elsewhere classified
0. Personal care and self-maintenance
010 Sleep and related activities
020 Eating and drinking
030 Personal hygiene and health
041 Receiving medical and personal care from professionals (including traditional healer)
042 Receiving medical and personal care from household members
043 Receiving medical and personal care from non-household non-professionals
048 Waiting for medical and personal care
050 Doing nothing, rest and relaxation
060 Individual religious practices and meditation
080 Travel related to personal care and self-maintenance
090 Personal care and self-maintenance not elsewhere classified

Source: Stats SA (2000b).

APPENDIX J: SUMMARY STATISTICS OF TIME-USE CATEGORIES

Table J - 1: Summary statistics of time-use categories

	2000			
	Mean	**Standard Deviation**	**Minimum**	**Maximum**
1	193.5562	283.6881	0	1350
2	18.2206	66.56877	0	1050
3	17.35952	85.68471	0	1050
4	186.7664	170.325	0	990
5	31.46722	91.02419	0	1050
6	5.093652	38.89194	0	1080
7	56.62071	154.1003	0	1080
8	244.576	225.1872	0	2070
9	146.2955	158.2956	0	1080
0	768.3091	168.3936	90	1650
N	*11532*			
	2010			
	Mean	**Standard Deviation**	**Minimum**	**Maximum**
1	178.8243	280.9572	0	1380
2	18.04212	68.36233	0	990
3	12.95775	73.83205	0	1020
4	192.7742	173.1223	0	1230
5	25.42474	71.37059	0	960
6	5.520062	40.56454	0	990
7	45.85206	136.8033	0	1080
8	153.3976	181.392	0	1740
9	156.7441	147.8237	0	1230
0	799.8264	179.5311	0	1770
N	*31054*			

Source: TUS 2000 and 2010. Note: Data are not weighted.

APPENDIX K: POOLED CROSS SECTIONS FOR 2000 AND 2010 TUS

Table K - 1: Correlates of time spent working in an establishment (marginal effects), pooled cross sections

Fractional Probit Regression			
Dependent variable: Proportion of the day spent working in an establishment			
	All	**Male**	**Female**
Gender (Ref: Male)			
Female	-0.039***		
	(0.01)		
Age	0.002	0.003	0.002
	(0.00)	(0.00)	(0.00)
Age Squared	-0.000	-0.000	-0.000
	(0.00)	(0.00)	(0.00)
Race (Ref: African)			
Coloured	0.012	-0.001	0.035*
	(0.01)	(0.02)	(0.02)
Indian	0.001	-0.023	0.032*
	(0.01)	(0.02)	(0.01)
White	-0.003	0.000	-0.001
	(0.01)	(0.01)	(0.01)
Marital Status (Ref: Never married)			
Married/Cohabiting	0.003	0.023*	-0.017
	(0.01)	(0.01)	(0.01)
Separated	-0.017	0.007	-0.029*
	(0.01)	(0.02)	(0.01)
No of young children	-0.007	-0.013	-0.002
	(0.00)	(0.01)	(0.01)
No of older children	-0.007	-0.009	-0.006
	(0.00)	(0.01)	(0.01)
No of pensioners	-0.027**	-0.037**	-0.006
	(0.01)	(0.01)	(0.01)
No of women	0.005	0.005	0.003
	(0.00)	(0.00)	(0.00)
No of men	0.002	0.007	-0.000
	(0.00)	(0.00)	(0.00)
Education (Ref: No schooling)			
Incomplete Primary	0.016	-0.005	0.047
	(0.02)	(0.02)	(0.03)
Incomplete Secondary	0.038*	0.016	0.073**
	(0.01)	(0.02)	(0.02)
Complete Secondary	0.049**	0.028	0.082***
	(0.02)	(0.02)	(0.02)
Diploma/Degree	0.017	-0.013	0.058*
	(0.02)	(0.02)	(0.02)
Province (Ref: Gauteng)			
Western Cape	-0.004	0.009	-0.021
	(0.01)	(0.02)	(0.02)
Eastern Cape	-0.035***	-0.030*	-0.043**
	(0.01)	(0.01)	(0.01)
Northern Cape	0.008	0.027	-0.017
	(0.01)	(0.02)	(0.02)
Free State	-0.013	0.003	-0.037*
	(0.01)	(0.01)	(0.02)
KwaZulu-Natal	0.045***	0.043***	0.049***
	(0.01)	(0.01)	(0.01)
North West	-0.021	-0.020	-0.023
	(0.01)	(0.01)	(0.02)
Mpumalanga	0.029***	0.033**	0.022
	(0.01)	(0.01)	(0.01)
Limpopo	-0.052***	-0.055***	-0.045**
	(0.01)	(0.02)	(0.02)
Time period (Ref: 2000)			

2010	0.081***	0.081***	0.079***
	(0.01)	(0.01)	(0.01)
N	53119	53076	52940

*Source: TUS 2000 and 2010. Note: The data are weighted, standard errors in parentheses. *** p<0.01 ** p<0.05 * p<0.10. All regressions restricted to ages 15 to 64.*

Table K - 2: Correlates of time spent in primary production (marginal effects), pooled cross sections

Fractional Probit Regression			
Dependent variable: Proportion of the day spent in primary production			
	All	**Male**	**Female**
Gender (Ref: Male)			
Female	-0.002		
	(0.00)		
Age	-0.000	-0.001	0.000
	(0.00)	(0.00)	(0.00)
Age Squared	0.000	0.000	-0.000
	(0.00)	(0.00)	(0.00)
Race (Ref: African)			
Coloured	-0.006	-0.005	-0.006
	(0.00)	(0.00)	(0.00)
Indian	0.002	0.003	0.000
	(0.00)	(0.00)	(0.00)
White	-0.003	-0.004	-0.002
	(0.00)	(0.00)	(0.00)
Marital Status (Ref: Never married)			
Married/Cohabiting	0.001	0.001	0.001
	(0.00)	(0.00)	(0.00)
Separated	0.004*	0.005	0.003
	(0.00)	(0.00)	(0.00)
No of young children	0.000	-0.000	0.000
	(0.00)	(0.00)	(0.00)
No of older children	0.001	0.001	0.001
	(0.00)	(0.00)	(0.00)
No of pensioners	0.001	0.001	-0.000
	(0.00)	(0.00)	(0.00)
No of women	-0.001	-0.000	-0.001
	(0.00)	(0.00)	(0.00)
No of men	0.000	0.000	0.001
	(0.00)	(0.00)	(0.00)
Education (Ref: No schooling)			
Incomplete Primary	-0.004*	-0.007	-0.001
	(0.00)	(0.00)	(0.00)
Incomplete Secondary	-0.010***	-0.012**	-0.007**
	(0.00)	(0.00)	(0.00)
Complete Secondary	-0.018***	-0.021***	-0.012***
	(0.00)	(0.01)	(0.00)
Diploma/Degree	-0.015***	-0.016***	-0.013***
	(0.00)	(0.00)	(0.00)
Province (Ref: Gauteng)			
Western Cape	0.004	0.004	0.006
	(0.00)	(0.00)	(0.00)
Eastern Cape	0.016***	0.020***	0.013***
	(0.00)	(0.01)	(0.00)
Northern Cape	0.001	0.002	0.000
	(0.00)	(0.00)	(0.00)
Free State	0.005*	0.007*	0.004
	(0.00)	(0.00)	(0.00)
KwaZulu-Natal	0.010***	0.009**	0.010**
	(0.00)	(0.00)	(0.00)
North West	0.008**	0.011**	0.006*
	(0.00)	(0.00)	(0.00)
Mpumalanga	0.005*	0.007*	0.004
	(0.00)	(0.00)	(0.00)
Limpopo	0.014***	0.016**	0.012***
	(0.00)	(0.00)	(0.00)
Time period (Ref: 2000)			
2010	-0.007***	-0.008***	-0.006***
	(0.00)	(0.00)	(0.00)
N	53119	53076	52940

*Source: TUS 2000 and 2010. Note: The data are weighted, standard errors in parentheses. *** p<0.01 ** p<0.05 * p<0.10. All regressions restricted to ages 15 to 64.*

Table K - 3: Correlates of time spent on household maintenance (marginal effects), pooled cross sections

Fractional Probit Regression			
Dependent variable: Proportion of the day spent on household maintenance			
	All	**Male**	**Female**
Gender (Ref: Male)			
Female	0.073***		
	(0.00)		
Age	0.001	-0.000	0.002
	(0.00)	(0.00)	(0.00)
Age Squared	-0.000	0.000	-0.000
	(0.00)	(0.00)	(0.00)
Race (Ref: African)			
Coloured	-0.039***	-0.026**	-0.055***
	(0.01)	(0.01)	(0.01)
Indian	-0.020***	-0.010	-0.030***
	(0.00)	(0.01)	(0.01)
White	-0.017***	-0.009	-0.030***
	(0.00)	(0.01)	(0.01)
Marital Status (Ref: Never married)			
Married/Cohabiting	-0.005	-0.020***	0.021***
	(0.00)	(0.00)	(0.00)
Separated	0.000	-0.007	0.011
	(0.00)	(0.01)	(0.01)
No of young children	0.005*	0.006*	0.005
	(0.00)	(0.00)	(0.00)
No of older children	0.008***	0.006*	0.008*
	(0.00)	(0.00)	(0.00)
No of pensioners	0.009*	0.009	0.001
	(0.00)	(0.00)	(0.01)
No of women	-0.013***	-0.010***	-0.011***
	(0.00)	(0.00)	(0.00)
No of men	-0.003	-0.006***	-0.001
	(0.00)	(0.00)	(0.00)
Education (Ref: No schooling)			
Incomplete Primary	-0.006	0.004	-0.016
	(0.01)	(0.01)	(0.01)
Incomplete Secondary	-0.008	0.006	-0.022*
	(0.01)	(0.01)	(0.01)
Complete Secondary	-0.015*	0.003	-0.031**
	(0.01)	(0.01)	(0.01)
Diploma/Degree	-0.011	0.011	-0.030**
	(0.01)	(0.01)	(0.01)
Province (Ref: Gauteng)			
Western Cape	0.017***	0.012*	0.023**
	(0.01)	(0.01)	(0.01)
Eastern Cape	0.020***	0.006	0.037***
	(0.00)	(0.00)	(0.01)
Northern Cape	0.001	-0.004	0.007
	(0.01)	(0.01)	(0.01)
Free State	0.014**	0.012*	0.015
	(0.00)	(0.01)	(0.01)
KwaZulu-Natal	-0.001	-0.004	0.002
	(0.00)	(0.00)	(0.01)
North West	-0.001	-0.003	0.001
	(0.00)	(0.00)	(0.01)
Mpumalanga	0.006	0.005	0.008
	(0.00)	(0.00)	(0.01)
Limpopo	0.003	-0.001	0.007
	(0.00)	(0.01)	(0.01)
Time period (Ref: 2000)			
2010	-0.017***	-0.012***	-0.022***
	(0.00)	(0.00)	(0.00)
N	53119	53076	52940

*Source: TUS 2000 and 2010. Note: The data are weighted, standard errors in parentheses. *** p<0.01 ** p<0.05 * p<0.10. All regressions restricted to ages 15 to 64.*

Table K - 4: Correlates of time spent on household maintenance (marginal effects), pooled cross sections

Fractional Probit Regression			
Dependent variable: Proportion of the day spent on care work			
	All	**Male**	**Female**
Gender (Ref: Male)			
Female	0.013***		
	(0.00)		
Age	0.000	0.000	0.001
	(0.00)	(0.00)	(0.00)
Age Squared	-0.000**	-0.000	-0.000**
	(0.00)	(0.00)	(0.00)
Race (Ref: African)			
Coloured	0.001	-0.001	0.003
	(0.00)	(0.00)	(0.00)
Indian	0.004***	0.001	0.006**
	(0.00)	(0.00)	(0.00)
White	0.002	0.002**	0.000
	(0.00)	(0.00)	(0.00)
Marital Status (Ref: Never married)			
Married/Cohabiting	0.004***	0.001*	0.007***
	(0.00)	(0.00)	(0.00)
Separated	0.003*	-0.001	0.007**
	(0.00)	(0.00)	(0.00)
No of young children	0.008***	0.002***	0.014***
	(0.00)	(0.00)	(0.00)
No of older children	0.002**	0.000	0.004**
	(0.00)	(0.00)	(0.00)
No of pensioners	0.001	-0.000	0.004
	(0.00)	(0.00)	(0.00)
No of women	-0.002***	-0.000	-0.004***
	(0.00)	(0.00)	(0.00)
No of men	-0.001	-0.000	-0.002*
	(0.00)	(0.00)	(0.00)
Education (Ref: No schooling)			
Incomplete Primary	0.001	0.002	0.001
	(0.00)	(0.00)	(0.00)
Incomplete Secondary	0.004	0.003	0.004
	(0.00)	(0.00)	(0.00)
Complete Secondary	0.004	0.004*	0.002
	(0.00)	(0.00)	(0.00)
Diploma/Degree	0.005	0.004**	0.003
	(0.00)	(0.00)	(0.00)
Province (Ref: Gauteng)			
Western Cape	0.002	0.001	0.001
	(0.00)	(0.00)	(0.00)
Eastern Cape	0.002	0.001	0.004
	(0.00)	(0.00)	(0.00)
Northern Cape	0.002	0.001	0.000
	(0.00)	(0.00)	(0.00)
Free State	0.001	0.001	0.000
	(0.00)	(0.00)	(0.00)
KwaZulu-Natal	-0.003*	0.000	-0.008**
	(0.00)	(0.00)	(0.00)
North West	0.001	-0.001	0.004
	(0.00)	(0.00)	(0.00)
Mpumalanga	-0.001	-0.001	0.000
	(0.00)	(0.00)	(0.00)
Limpopo	-0.003	-0.002	-0.004
	(0.00)	(0.00)	(0.00)
Time period (Ref: 2000)			
2010	-0.005***	-0.001**	-0.008***
	(0.00)	(0.00)	(0.00)
N	53119	53076	52940

*Source: TUS 2000 and 2010. Note: The data are weighted, standard errors in parentheses. *** p<0.01 ** p<0.05 * p<0.10. All regressions restricted to ages 15 to 64.*

Table K - 5: Correlates of SNA and non-SNA time on occupation rank (coefficients), pooled cross sections

Ordered Logit Regression			
Dependent Variable: Occupation Rank			
	I	**II**	III
Non-SNA time	-0.201	-0.260	
	(0.25)	(0.29)	
SNA time		-0.060	0.003
		(0.15)	(0.13)
Gender (Ref: Male)			
Female	-0.542***	-0.540***	-0.559***
	(0.06)	(0.06)	(0.06)
Age	0.046**	0.046**	0.046**
	(0.02)	(0.02)	(0.02)
Age Squared	-0.000*	-0.000*	-0.000*
	(0.00)	(0.00)	(0.00)
Race (Ref: African)			
Coloured	0.920***	0.918***	0.925***
	(0.16)	(0.16)	(0.16)
Indian	0.571***	0.570***	0.574***
	(0.09)	(0.09)	(0.09)
White	1.187***	1.186***	1.189***
	(0.09)	(0.09)	(0.09)
Marital Status (Ref: Never married)			
Married/Cohabiting	0.202***	0.202***	0.202***
	(0.05)	(0.05)	(0.05)
Separated	0.055	0.055	0.055
	(0.13)	(0.13)	(0.13)
No of young children	0.017	0.018	0.015
	(0.04)	(0.04)	(0.04)
No of older children	-0.001	-0.001	-0.003
	(0.05)	(0.05)	(0.04)
No of pensioners	-0.069	-0.070	-0.070
	(0.08)	(0.08)	(0.08)
No of women	0.033	0.033	0.036
	(0.03)	(0.03)	(0.03)
No of men	-0.016	-0.016	-0.015
	(0.02)	(0.02)	(0.02)
Education (Ref: No schooling)			
Incomplete Primary	0.020	0.021	0.021
	(0.12)	(0.12)	(0.12)
Incomplete Secondary	0.850***	0.851***	0.851***
	(0.11)	(0.11)	(0.11)
Complete Secondary	2.138***	2.139***	2.140***
	(0.12)	(0.12)	(0.12)
Diploma/Degree	3.934***	3.933***	3.935***
	(0.13)	(0.13)	(0.13)
Province (Ref: Gauteng)			
Western Cape	-0.188	-0.188	-0.193
	(0.10)	(0.10)	(0.10)
Eastern Cape	-0.166*	-0.166*	-0.170*
	(0.08)	(0.08)	(0.08)
Northern Cape	-0.377***	-0.377***	-0.379***
	(0.10)	(0.10)	(0.10)
Free State	-0.011	-0.011	-0.014
	(0.10)	(0.10)	(0.10)
KwaZulu-Natal	0.032	0.034	0.032
	(0.08)	(0.08)	(0.08)
North West	0.017	0.016	0.016
	(0.09)	(0.09)	(0.09)
Mpumalanga	-0.072	-0.070	-0.074
	(0.09)	(0.09)	(0.09)
Limpopo	-0.017	-0.020	-0.018
	(0.09)	(0.09)	(0.09)
Time period (Ref: 2000)			
2010	0.303***	0.306***	0.308***
	(0.06)	(0.06)	(0.06)
N	53116	53116	53116

*Source: TUS 2000 and 2010. Note: The data are weighted, standard errors in parentheses. *** p<0.01 ** p<0.05 * p<0.10. All regressions restricted to ages 15 to 64.*

Table K - 6: Correlates of SNA and non-SNA time on occupation rank (coefficients), by gender, pooled cross sections

Ordered Logit Regression						
Dependent Variable: Occupation Rank						
	Male	**Female**	**Male**	**Female**	**Male**	**Female**
	I	**I**	**II**	**II**	III	III
Non-SNA time	0.425	-0.142	0.379	-0.086		
	(0.43)	(0.29)	(0.49)	(0.35)		
SNA time			-0.042	0.060	-0.105	0.091
			(0.19)	(0.23)	(0.17)	(0.19)
Age	0.074***	0.066**	0.074***	0.066**	0.074***	0.065**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Age Squared	-0.001**	-0.001*	-0.001**	-0.001*	-0.001**	-0.001*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Race (Ref: African)						
Coloured	0.888***	1.005***	0.887***	1.006***	0.877***	1.008***
	(0.21)	(0.23)	(0.21)	(0.23)	(0.21)	(0.23)
Indian	0.363**	0.816***	0.361**	0.816***	0.356**	0.817***
	(0.13)	(0.12)	(0.13)	(0.12)	(0.13)	(0.12)
White	1.186***	1.151***	1.185***	1.153***	1.182***	1.156***
	(0.12)	(0.13)	(0.12)	(0.13)	(0.12)	(0.13)
Marital Status (Ref: Never married)						
Married/Cohabiting	0.213**	0.130	0.213**	0.129	0.206**	0.128
	(0.08)	(0.09)	(0.08)	(0.09)	(0.08)	(0.09)
Separated	0.153	0.101	0.154	0.101	0.152	0.101
	(0.17)	(0.16)	(0.17)	(0.16)	(0.17)	(0.16)
No of young children	0.014	0.001	0.014	-0.000	0.016	-0.002
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
No of older children	0.018	-0.031	0.018	-0.031	0.020	-0.032
	(0.07)	(0.06)	(0.07)	(0.06)	(0.07)	(0.06)
No of pensioners	-0.274*	0.221	-0.275*	0.221	-0.275*	0.221
	(0.11)	(0.12)	(0.11)	(0.12)	(0.11)	(0.12)
No of women	0.037	0.046	0.037	0.047	0.034	0.048
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
No of men	0.008	-0.015	0.008	-0.015	0.006	-0.015
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Education (Ref: No schooling)						
Incomplete Primary	0.155	-0.339	0.155	-0.340	0.156	-0.340
	(0.19)	(0.18)	(0.19)	(0.18)	(0.19)	(0.18)
Incomplete Secondary	1.015***	0.736***	1.015***	0.734***	1.018***	0.734***
	(0.18)	(0.15)	(0.18)	(0.15)	(0.19)	(0.15)
Complete Secondary	1.974***	2.432***	1.975***	2.430***	1.978***	2.431***
	(0.19)	(0.16)	(0.19)	(0.17)	(0.19)	(0.17)
Diploma/Degree	3.727***	4.100***	3.726***	4.100***	3.729***	4.101***
	(0.21)	(0.17)	(0.21)	(0.17)	(0.21)	(0.17)
Province (Ref: Gauteng)						
Western Cape	-0.362**	-0.061	-0.360**	-0.061	-0.352**	-0.062
	(0.13)	(0.15)	(0.13)	(0.15)	(0.13)	(0.15)
Eastern Cape	-0.456***	0.094	-0.457***	0.095	-0.456***	0.092
	(0.11)	(0.13)	(0.11)	(0.13)	(0.11)	(0.13)
Northern Cape	-0.624***	-0.130	-0.623***	-0.130	-0.620***	-0.130
	(0.14)	(0.16)	(0.14)	(0.16)	(0.14)	(0.16)
Free State	-0.278*	0.234	-0.277*	0.235	-0.272*	0.235
	(0.13)	(0.15)	(0.13)	(0.15)	(0.13)	(0.15)
KwaZulu-Natal	-0.088	0.179	-0.086	0.177	-0.084	0.176
	(0.11)	(0.12)	(0.11)	(0.12)	(0.11)	(0.12)
North West	-0.109	0.037	-0.111	0.037	-0.112	0.037
	(0.11)	(0.15)	(0.11)	(0.15)	(0.12)	(0.15)
Mpumalanga	-0.281**	0.174	-0.280**	0.172	-0.275**	0.171
	(0.11)	(0.14)	(0.11)	(0.14)	(0.11)	(0.14)
Limpopo	-0.234	0.266*	-0.236	0.268*	-0.240	0.268*
	(0.12)	(0.13)	(0.12)	(0.13)	(0.12)	(0.13)
Time period (Ref: 2000)						
2010	0.379***	0.147	0.381***	0.146	0.379***	0.147
	(0.08)	(0.09)	(0.08)	(0.09)	(0.08)	(0.09)
N	53155	53020	53155	53020	53155	53020

*Source: TUS 2000 and 2010. Note: The data are weighted, standard errors in parentheses. *** p<0.01 ** p<0.05 * p<0.10. All regressions restricted to ages 15 to 64.*

APPENDIX L: COMPARISON OF SUMMARY STATISTICS

In this appendix sample summary statistics are presented to compare the sampled of the LFS2001/2 and TUS2000 and the LMD 2018 and TUS 2010. It includes general sample summary statistics, comparison of employment status statistics, and the occupation distributions of each of the samples.

Sample summary statistics

Table L - 1: Sample summary statistics of LFS 2001/2 and TUS 2000

	LFS2001			TUS2000		
	All	**Male**	**Female**	**All**	**Male**	**Female**
Male	0.580			0.549		
	(0.00)			(0.01)		
Female	0.420			0.451		
	(0.00)			(0.01)		
Age	36.697	36.656	36.753	35.385	34.637	36.296
	(0.10)	(0.13)	(0.15)	(0.26)	(0.35)	(0.37)
African	0.657	0.678	0.630	0.688	0.706	0.666
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Coloured	0.128	0.120	0.140	0.108	0.094	0.126
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Indian	0.039	0.041	0.037	0.038	0.038	0.037
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
White	0.175	0.162	0.193	0.167	0.163	0.171
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Household Size	2.931	2.831	3.070	6.310	6.120	6.542
	(0.01)	(0.02)	(0.02)	(0.12)	(0.16)	(0.19)
Never Married	0.350	0.335	0.371	0.388	0.397	0.377
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)
Married & Cohabiting	0.573	0.627	0.497	0.510	0.558	0.452
	(0.00)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
Widowed/Divorced/Separated	0.077	0.038	0.132	0.101	0.045	0.170
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
No schooling	0.067	0.070	0.062	0.078	0.067	0.092
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Incomplete Primary	0.168	0.183	0.148	0.174	0.190	0.156
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Incomplete Secondary	0.359	0.371	0.342	0.352	0.356	0.347
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Complete Secondary	0.257	0.252	0.265	0.145	0.139	0.152
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Diploma/Degree	0.149	0.125	0.182	0.251	0.248	0.253
	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
Western Cape	0.146	0.137	0.158	0.118	0.105	0.133
	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
Eastern Cape	0.107	0.099	0.119	0.146	0.131	0.164
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Northern Cape	0.023	0.024	0.021	0.021	0.022	0.019
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Free State	0.082	0.088	0.074	0.066	0.066	0.065
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
KwaZulu-Natal	0.181	0.173	0.191	0.196	0.195	0.197
	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
North West	0.078	0.089	0.063	0.079	0.090	0.065
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Gauteng	0.254	0.257	0.249	0.226	0.233	0.217

	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Mpumalanga	0.063	0.070	0.055	0.071	0.075	0.065
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)
Limpopo	0.066	0.063	0.070	0.079	0.083	0.074
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
N	66988	67124	67179	14128	14198	14194

Source: LFS2001/2 and TUS2000. Data are weighted.

Table L - 2: Sample summary statistics of LMD 2011 and TUS 2010

	LFS 2011			TUS2010		
	All	**Male**	**Female**	**All**	**Male**	**Female**
Male	0.556			0.569		
	(0.00)			(0.01)		
Female	0.444			0.431		
	(0.00)			(0.01)		
Age	37.627	37.234	38.120	36.703	36.425	37.069
	(0.05)	(0.06)	(0.07)	(0.14)	(0.19)	(0.20)
African	0.710	0.722	0.696	0.697	0.716	0.671
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Coloured	0.119	0.112	0.126	0.036	0.037	0.036
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Indian	0.034	0.036	0.032	0.122	0.112	0.137
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)
White	0.137	0.129	0.146	0.145	0.136	0.156
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Household Size	10.331	9.793	11.005	5.112	4.959	5.314
	(0.04)	(0.05)	(0.05)	(0.05)	(0.07)	(0.07)
Never Married	0.417	0.409	0.427	0.413	0.406	0.421
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Married & Cohabiting	0.520	0.558	0.473	0.523	0.563	0.471
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Widowed/Divorced/Separated	0.063	0.033	0.100	0.064	0.031	0.108
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
No schooling	0.024	0.022	0.026	0.022	0.022	0.022
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Incomplete Primary	0.080	0.087	0.072	0.087	0.095	0.076
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
Incomplete Secondary	0.376	0.398	0.348	0.376	0.399	0.346
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Complete Secondary	0.313	0.313	0.313	0.309	0.306	0.313
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Diploma/Degree	0.207	0.180	0.241	0.206	0.178	0.243
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Western Cape	0.153	0.146	0.162	0.143	0.132	0.157
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)
Eastern Cape	0.091	0.085	0.100	0.102	0.101	0.102
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Northern Cape	0.021	0.023	0.020	0.022	0.023	0.021
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Free State	0.056	0.060	0.052	0.058	0.059	0.055
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
KwaZulu-Natal	0.169	0.165	0.174	0.199	0.192	0.207
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)
North West	0.057	0.063	0.050	0.062	0.068	0.054
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Gauteng	0.317	0.323	0.310	0.282	0.286	0.277
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Mpumalanga	0.068	0.071	0.064	0.066	0.071	0.060
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Limpopo	0.068	0.067	0.069	0.067	0.068	0.067
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
N	321207	321584	321667	38988	38957	38826

Source: LMD2011 and TUS2010. Data are weighted.

Employment status statistics

Table L - 3: Employment statistics of LFS 2001/2 and TUS 2000

	LFS 2001			TUS2000		
	All	**Male**	**Female**	**All**	**Male**	**Female**
NEA	0.46	0.39	0.53	0.36	0.34	0.38
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Employed	0.36	0.43	0.29	0.43	0.51	0.37
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Unemployed	0.18	0.18	0.18	0.21	0.15	0.25
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
N	67315	67315	67315	14264	14264	14264

Source: LFS2001/2 and TUS2000. Data are weighted.

Table L - 4: Employment statistics of LMD 2011 and TUS 2010

	LMD 2011			TUS 2010		
	All	**Male**	**Female**	**All**	**Male**	**Female**
NEA	0.47	0.40	0.53	0.57	0.52	0.61
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)
Employed	0.38	0.44	0.33	0.36	0.42	0.30
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)
Unemployed	0.15	0.15	0.14	0.07	0.06	0.09
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
N	322044	322044	322044	39018	39018	39018

Source: LMD2011 and TUS2010. Data are weighted.

Occupational distribution

Table L - 5: Occupational distribution of LFS 2001/2 and TUS 2000

	LFS 2000			TUS 2000		
	All	**Male**	**Female**	**All**	**Male**	**Female**
Chief executives, senior officials & legislators	0.12	0.10	0.15	0.23	0.30	0.15
	(0.04)	(0.03)	(0.08)	(0.10)	(0.15)	(0.13)
Administrative & commercial managers	2.92	3.76	1.77	1.63	2.31	0.95
	(0.18)	(0.24)	(0.25)	(0.26)	(0.44)	(0.25)
Production & specialised services managers	0.82	1.09	0.44	1.85	2.34	1.35
	(0.08)	(0.12)	(0.10)	(0.21)	(0.31)	(0.27)
Science & engineering professionals	0.68	0.96	0.29	0.82	1.45	0.19
	(0.08)	(0.12)	(0.07)	(0.16)	(0.30)	(0.10)
Health professionals	0.63	0.39	0.96	0.37	0.35	0.39
	(0.07)	(0.08)	(0.12)	(0.09)	(0.13)	(0.11)
Teaching professionals	1.86	1.26	2.69	1.22	0.90	1.54
	(0.12)	(0.12)	(0.22)	(0.18)	(0.22)	(0.28)
Business & administration professionals	1.34	1.31	1.38	1.15	1.25	1.06
	(0.15)	(0.20)	(0.23)	(0.21)	(0.27)	(0.31)
Science & engineering associate professionals	2.10	2.80	1.13	1.45	2.35	0.53
	(0.14)	(0.21)	(0.16)	(0.20)	(0.37)	(0.14)
Health associate professionals	1.71	0.34	3.61	1.81	0.95	2.68

	(0.13)	(0.07)	(0.29)	(0.26)	(0.36)	(0.38)
Business & administration associate professionals	3.85	2.41	5.85	2.60	1.70	3.52
	(0.16)	(0.17)	(0.29)	(0.26)	(0.36)	(0.37)
Legal, social & cultural associate professionals	3.39	3.20	3.66	2.80	2.69	2.92
	(0.22)	(0.25)	(0.41)	(0.31)	(0.47)	(0.40)
General & keyboard clerks	7.56	4.94	11.19	6.84	4.66	9.03
	(0.25)	(0.26)	(0.46)	(0.58)	(0.57)	(1.00)
Customer services clerks	3.92	1.66	7.05	3.51	1.36	5.68
	(0.18)	(0.15)	(0.37)	(0.30)	(0.28)	(0.52)
Personal service workers	7.40	8.05	6.50	7.46	7.60	7.33
	(0.23)	(0.31)	(0.34)	(0.42)	(0.61)	(0.58)
Sales workers	4.34	3.63	5.34	5.84	5.01	6.67
	(0.19)	(0.21)	(0.34)	(0.46)	(0.67)	(0.62)
Skilled agricultural workers	2.62	4.09	0.58	4.98	7.75	2.18
	(0.14)	(0.22)	(0.10)	(0.40)	(0.69)	(0.40)
Skilled forestry, fishery & hunting workers	1.98	1.88	2.11	3.46	3.94	2.97
	(0.11)	(0.14)	(0.18)	(0.38)	(0.57)	(0.50)
Building & related trades workers	6.83	11.13	0.89	6.22	11.77	0.60
	(0.23)	(0.38)	(0.12)	(0.38)	(0.71)	(0.18)
Metal, machinery & related trades workers	4.22	7.06	0.29	2.66	5.15	0.14
	(0.23)	(0.38)	(0.06)	(0.27)	(0.53)	(0.06)
Handicraft & printing workers	0.54	0.62	0.42	0.75	0.97	0.54
	(0.06)	(0.08)	(0.08)	(0.13)	(0.20)	(0.16)
Electrical & electronic trades workers	1.42	1.04	1.94	2.19	1.49	2.89
	(0.09)	(0.11)	(0.16)	(0.21)	(0.27)	(0.31)
Stationary plant & machine operators	1.41	2.35	0.13	0.74	1.34	0.14
	(0.10)	(0.17)	(0.03)	(0.15)	(0.30)	(0.06)
Assemblers	3.40	3.35	3.47	3.20	3.10	3.30
	(0.15)	(0.20)	(0.22)	(0.31)	(0.43)	(0.45)
Drivers & mobile plant operators	6.93	11.74	0.27	4.21	8.34	0.05
	(0.20)	(0.34)	(0.06)	(0.31)	(0.61)	(0.03)
Cleaners & helpers	15.21	5.05	29.25	19.56	6.24	33.02
	(0.29)	(0.25)	(0.58)	(0.65)	(0.55)	(1.11)
Agriculture, forestry & fishery workers	7.11	8.44	5.28	4.96	5.54	4.37
	(0.19)	(0.28)	(0.25)	(0.32)	(0.47)	(0.43)
Mining, construction, manufacturing & transport workers	5.67	7.34	3.36	7.49	9.18	5.79
	(0.19)	(0.29)	(0.21)	(0.46)	(0.73)	(0.56)
Total	**100**	**100**	**100**	**100**	**100**	**100**
N	27275	50742	43848	11159	13147	12276

Source: LFS2001/2 and TUS2000. Data are weighted.

Table L - 6: Occupational distribution of LMD 2011 and TUS 2010

	LMD 2011			**TUS 2010**		
	All	**Male**	**Female**	**All**	**Male**	**Female**
Chief executives, senior officials & legislators	0.36	0.45	0.24	0.22	0.23	0.19
	(0.03)	(0.04)	(0.03)	(0.06)	(0.09)	(0.06)

Administrative & commercial managers	5.24	6.02	4.25	5.27	5.57	4.88
	(0.11)	(0.16)	(0.15)	(0.31)	(0.41)	(0.49)
Production & specialised services managers	0.49	0.56	0.39	1.56	1.57	1.54
	(0.03)	(0.05)	(0.04)	(0.18)	(0.17)	(0.35)
Science & engineering professionals	1.46	2.07	0.67	1.03	1.61	0.26
	(0.06)	(0.10)	(0.07)	(0.13)	(0.22)	(0.07)
Health professionals	0.97	0.56	1.49	0.73	0.53	1.00
	(0.04)	(0.05)	(0.08)	(0.12)	(0.18)	(0.15)
Teaching professionals	0.64	0.47	0.85	0.74	0.81	0.65
	(0.04)	(0.05)	(0.07)	(0.12)	(0.19)	(0.14)
Business & administration professionals	2.78	2.34	3.34	2.36	2.44	2.26
	(0.08)	(0.10)	(0.14)	(0.25)	(0.37)	(0.32)
Science & engineering associate professionals	2.28	3.28	1.01	2.33	3.16	1.22
	(0.07)	(0.12)	(0.07)	(0.22)	(0.32)	(0.27)
Health associate professionals	1.81	0.42	3.56	1.68	0.65	3.04
	(0.06)	(0.04)	(0.12)	(0.15)	(0.11)	(0.31)
Business & administration associate professionals	4.35	2.34	6.88	3.94	2.22	6.21
	(0.08)	(0.08)	(0.15)	(0.20)	(0.19)	(0.40)
Legal, social & cultural associate professionals	3.53	3.15	4.01	3.32	3.00	3.75
	(0.09)	(0.11)	(0.13)	(0.23)	(0.30)	(0.37)
General & keyboard clerks	8.14	5.15	11.92	6.63	4.18	9.87
	(0.13)	(0.14)	(0.22)	(0.31)	(0.34)	(0.55)
Customer services clerks	4.08	1.70	7.09	4.17	1.96	7.10
	(0.09)	(0.08)	(0.17)	(0.23)	(0.24)	(0.44)
Personal service workers	10.39	10.85	9.82	10.27	10.24	10.31
	(0.14)	(0.20)	(0.20)	(0.35)	(0.49)	(0.51)
Sales workers	3.86	4.24	3.39	5.23	4.82	5.77
	(0.10)	(0.14)	(0.12)	(0.28)	(0.36)	(0.46)
Skilled agricultural workers	0.28	0.33	0.21	0.70	0.87	0.47
	(0.02)	(0.04)	(0.03)	(0.07)	(0.11)	(0.09)
Skilled forestry, fishery & hunting workers	0.02	0.03	0.01	0.16	0.20	0.10
	(0.00)	(0.01)	(0.00)	(0.03)	(0.04)	(0.04)
Building & related trades workers	5.40	9.23	0.56	6.69	11.18	0.73
	(0.11)	(0.19)	(0.05)	(0.31)	(0.52)	(0.13)
Metal, machinery & related trades workers	3.75	6.44	0.34	4.17	6.87	0.58
	(0.09)	(0.16)	(0.05)	(0.25)	(0.43)	(0.12)
Handicraft & printing workers	0.48	0.69	0.23	0.70	0.86	0.50
	(0.04)	(0.06)	(0.03)	(0.10)	(0.13)	(0.15)
Electrical & electronic trades workers	1.47	1.40	1.57	1.62	1.18	2.21
	(0.06)	(0.08)	(0.08)	(0.14)	(0.17)	(0.25)
Stationary plant & machine operators	0.90	1.46	0.19	0.95	1.53	0.19
	(0.04)	(0.07)	(0.03)	(0.09)	(0.15)	(0.06)
Assemblers	2.99	3.48	2.37	2.60	2.99	2.09
	(0.09)	(0.13)	(0.10)	(0.17)	(0.24)	(0.22)

Drivers & mobile plant operators	5.67	9.84	0.40	5.33	8.87	0.64
	(0.11)	(0.19)	(0.04)	(0.26)	(0.45)	(0.14)
Cleaners & helpers	15.06	5.76	26.82	16.97	8.66	27.98
	(0.16)	(0.14)	(0.30)	(0.42)	(0.44)	(0.76)
Agriculture, forestry & fishery workers	6.60	8.81	3.79	5.73	8.02	2.69
	(0.11)	(0.17)	(0.12)	(0.22)	(0.36)	(0.22)
Mining, construction, manufacturing & transport workers	7.01	8.92	4.61	4.91	5.78	3.75
	(0.12)	(0.19)	(0.14)	(0.24)	(0.35)	(0.33)
Total	**100**	**100**	**100**	**100**	**100**	**100**
N	194203	269222	247025	21478	32054	28442

Source: LMD2011 and TUS2010. Data are weighted.