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Gender Occupational Distribution in the Post-Apartheid South African Labour Market

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WITS School of Governance

Report presented in partial fulfilment for the degree of Master of Management (in the field of Public Sector Monitoring and Evaluation) to the Faculty of Commerce, Law, and Management, University of the Witwatersrand

Plagiarism Declaration

I, Khanyisa Jack, declare that this research report entitled *Gender Occupational Distribution in the Post-Apartheid South African Labour Market* is my unaided work. I have acknowledged, attributed, and referenced all ideas sourced elsewhere. I am hereby submitting it in partial fulfilment of the requirements of the degree of Master of Management (public sector monitoring and evaluation) at the University of the Witwatersrand, Johannesburg. I have not submitted this report before for any other degree or examination to any other institution.

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Abstract

This study seeks to assess how women's employment has evolved in post-apartheid South Africa by analysing female occupation concentration in the labour market. Exploring gender patterns is essential in identifying processes in the system which may either be producing or reinforcing segregation in gender occupational distribution within the labour market (Siltanen et al., 1996). This is especially important if one considers the policy efforts and strategies put in place by the government post-1994. Hence, the interest is to look at the trends of occupation distribution over time. In the absence of non-discriminatory policies and continued promotion of gender equality in the labour market, one would expect proportional representation of both genders across all occupations, and similar economic outcomes, with a lesser degree of occupational segregation.

As a result, this study seeks to understand whether there has been a trajectory towards narrowing segregation in the distribution of occupational groups to better assist targeted interventions to promote gender equality and inclusivity in the labour market. The study makes use of the Stats SA October Household Survey (OHS) from 1993 to 1999, and the Labour Force Survey from 2000 to 2020, amongst other document analyses. It further focuses on the distribution of occupational groups to explore the degree of segregation, determine whether the nature of segregation has changed over time or not, and the determinants of the possible observed changes in the labour market.

Overall, the results of the regression analysis show that, to varying degrees, there is a linear relationship between high female and male occupational concentration and other characteristics such as gender, age group, province, industry, and the highest level of education etc. Although both gender and race have proven to have a more prolonged impact on occupational attainment, both the descriptive and regression analysis show that gender remains a key determining factor in labour market outcomes and occupational attainment. This can be understood to mean that while legislation has had some success in addressing barriers to entry for previously disadvantaged groups in terms of race and gender, legislation aimed at addressing various forms of discrimination cannot necessarily address intrinsic societal norms and perceptions around gender roles or the perceived competence of individuals who form part of particular racial groups. Individuals in elementary occupations are more likely to be employed in occupational groups with higher female concentration ratios. Some occupations and industries continue to be gendered in their concentration levels, especially those that a male-dominated, i.e., craft and related trade, plant and machine – the overwhelming majority of males in these occupations may be deterring women and there might be certain barriers to entry that keep women away from these occupations.

Acknowledgements

I would like to take this opportunity to express my sincerest gratitude to all those who have supported me throughout my journey in pursuing my Master's degree.

- First and foremost, I would like to thank God, who has made it all possible. Research is a lonely process, and knowing that God was with me throughout this time gave me the comfort and the strength to see this journey through.
- To Mr Sibusiso Miya, thank you for planting the seed to pursue this degree. There was a time when I thought I would not be able to see this through and you motivated me to continue when it seemed like an impossible task.
- To Qaqamba Silwana, Hlongwane, thank you for always believing in me even when it’s hard for me to believe in myself. Thank you for the sacrifices you have made to see me through this process and for your invaluable and unwavering support until the very end.
- To my family and friends, I would also like to extend my heartfelt appreciation for your constant encouragement, understanding, and patience. Your love and support have been my rock during the challenging times and have kept me motivated to persevere.
- To my supervisor, Dr Odile Mackett, thank you for your guidance, encouragement, and invaluable time. Your patience and expertise have been invaluable in shaping my work and pushing me to achieve this milestone.

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Chapter 1: Introduction and Background to Post-Apartheid South Africa's Labour Market

1.1. Introduction

Unequal gender and race representation has been a key feature of the South African labour market for many years. Unemployment rates and inequitable employment are particularly rampant for the female and African population (Gradín, 2021), illustrating a segmented and fragmented labour market. The inequality observed in the labour market is a legacy of colonialism and apartheid, where discrimination was legalised based on race and gender (Mosomi & Wittenberg, 2020). Occupational barring, which refers to measures put in place throughout the 1960s by the National Party reserved almost all skilled jobs for White workers and facilitated occupational segregation and wage discrimination against marginalised groups such as African, Coloured and Asian/Indian employees (van Klaveren et al., 2009). This has had a spill-over effect on occupational attainment and segregation, together with the poor socio-economic status of the marginalised groups (Gradín, 2021).

The need for the global community to have a balance (Hansen et al., 2022) with regard to gender distribution in occupations has come to dominate the discourse around gender and occupational participation in the workplace, and overall occupational sciences as a discipline. There has been a need for countries to employ transformation imperatives that address gender segregation in the workplace as a global discourse, especially in underdeveloped countries associated with various types of inequalities (Kele & Pietersen, 2015).

To interrogate the nuances of the composition of the South African labour market and the degree of occupational segregation in post-apartheid, this study employs a quantitative research method, making use of both descriptive and inferential statistics derived from the Post Apartheid Labour Market Series (PALMS) dataset (1993-2019). The research evaluates the overall changes that have occurred for women in the labour market after the end of apartheid and examines the correlations between human capital variables and gender occupational segregation among demographic factors such as age, race, and province.

1.2. Background and Rationale of the Study

Often the complexities of the labour market are masked by the nature in which labour market statistics are presented, where the emphasis is placed on the employment and unemployment rates, without due consideration of the demographic profile of those most affected by unemployment. However, an interrogation of the composition and fragmentation in the labour market would assist in highlighting some of the complexities that may otherwise remain hidden (Bekker & Leschke, 2021). Feminist

theories argue that the segmented labour market is a reflection of patriarchy and the perceived subordinate position of females in society (Sabir, 2015). While Reich, Gordon, and Edwards (2016, p. 2) view the segmentation as a product of political and economic forces that "encourage the division of the labour market into separate sub-markets, or segments, distinguished by different labour market characteristics and behavioural rules". Overall, relative to other Organisation for Economic Co-operation and Development (OECD) countries, employment rates for previously disadvantaged groups in South Africa fall below the average of other comparable OECD developing countries such as Brazil, India, and China (Gradín, 2021).

Relative to other countries, the South African labour market has the highest wage income inequality, with the income share of its top 10 percent earning more than 60 percent of the national income, surpassing the United States of America (USA), Brazil and India (Assouad et al., 2018). This can largely be attributed to the legacy of colonialism and the apartheid system, where until the end of apartheid, the White minority had full mobility and ownership rights (Assouad et al., 2018). When we go on to disaggregate the employment rate even further by gender and occupational group, data shows that the gender composition of certain occupational groups is a mirror of what is considered 'traditional' gender roles. For instance, in the 2021 Quarterly Labour Force Survey (QLFS), while males account for the highest proportion of employees in most occupational groups, females make up the vast majority in the clerical (74 percent) and domestic worker (95 percent) occupational groups (Statistics South Africa, 2021b). Race as a factor in South Africa's occupational distribution is also important for understanding wage and income disparities as it provides a contemporary reflection of the country's skewed labour market, which is further exacerbated by gender disparities in the workplace (Mosomi & Wittenberg, 2020). As a result, non-white females experience double the levels of discrimination based on race and gender.

The Employment Equity Act of 1998, which through the institutionalisation of affirmative action sets out measures intended to guarantee that qualified people from designated groups (Black people, women and people with disabilities) have equal access to employment opportunities (Employment Equity Act, 1998), is one of the policies and strategies that the new democratic government has implemented in accordance with the Constitution of South Africa (1996). The National Development Plan (NDP) (2030) similarly seeks to end poverty and reduce inequality, amongst other things, by facilitating increased access to the labour force and enhancing their capacity to migrate where there are open positions. These policies aim to drive the process of integration of previously disadvantaged groups into the labour market, especially females in post-apartheid South Africa (Casale, 2003). The country has also made several policy commitments at a regional and global level aimed at advancing gender equality in the labour market, such as the Beijing Platform of Action (1995), the Southern African Development

Community's (SADC) Protocol on Gender and Development, and the Solemn Declaration on Gender Equality in Africa. If effective, these should have reduced the racial and gender wage gaps and enhanced the targeted groups' access to employment in general and highly skilled occupations in particular.

A previous study conducted by Burger and Jafta (2010) on the impact of affirmative action on labour market outcomes for the period 1997 to 2006 however, revealed that, throughout the years in question, Black men and women had the highest unemployment rate in South Africa relative to other demographic groups, with an average of 36 percent for men and 52.5 percent for women. Therefore, Black women had a higher probability of being unemployed than their male counterparts and all other demographic groups. The study further revealed that, Black and Coloured women were both less likely to be employed in highly skilled occupations in 2006 than they were in 1997 (Burger & Jafta, 2010). Indian men and White women both experienced a significant increase in the possibility of holding highly skilled employment, although this probability increased very slightly for Black, Coloured, and White males as well as for Indian women (Burger & Jafta, 2010).

A more recent report from the Commission for Employment Equity (CEE) (2021), also shows that in 2021, White population group presence (64.7%) in top management level, albeit progressively dropping, continues to dominate at this occupational level. Indians have benefitted the most from the gradual decline, while female representation has stayed below 25% across 2019 to 2021. At the top management level, White and Indian women have a larger representation than their counterparts of Black and Coloured women (CEE, 2021).

Having stated that, the researcher conducted this study to comprehend the current state of occupational gender distribution and to offer recommendations on how the South African labour market's trajectory with regard to occupational gender distribution might be changed. The exact problem that the research project seeks to solve is described in the problem statement below.

1.3. Problem Statement

The overall population distribution of the working-age population in South Africa (15 – 64 years) illustrates that females make up the majority of the working-age population (Statistics South Africa, 2021b). However, the unemployment rate amongst females is 34 percent compared to the 31 percent male unemployment rate (Statistics South Africa, 2021b). Previous studies on female labour force participation in South Africa (Espi et al., 2019; Gradín, 2021; Ntuli, 2009; Ntuli & Wittenberg, 2013a; Posel & Casale, 2019b) indicate that female-dominated professions are often elementary occupations

with low-skill requirements. A direct result is that females are compensated significantly lower than their male counterparts; may have fewer promotional opportunities for upward mobility to higher occupational groups; and may have limited access to social security benefits owing to the elementary nature of the jobs they occupy. This is especially concerning given that 54 percent of households headed by females rely on salaries, wages, commission as their main source of income (Statistics South Africa, 2020). Overall, as the majority of households depend on earnings as their source of income, women having access to low-wage employment opportunities has a direct implication on the reduction of poverty and the nation's economic growth.

While there has been a gradual increase in the female labour market participation rate in South Africa (Statistics South Africa, 2021b), research shows (D. M. Casale, 2003; Espi et al., 2019; Gradín, 2021; Shepherd, 2008a; Statistics South Africa, 2021b) that gender occupational segregation still exists, where females disproportionately occupy lower to middle occupational groups, such as elementary, low-paying occupations and clerical support occupations. According to the occupational justice perspective, this disadvantage is a result of multiple socio-economic injustices. Injustice in the labour market occurs when social, economic, environmental, geographic, historical, cultural, or political factors unrelated to the individual—in this example, women—prevent people from engaging in specific vocations (Townsend & Wilcock, 2004). Therefore, despite the increased labour force participation rate since 1994, certain factors may be reinforcing the disproportionate representation of women in certain parts of the labour force market.

Significant research has been done internationally on gender occupation segregation and labour market participation in South Africa (Becker, 1985; Bekker & Leschke, 2021; Budlender, 2011; ILO, 2018; Keane et al., 2017; Pillay, 1985; Sabir, 2015; Siltanen et al., 1996). However, several studies (Casale, 2003; Mosomi & Wittenberg, 2020; Ntuli, 2009; Ntuli & Wittenberg, 2013a; van Klaveren et al., 2009) on occupational segregation in the country tend to focus more on gender occupation distribution and its effects on wage inequality between the two genders. In addition, the studies cover shorter periods of analysis to observe the gender distribution trends in post-apartheid South Africa. For instance, the study conducted by Gradín (2021) looks at occupational segregation between 1996 to 2007; Ntuli and Wittenberg (2013) look at trends between 1995 to 2004; and Mosomi and Wittenberg (2020) look at overall labour market trends between 2000 and 2017.

The overall objective of this study, on the other hand, is to examine occupational distribution in South Africa over a longer time period from 1994 to 2019 in order to comprehensively observe post-apartheid more thoroughly and to evaluate the extent to which factors such as race, gender and age influence

labour market outcomes, particularly in relation to occupational segregation. This will be evaluated using secondary data from the PALMS dataset, a cross-sectional stacked dataset made up of microdata from 69 household surveys carried out by Statistics South Africa between 1994 and 2019. By examining occupational distribution over a significant amount of time, the study is able to pinpoint potential variances over the years and the degree of transformation, which can be used to identify trends in the distribution of occupations, particularly for women. The results of the quantitative analysis will help contextualise the South African labour market so that we may identify the drivers of transformation and the factors that may be repeating inequality so as to improve overall access in the labour market. The study findings may also be used by national strategies and policies addressing employment equity to inform transformation goals that speak to ensuring greater representation across the occupational structure and properly prioritise designated groups and interventions that promote upward mobility in the workplace. The purpose of the study and the pertinent research questions are described in full in the next section.

1.3.1. Research purpose and questions

This study seeks to assess how women's employment has evolved in post-apartheid South Africa by analysing female occupation concentration in the labour market. The labour force participation rate in South Africa has increased significantly, from 48 percent in 1994 to 56 percent in 2019 (World Bank, 2021). However, a closer look at the labour force participation rate by gender presents a different picture. Exploring gender patterns is essential in identifying processes in the system which may either be producing or reinforcing segregation in gender occupational distribution within the labour market (Siltanen et al., 1996). As a result, this study seeks to understand whether there has been a trajectory towards narrowing segregation in the distribution of occupational groups to better assist targeted interventions to promote gender equality and inclusivity in the labour market. This is especially important if one considers the policy efforts and strategies put in place by the government post-1994. If successful, these should have improved the targeted groups' access to employment and skilled vocations, and ultimately balanced the percentage of women in lower-paying jobs compared to men. In the absence of non-discriminatory legislation and ongoing promotion of gender equality in the labour market, one would anticipate proportional participation of both genders across all occupations and equivalent economic outcomes, with a smaller degree of occupational segregation.

Based on research that has been done in the past, the results of which are extensively described in the literature review, his study hypothesises that gender disparities continue to have an impact on occupational distribution in the post-apartheid South African labour market. This study contends that the factors influencing labour market results for men and women are

different. Furthermore, the degree of occupational concentration is impacted by demographic factors like age, gender, race, geography, and educational attainment. It is possible that differences in the factors determining occupational concentration between men and women are likely to be less pronounced among the youth cohort, when compared to the non-youth cohort, given the recently enacted legislation and policies promoting employment equity in the post-apartheid period.

In light of this, the study uses, among other document analyses, the PALMS dataset from the Stats SA October Household Survey (OHS) from 1993 to 1999, and the Labour Force Survey from 2000 to 2020. Descriptive statistics are used to explore the degree of concentration and determine whether the nature of concentration has changed over time. It further uses inferential statistics in the form of an ordinary least squares regression (OLS) model to evaluate the determinants of the potential observed changes in the labour market. The segmented labour market theory and the occupational justice framework serve as the theoretical foundations for this study methodology.

To achieve the purpose of this research, the study pursued the following questions:

a) How has the gendered occupation distribution changed over time over the past-apartheid period?
b) To what degree is high female occupational concentration prevalent in low-ranked occupation groups?
c) What are the determinants of being employed in an occupation group with a high female concentration versus being employed in an occupation group with a high male concentration?
d) Does the degree to which men and women are distributed into highly concentrated occupation groups differ between the youth and non-youth cohorts?

1.4. Organisation of dissertation

This report consists of six chapters and is organised as follows: The first chapter of the report "Introduction and Background to South Africa's Labour Market" provides an overview and contextualises the research for a detailed justification of the topic and its significance. This chapter also makes provision for the overall structure of the report. The second chapter is the Literature Review which provides an overview of the theoretical and empirical literature, using the perceived global understanding of occupational segregation as a starting point, the conceptualisation covers all dimensions of the study based on the key research questions. Chapter Three: Research Methodology outlines the research methodology as well as the procedures employed in the analysis of the data

provided. A quantitative approach was adopted which led to a single-method research design for data collection and analysis. Existing periodic labour market data from Stats SA were analysed to meet the objectives of the study. The procedure of how data was mined and analysed is also highlighted in this chapter. The analyses are divided into two chapters, namely Chapter Four: Descriptive Analysis Results as well as Chapter Five: Inferential Statistics. In the descriptive analysis chapter, the research results obtained from the descriptive analysis of the labour market survey data are tabulated and discussed, while the inferential statistics chapter presents the regression analysis as well as the discussion of the findings. In the last chapter "Discussion of Results and Conclusion", the study conclusions are presented in accordance with the overall aim and objectives of the research. The recommendations are also provided based on the key findings.

Chapter 2: Literature Review

2.1. Introduction

Taking on the challenge of transforming the labour market is a formidable task amidst several conflicting priorities, while simultaneously seeking to promote economic development. Adding to this, are contemporary global challenges and uncertainties brought about by things such as slow economic growth, social and political instability, and most recently, the impact of the COVID-19 pandemic, which have the potential to exacerbate adverse conditions for an already vulnerable state (World Bank, 2022b). The economic and political state of a country has a significant impact on labour market outcomes (International Labour Organisation, 2020). Any political and social unrest or changes in the economy have direct implications on the ability of people to access employment opportunities (International Labour Organisation, 2020). As a result, the South African government is not only tasked with promoting an enabling environment for labour force participation but further has to ensure that previously disadvantaged groups have access to those opportunities fairly and equitably.

Following the democratisation of South Africa in 1994, several progressive legislations, including the Labour Relations Act of 1995, the Employment Equity Act of 1998 and the Basic Conditions of Employment Act of 1997, have been enacted to achieve social justice and equality in the South African labour market. The democratisation of the country was perceived as the death of all forms of inequality and the birth of a new and prosperous country, full of equal opportunities for all, particularly those that have been previously discriminated against during apartheid (Madumo, 2015). This chapter draws from existing literature with three main broad objectives, namely, to contextualise and understand the research problem, develop a theoretical framework for interpreting the research findings, and review past research methods to support the research approach.

2.2. Contextualising the South African Labour Market

Throughout the nineteenth and twentieth centuries, discriminatory policies and social injustice shaped the extent to which non-whites participated in the labour market (Mariotti, 2012). This resulted in the dispossession of economic and labour rights for three of the largest proportion of the total population, namely Africans, Coloureds and Indians (collectively referred to as ‘Black’ in this document). While colonialism and apartheid were primarily premised on racial segregation and discrimination they also had an adverse impact on economic participation for affected groups, and this was experienced more profoundly by Black women (United Nations Centre Against Apartheid, 1978). Black women faced a system of double discrimination where they were firstly discriminated against for being Black and additionally for being women (United Nations Centre Against Apartheid, 1978). This resulted in Black women having an even lesser percentage contribution to the South African labour force than men (United Nations Centre Against Apartheid, 1978).

While the majority of African men were employed as migrant workers in mines, women had inferior employment opportunities, such as domestic work and working in the fields, and often had lower levels of education (Burger & Jafta, 2010). This imbalance resulted in African women primarily occupying inferior jobs (Burger & Jafta, 2010), which continues to feature in the composition of the current South African labour market. Nearly three decades post-democratisation, women are still more likely to be employed in elementary and semi-skilled occupational categories, while men tend to occupy managerial and professional occupational categories (Espi et al., 2019; Gradín, 2021; Ntuli, 2009; Ntuli & Wittenberg, 2013; Posel & Casale, 2019).

In addition to gender occupational segregation, a study by Gradin (2021) entitled *Occupational Gender Segregation in Post-Apartheid South Africa* revealed that occupations in South Africa are also still segregated and stratified by race. While some African and Coloured women occupy low-paying occupations, others (i.e., White and Indian/Asian, and some Coloured) tend to occupy higher-paying professional positions (Gradín, 2021). These findings are also supported by authors like Tucker and Vogtman (2020), and McGrew (2018).

Despite the adoption of transformative measures by the government to alleviate this challenge, it is evident that the results of this process remain stagnant. The system of racial hierarchy in employment has had a spill-over effect on occupational attainment and segregation, together with the poor socio-economic status of the marginalised groups post-1994 (Gradín, 2021). Women are still under-represented in top management positions and over-represented in low-skilled and insecure employment (Posel & Casale, 2019a, p. 7). Quarter 1 of the 2021 Quarterly Labour Force Survey further reveals that female employees accounted for 44 percent of total employment, while males accounted for the remaining 56 percent. Of the persons employed in the highest occupational groups, Managers, 31 percent were females while the remaining 69 percent was occupied by males. In contrast, the lowest occupational group, domestic workers, is comprised of 96 percent females and the remaining 4 percent, male employees.

In a country with a history of institutionalised discrimination, race and gender inequality have played a significant role in shaping the trajectory and composition of the labour market. The representation of both sexes in employment is of great significance; and a true reflection that representativity is the extent to which women participate in the labour market (Statistics South Africa, 2017). In order to help policymakers understand the dynamics of the labour market and create interventions to address gender inequalities, more critical study of the efficacy of transformation initiatives in addressing gender and racial inequality would be beneficial.

2.3. Defining Occupational Segregation

Occupational segregation is considered an overall term for explaining data patterns in the distribution of labour in the workplace (Siltanen et al., 1996). Occupational segregation is an important determinant of employment outcomes, and in its absence, there would be no disparities in the distribution of employment (Siltanen et al., 1996). Several authors (Agenjo-CAlderón & Gálvez-Muñoz, 2019; Kraak, 1995; Reich et al., 1973; Ruiz-VillAVerde, 2019; Schneider, 2003; Thompson, 2010) attribute this segmentation in employment as a product of capitalist labour markets, while other early authors (Becker, 1985; Bussey & Bandura, 1999; Jacobsen, 2020) attribute it to socialisation and a reflection of stereotypical traditional gender roles.

In an attempt to trace the origins of such stereotypes that influence the direction women and men embark on in the search for suitable occupations, one has to deliberate on cultural expectations, cultural attitudes towards women and employment, as well as family structures and social values (Gedikli, 2020). The latter has traditionally located women at home and promoted men as breadwinners (Gedikli, 2020). If women had to find employment with this social perception in mind, they often embark on types of employment associated with low earnings, usually in care or service sectors (Gedikli, 2020; Jacobsen, 2020). When they are married or having children, the family and society expect them to acquire clerical and domestic type of employment after motherhood (Gradín, 2019, 2021; Jacobsen, 2020; Padayachie, 2015).

Feminist economics further argue that market societies have assigned an altruistic role to women, wherein the expectation for a woman is to maintain social structures through social reproduction and carrying out unpaid domestic labour for the greater good of their family and the community at large (Agenjo-CAlderón & Gálvez-Muñoz, 2019). Such cultural expectations, beliefs and attitudes towards women and employment translate into a segregated workforce with women located at the bottom of the occupational hierarchy, while men dominate the production and managerial occupations as explained before. Cultural expectations based on cultural beliefs tend to lead to preferences for certain occupations (e.g. the tendency for women to choose flexible or family orientated or family-friendly occupations). Cultural beliefs tend to associate competence and a sense of belonging in certain types of work, with masculinity which downwardly bias women's aspirations, and differences in aspirations are most likely to direct men and women towards different occupational subspecialties (Campero, 2021). Therefore, traditionalism towards the division of labour and the typical male breadwinner norm, and overall occupational stereotypes remain in effect in this modern times, and this calls for social progress towards more democratic attitudes towards women and work (Froehlich et al., 2020; Gedikli, 2020).

Cascading the above narrative closer to home, traditional families and societies in Africa, sub-Saharan Africa, including South Africa would provide a boy child access to education and suggest certain educational choices that lead to male-dominated occupations, while a girl child is culturally expected to stay at home, or access limited schooling, or in more fortunate situations choose career paths that lead to gender-stereotyped occupations or occupations traditionally reserved for women, and that is if she is not in marriage (Mokoena & Jegede, 2017). This results in what Jacobsen (2020) refers to as "gendered investment" wherein households invest more in the education and skills of male children and focus more on investing in non-production skills and housework for women, which constrains the types of jobs women aspire to and eventually occupy in the labour market (Jacobsen, 2020). For instance, Becker (1985) argued that women tend to take on less demanding employment opportunities that would not disrupt their caregiver responsibilities at home, while Reich et al. (1973) attribute the segregation to "the transition from competitive to monopoly capitalism…the creation and exploitation of monopolistic control rather than the allocational calculus of short-run profit-maximisation" (Reich et al., 1973, p. 4).

With that said, a distinction is typically made between two dimensions of segregation, namely *vertical segregation,* and *horizontal segregation. Vertical segregation* describes a phenomenon where males and females are clustered in different occupational groups according to a hierarchical divide, wherein one gender is likely to dominate higher occupational levels compared to the other (Hustad et al., 2020). H*orizontal segregation,* on the other hand, refers to the probability of individuals occupying specific occupational groups i.e., the extent to which individuals are likely to be concentrated in particular occupations, based on features and attributes such as gender and race (Hustad et al., 2020).

The type of industry or sector also plays a role in *horizontal segregation*. For instance, construction and transportation are typically known to be concentrated by men, while sectors such as health, education and other social and personal service sectors are female-concentrated industries. In some instances, a country's level of development further influences sectoral employment by gender. For instance, agriculture is female-concentrated in low and lower-middle-income countries, such as South Africa, Azerbaijan, Rwanda, Philippines, and India, while in countries with higher income levels tend to be male-concentrated (Das & Kotikula, 2019; ILO, 2018). Overall, *horizontal segregation* is generally pictured as the extent to which women and men are concentrated across industries and occupations (Das & Kotikula, 2019).

For the purposes of this study, the degree of concentration is determined by examining the proportion of females (or males) in a specific occupational category or industry; this measurement is not thought to be gender-symmetrical. In their article *Gender Inequality in the Labour Market: Occupational Concentration and Segregation. A Manual on Methodology*, Siltanen et al. (1996) presented this methodology, outlining the methods for computing concentration measures using labour market data. This is often done to ascertain the extent to which occupations are dominated according to gender, and further identify which occupations are women more likely to occupy or which occupation exclusively employs one gender (Siltanen et al., 1996). Having stated that, concentration measurements are often repeated cross-sectional studies (Siltanen et al., 1996), and changes in patterns should consider any potential reinforcers of the over-representation of one gender over the other in the labour market.

2.4. Theoretical Framework

Occupational gender segregation has been at the centre of the gender inequalities debate. High levels of segregation also have an impact on women's upward mobility in the workplace and the inconsistency of wages between men and women (Adeleken & Bussin, 2022; Strawinski et al., 2018). While several theories exist to explore the phenomenon of occupational segregation in the labour market, based on the objective of this study as well as the dataset at hand, this study draws on the Segmented Labour Market Theory (Becker, 1985; Casale, 2003; Gradín, 2021; Ntuli & Wittenberg, 2013a; Posel & Casale, 2019a), as well as the Occupational Justice Framework. The Occupational Justice Framework and the Segmented Labour Market Theory both acknowledge structural elements as facilitators or impediments to labour market participation as they investigate the interplay between structural and contextual factors as determinants of labour market outcomes. Therefore, we will be able to apply both theories to understand the data as we investigate the numerous demographic and economic variables connected to the study sample.

The paper also briefly discusses heterodox theories of economic development that challenge normative economic theories including, feminist economics, crowding theories, and the theory of fragmented markets.

2.4.1. Segmented Labour Market Theory

Traditional segmentation theories arose in the 1970s as a break away from orthodox neoclassical economic theory (Berndt, 2017; D. (Ed. . Grimshaw et al., 2017; Kraak, 1995; Reich et al., 1973; Ruiz-VillAVerde, 2019). They rejected the assumption that differences in the labour market are mainly attributed to workers' economic value and level of productivity alone, and place greater emphasis on employers as the architects of the employment system, thus shaping the divisions, inequality and dualism of employment outcomes (D. Grimshaw et al., 2017). This is consistent with the feminist

economic view which asserts that neoclassical economic theory is often premised on a narrow understanding of workers based on universal and indisputable assumptions about the individuals that make up the labour force (Agenjo-CAlderón & Gálvez-Muñoz, 2019). This often translates into a "one size fits all" blanket approach, when in fact, there are various other social factors, including gender (Agenjo-CAlderón & Gálvez-Muñoz, 2019) which influence the economy, as well as employment outcomes.

Neoclassical theorists "assume employers automatically adjust to supply-side in education and skill so that they utilise all potential productivity in the labour market, albeit constrained by institutional 'imperfections'…in the labour market" (D. Grimshaw et al., 2017, p. 3). A distinctive element of the neoclassical paradigm refers to "methodological individualism" (Ruiz-VillAVerde, 2019). The basic unit of modelling is the individual. This form of analysis always starts with the individual's behaviour. As a result, all social institutions and collective phenomena are treated as hypothetical abstractions, necessarily derived from the decisions of individuals.

The social relations that underlie the organisation of production and the latent conflicts between social classes are not studied (Agenjo-CAlderón & Gálvez-Muñoz, 2019; Jacobsen, 2020; Ruiz-VillAVerde, 2019). The assumption is therefore that employers will adapt their employment requirements and practices based on the nature of resources and supply of skillset in the labour market. However, in practice, employers, through various filtering mechanisms and selection processes, set the employment norms and practices, which may sometimes be structurally exclusive by shaping access to jobs. (D. Grimshaw et al., 2017; Kraak, 1995). This then results in a segmented labour market.

Segmented labour market theory views on as a functional feature of maintaining capitalist hegemony (Reich et al., 1973). In its analysis of divisions, The theory looks at how the employment system, together with wider economic conditions shape inequality and dualism in the labour through various processes of segmentation (D. Grimshaw et al., 2017) such as segmentation according to primary and secondary labour market segments; segmentation by race; and segmentation by gender (Reich et al., 1973). For instance, based on the history of the South African labour market discussed earlier, one may assume that the trajectory of the segmented labour market during apartheid is solely attributed to the political agenda of the government at the time. However, several factors underly the separation of markets and differentiation in occupational attainment and economic conditions often shape these inequalities (D. Grimshaw et al., 2017). Bekker and Leschke (2021) on the other hand, attribute the differences in labour market outcomes to labour market fragmentation, which is "an accumulation of insecurities in the labour market" (Bekker & Leschke, 2021, p. 5). This insecurity not only speaks to an

individual's ability to secure employment in the labour market but further points to the spill-over effects the type of employment secured may have outside of employment (Bekker & Leschke, 2021).

While there hasn't been a unanimous consensus on the determinants of segmentation in the labour market (Kraak, 1995), there are four main arguments for labour market segmentation explanations that can be identified in the literature. Firstly, the segmentation of labour markets is a reflection of the evolutionary stages of capitalism (Bowles & Edwards, 1985; Edwards, 1979; Gordon et al., 1982; Kraak, 1995; Reich et al., 1973). For instance, when capitalism emerged in the early stages of the industrial revolution in the nineteenth century (Sachs, 1999), labour control methods were quite repressive under the authoritarian management style of shop floor supervisors (Kraak, 1995). This to some extent was reflective of the European imperial system at the time, since (i) capitalism in itself emerged in some parts of the world as coercive, whether through military pressure or colonial rule (Sachs, 1999), and (ii) in line with Marxist views, the very foundation of capitalism was based on a class system, where those with the means of production were able to exert power over poor workers, whose only resource was labour itself to earn a living (Kraak, 1995).

Secondly, the concept of labour market segmentation is an expression of dual labour markets. Dual market theory differentiates between two broad sectors present in the labour market i.e., the primary/core sector and the secondary/peripheral sector (Snyder et al., 1978). The primary sector is characterised by a high degree of concentration of economic activity and power (Kraak, 1995), where employment opportunities tend to offer higher wages, security and good working conditions, as well as employment stability (Snyder et al., 1978), while the secondary sector offers the opposite and operate in the shadow of the primary (Kraak, 1995). In the context of South Africa, this dualism, as well as discrimination in wage rates, conditions of employment, labour policy and access to education and training formed the basis of the apartheid government's dual labour market policy. Central to this is what Kraak (1995) refers to as 'racially-segmented labour markets' and their inter-relationship with other key social institutions that enabled White workers to occupy more privileged primary market jobs, while Black workers were restricted to the secondary labour market, characterised by discriminatory policy and practices (O'Malley, n.d.).

Shepherd (2008b) distinguishes between two types of discrimination which serve as barriers in labour market relations, namely, "pure" wage discrimination and statistical discrimination. Wage discrimination also referred to as "preference", occurs when individuals/employers would rather incur the cost of employing someone else than be associated with a member of a particular group in society (Shepherd, 2008b). As a result, race or gender, in this case, outweigh the cost of employers being

associated with an individual discriminated against (Shepherd, 2008b). Whereas statistical discrimination, on the other hand, occurs when the discriminated individual/group is remunerated less than others due to the perception that they are less productive than others; for instance, when women are paid less than men, or Black people are paid less than other racial groups when they occupy the same position (Shepherd, 2008b). Snyder et al. (1978) also observed statistical discrimination in the type of employment different groups assume, whereby, employing organisations associate certain attributes such as gender and race with unstable work behaviour (Snyder et al., 1978).

The third explanation is that segmentation is often caused by competing and often conflicting strategies pursued by the state, the economy and labour (Kraak, 1995). The mandate of the South African government post-1994 has been to pursue transformative policies for redress, while the economy on the other hand is driven by capitalism, which operates under the assumption that a free market with minimum state intervention guarantees positive labour market outcomes (Agenjo-CAlderón & Gálvez-Muñoz, 2019). The fact that both institutions operate in a dynamic global context with ever-changing political and economic conditions and priorities further deepens the incompatibility in strategies with often detrimental impacts on the labour force (Kraak, 1995). One way to bridge this gap is to understand that transformation measures and economic goals are not mutually exclusive, rather, economics should be concerned with efficiency and equity as much as government is (Agenjo-CAlderón & Gálvez-Muñoz, 2019).

Lastly, an additional key labour market segment which has also been maintained by employers is sexual segmentation, wherein occupations are "sex labelled" and gender supersedes the job requirements and workers' attributes (Snyder et al., 1978). Rather than employing candidates based on merit and skill set, sexual segregation is maintained by making gender a key determinant for employing individuals in certain occupations deemed as statistically and socially "female work" or "male work" (Snyder et al., 1978). This then creates barriers for women trying to enter the labour market and further conflicts with the pursuit of government strategies to deal with discrimination in the workplace. As a result, this creates a feedback effect in two ways, wherein (i) occupations that already concentrated with women increase in concentration, and the same for men (Snyder et al., 1978), and (ii) women are less inclined to invest and attain skills and experience in sectors and occupations they may feel discriminated against (Jacobsen, 2020). Feminist economics further argues that women pursuing non-traditional jobs further bear the brunt of feeling like they are violating gender norms, which may have additional psychological or material side effects on the individual (Jacobsen, 2020).

2.4.2. Occupational Justice Framework

The occupational justice framework was established in the late 1990s to assist occupational therapists to deal with (i.e. in a form of action) injustices of obtaining an occupation (Benjamin-Thomas & Rudman, 2018). It recognises that some individuals are socially included (e.g., men), while others are socially excluded (e.g. women), and unable to engage in their choice of occupational participation. Hence, it identifies social inclusion as the outcome of the processes identified within it (Nhunzvi et al., 2019). Similar to the Labour Market Segmentation theory, the theory recognises structural factors as enablers or barriers to labour market participation, as it explores the relationship between structural and contextual factors as determinants of occupational justice outcomes (Chichaya et al., 2018).

The key difference between the occupational justice theory and other models is its belief in the non-linearity of labour markets (Whiteford et al., 2018). This is based on the principle that systems are inherently non-linear, and they do not follow the linearity theorem. For instance, change in labour force participation as an output indicator is not proportional to the change in the legislative framework as an input indicator. As seen in the South African context outlined in the preceding section, change in the legislation governing opportunities for women since 1994 to access employment opportunities does not always equate to change in occupational gender distribution, or equal representation of women with men in male-dominated occupations, and across all occupational categories (Padayachie, 2015; Roberts & Schöer, 2021). Additionally, the occupational justice theoretical framework indicates that policies underline occupational determinants because occupations are contextual. Therefore, policies form part of the structural factors that shape the context in which occupational justice or injustices are formed (Chichaya et al., 2018).

The occupational justice theory applies to populations for which potential occupational discrimination has been largely recorded (e.g. previously disadvantaged groups such as Black women). Furthermore, it reinforces the argument that structural elements such as gender shape occupational opportunities which create daily injustices negotiated through occupations (Benjamin-Thomas & Rudman, 2018; Whiteford et al., 2018). This is consistent with the feminist economics view that gender should not just be seen as just another variable when assessing the composition of the labour market and employment, but rather a lens through

which to observe the labour market dynamics which are typically heteropatriarchal in nature (Ruiz-VillAVerde, 2019) and often has causal relations when making predictions on occupational outcomes (Agenjo-CAlderón & Gálvez-Muñoz, 2019).

With that said, "sex labelling" can also be seen as a segregation variant in itself. Rather than objectively looking at individuals' skills and experience independent of gender, the classification of individuals into gender groups determines the fit between job requites and employer attitudes. As a result, the classification of individuals into gender groups defines occupational labour market boundaries (Oppenheimer, 1970). While the "sex labelling" perspective does not necessarily argue for a complete disregard of gender classification, it does, however, emphasize the "tipping effect" model, wherein occupations that are already heavily concentrated with females are most likely to increase their concentration levels of women. In this regard, "the experience of employers over time will be to use observable characteristics, in this case, gender, as a substitute for the unobservable characteristics which cause differences in productivity" (Shepherd, 2008b, p. 4). For instance, traditionally how the labour market has evolved is that women occupy elementary positions such as domestic work, as a result, an employer can then conclude that a woman is better suited to be a domestic worker than a technician. Overall, employment segregation reinforces the norms and gender roles and employer expectations of men and women in the labour market (Das & Kotikula, 2019). This in turn informs the extent to which employing organisations are willing to invest in the upward mobility of previously disadvantaged groups, such as Black females, resulting in the proliferation of employment segregation.

As illustrated in the overview of the segmented labour market theory, typically, labour market analysis is largely dominated by mainstream neoclassical synthesis and economic theory, being largely Keynesian in macroeconomics and neoclassical in microeconomics. Therefore, considering that the occupational justice framework was established in the late 1990s, it has been observed that the occupational justice theory has some limitations (Benjamin-Thomas & Rudman, 2018). It can be argued that the theory has not been thoroughly tested to prove its entire capabilities. As such, others may doubt the theory's applicability and legitimacy in explaining the findings of this study since it is relatively new compared to other economic theories that are utilised to analyse labour market dynamics. Despite the theory's strengths, it is essential to probe whether it has adequate universal relevance, utility and inclusivity across

the socio-cultural settings in which occupational science is studied and practised (Simaan, 2021). With that said, feminist economics also encourages the use of multiple methods and interdisciplinary approaches in the study of economic problems, to better understand how various constituencies are affected by the economic policy (Jacobsen, 2020).

What is known from the narrative above is that the occupational justice framework guides reflections, learning and actions for social and occupational change, and this is achieved by focusing on the dynamic interrelationships between individuals and their world (i.e. structural and contextual factors) as determinants of occupational justice outcomes (Chichaya et al., 2018). However, for the occupational justice framework to influence policy, the focus on the individuals' experiences of occupational injustices must be seen as transacting with relevant systems and policies that contribute to participation inequities in groups and populations (Gupta, 2016).

2.5. Equal Opportunity and Equal Treatment in the South African Labour Market Post-1994

2.5.1. A local perspective on Equal Access and Opportunity

According to a report by the Parliament of the Republic of South Africa (2017) entitled *Towards Women's Economic Empowerment: An overview of Challenges, Achievements, Legislative Mechanisms and Programmes*, transforming the labour market requires the government to eliminate any barriers and discriminatory laws that may hinder access to equal opportunities and outcomes for previously disadvantaged groups. In the mid-1990s, two processes occurred that set the groundwork for ending discrimination and exclusion in the labour market, namely, the outcomes of the Labour Market Commission, and the Green Paper on Employment, which laid the building blocks for the Employment Equity Act No. 55 of 1998 (EEA) (Burger & Jafta, 2010).

Over and above the promotion of equal access, the EEA recognises the need for a targeted approach to redress the disparities created by discriminatory laws and practices during apartheid (Employment Equity Act, 1998). The impact of these laws was that suitably qualified people from marginalized groups did not enjoy equal access to employment opportunities. Therefore, the government seeks to address this challenge through affirmative action. Section 15(1) of Chapter III of the Act states that "affirmative action measures are measures designed to ensure suitably qualified people from designated groups have equal employment opportunities and are equitably represented in all occupational categories and levels

in the workforce of a designated employer" (*Employment Equity Act*, 1998, p. 19). As a result, measures need to be put in place to ensure improved representation of previously economically excluded groups in all occupational categories based on suitability, without gender and race acting as qualifiers (or disqualifiers). Furthermore, it is also necessary to interrogate the extent to which existing measures have been successful in attaining the desired employment outcomes envisioned by the Act.

Gender equality in the labour market extends beyond equal opportunities and treatment (Laci et al., 2017). Well-designed labour market systems and strategies have knock-on effects on the welfare of society and the economy at large (ILO, 2022). Since labour market income remains the main source of income for poverty alleviation in a capitalist economy, its reform is essential in addressing inequality and raising the standard of living in South Africa. Equal access to employment opportunities offers labour mobility, which mainly has three dimensions, "mobility within the labour market (i.e. across labour market segments); spatial mobility (i.e. domestic and international migration); and mobility within a given employment activity (upward and downward mobility in earnings and working conditions)" (Heintz, 2006, p. 10). Though the EEA does not explicitly cover the three factors of labour mobility identified by Heintz, it does however, through the employment equity plan make provision for any other measures that are consistent with the purpose of the Act. The effectiveness of these objectives should then translate into the attainment of labour mobility discussed above.

Labour is often the only means by which low-income households can leverage to mobilise resources in a capitalist economy with a history of commodified workers (Heintz, 2006). However, household members often have diverse and conflicting preferences on household income expenditure (Gummerson & Schneider, 2013). For instance, 90 percent of women's earnings are used on household expenditures such as health and education (Parliament of the Republic of South Africa, 2017). As a result, policies that encourage better access to social and economic opportunities contribute significantly towards poverty reduction and the overall social welfare of communities(Parliament of the Republic of South Africa, 2017).

Notwithstanding the tenacious unemployment and equity challenges aggravating the South African labour market, which will be discussed in greater detail in the following section, the country has made significant strides towards the implementation of the principles of the EEA since its enactment in 1998. For instance, while females still account for a significantly lower labour force participation rate compared to males, by 2022, female labour force participation increased from 40 percent in 1994 to 53 percent, whereas the male rate increased from 60 percent in 1994 to 64 percent in 2022 (Casale et al., 2021; Statistics South Africa, 2022). In addition, while males account for the larger proportion of the labour force over the years, the female labour force participation rate is increasing considerably

compared to their male counterparts (Casale et al., 2021). A similar trend can be observed with the employment rate, where the female employment rate increased from 30 percent in 1994 to 34 percent in 2022, while male employment rates throughout the same period have remained relatively unchanged (Casale et al., 2021; Statistics South Africa, 2022).

The increase is largely attributed to the feminisation of the labour force globally (Heintz, 2006). In the case of South Africa, several factors signal the 'feminisation' of the labour force, including the implementation of non-discriminatory legislation such as the Basic Conditions of Employment Act No. 75 of 1997; the Labour Relations Act No. 66 of 1996; as well as the EEA mentioned earlier. In addition, increased access to education and training, and the reduced number of married couples (Gradín, 2021). According to the Department of Women, Youth and Persons with Disabilities (2015), economically active females tend to have higher levels of education relative to males. In 2015, approximately 7.1 percent of economically active females had degrees, and 12 percent had diplomas and certificates, compared to 5.8 percent and 9.8 percent of males (Department of Women Youth and Persons with Disabilities, 2015). More recently, female representation made up the majority of post-school education and training student enrolments and completions in 2020 (Khuluvhe & Netshifhefhe, 2022).

2.5.2. Challenges in the implementation of the Employment Equity Act

Despite the enactment of various labour market policies, barriers to access and opportunities continue to plague the labour market and effectively perpetuated apartheid economic relations (Kraak, 1995). Research on South African labour relations (Booysen, 2007; Burger & Jafta, 2010; Duval et al., 2021; Horwitz et al., 2005; Matotoka & Odeku, 2021; Selby & Sutherland, 2006; Thomas, 2002) illustrate that the EEA and related measures such as the affirmative action is not sufficient to address discrimination in the labour market. This further points to the occupational justice theory that labour markets are non-linear, the adoption of legislation alone cannot equate to changes in employment outcomes. Buy-in and the involvement of employing organisations are integral parts of addressing discrimination in the workplace.

The Commission for Employment Equity (CEE) has reported that the private sector is still reluctant and disinclined to redress the historical imbalances of the past through the effective implementation and monitoring of Affirmative Action in the workplace. In the 2016/17 Annual Report, the Commission reported that while the public sector employs mostly Africans in top management positions (73.2 percent), the private sector was highly concentrated with White people (72 percent) (Commission for Employment Equity, 2017). In the 2020/21 CEE Annual Report in 2018, Whites made up 66.5 percent of top management, 65.6 percent in 2019 and 64.4 percent in 2020; whereas Blacks made up just over

15 percent across the different years (CEE, 2021). In addition, even though White males made up only 5 percent of the economically active population, relative to the 35.6 percent of African females, White males accounted for just over 50 percent of top management from 2018 to 2020, while African females were represented just over 5 percent (CEE, 2021). With that said, if initiatives implemented through the EEA, such as Affirmative Action, were successful up to this point, there would be a better representation of designated groups in higher occupational levels with better bargaining power for wages and job security (Burger & Jafta, 2010). However, divisions in occupational attainment, which refer to the process by which people join the labour force and gain positions in the occupational hierarchy (Ueno & Krause, 2020), remain deeply entrenched in the workplace.

It is against this background that organisational transformation is key to addressing divisions in employment outcomes (Booysen, 2007). The implementation of strategies to address occupational segregation needs to be supported with systematic and coherent employment practices focusing on inclusive labour market practices for equitable human capital development across all demographic groups. This can be done by strengthening coordination amongst social partners and promoting firm heterogeneity through collective bargaining and employment protection legislation (Duval et al., 2021). It further involves the constant monitoring and implementation of affirmative action measures in the private sector, as 80 percent of employing organisations indicated there are no structural barriers associated with attracting and employing targeted designation groups (CEE, 2021).

Currently, there are two federal agencies working in the US to uphold laws, aid in the fight against discrimination in the workplace, and provide equal opportunity. Both organisations—the Equal Employment Opportunity Commission, which functions as the equivalent of the CEE in South Africa, and the Office of the Federal Contract Compliance Programs—were founded by the Department of Labour. The capacity to enforce and monitor the implementation of employment targets would increase if there were more than one agency (i.e., the CEE) in charge of doing so, and greater collaboration would be possible to broaden the procedures for monitoring and implementing employment equity target (Faiz, 1998).

2.6. International Perspective on Equal Access and Opportunity

Like the case of South Africa, women across the globe still have limited access to employment opportunities compared to men. For instance, in 2022, the World Bank (2022a) reported that the global female labour force participation rate was estimated at just above 50 percent, while the participation rate for males was 80 percent. This is similar to the case of South Africa highlighted in the preceding section, where the female labour force participation rate was 53 percent compared to 64 percent for men

in the same period (Casale et al., 2021; Statistics South Africa, 2022). These gender gaps are projected to remain relatively unchanged, as women across the globe are more likely to participate in unpaid labour activities (ILO, 2020). This is further compounded by the fact that not all individuals that work are included when measuring the labour force participation rate (World Bank, 2022a). For instance, unpaid workers and students are often omitted and some countries do not include members of the armed or security forces (World Bank, 2022a). In addition, the size of the labour force tends to vary during the year since seasonal workers enter and leave employment based on the sector or types of jobs they're employed in (World Bank, 2022a).

Globally, the International Labour Organisation (ILO) is at the forefront of promoting equality for all in the labour market since it was created in 1919 to develop and promote international labour standards. It further serves as the basis through which the South African EEA was enacted as outlined in Section 3(d) of the Act which states that "This Act must be interpreted…in compliance with the international law obligations of the Republic, in particular those contained in the International Labour Organisation Convention (No. 111) concerning Discrimination in Respect of Employment and Occupation" (*Employment Equity Act*, 1998, p. 13). Under Article 2 of the Discrimination (Employment and Occupation) Convention, each member state "undertakes to declare and pursue a national policy designed to promote, by methods appropriate to national conditions and practice, equality of opportunity and treatment in respect of employment and occupation, to eliminate any discrimination in respect thereof" (ILO, 1958, p. 2). Governments that have ratified this Convention must therefore undertake to enact various legislations and strategies, such as the EEA in South Africa, to ensure buy-in from various stakeholder groups in the labour market value chain to ensure the obligations of the Convention are met and ILO labour standards maintained.

One of the ways in which global gender equality is measured is through the Gender Gap Index (GGI) by the World Economic Forum (WEF). The index measures gender equality using four main indicators, namely, economic opportunities, education, health and political leadership from a sample of 102 countries (WEF, 2022). Data between 2006 and 2022 indicates that there is still significant inequality in the Economic Participation and Opportunity subindex of females globally. However, the highest-ranked countries in addressing gender gaps within Sub-Sahara include Rwanda, Namibia and South Africa (WEF, 2022). In addition, the number of women occupying managerial positions, as well as technical and professional roles increased by 6.7 percent in 2021 and 5.4 percent in 2022 (WEF, 2022). Relative to other countries, Pakistan had the smallest share (4.5 percent) of females in senior, managerial and legislative positions, while Togo accounted for the highest share with females accounting for 70 percent of people in senior positions (WEF, 2022). According to the same report, South Africa ranked

84th in terms of representation of women in senior positions, with females accounting for 37 percent of individuals employed in senior, managerial and legislative positions (WEF, 2022).

With that said, increased employment opportunities have been positively correlated with economic growth and the reduction of poverty, especially in developing countries (Heintz, 2006). Gender differences in laws affect both developing and developed economies, and women in all regions (World Bank, 2018), However, strategies employed may vary depending on the context of each country (Heintz, 2006). For instance, while in South Africa all forms of discrimination in the labour market have been legally abolished through the South African Constitution and more specifically the Employment Equity Act; in 2018, approximately 2.7 billion women across the world were legally restricted from accessing the same job opportunities as men (World Bank, 2018). Out of the 189 countries that were assessed by the World Bank in 2018, 104 still had laws restricting women from working in specific jobs; 59 had no laws against sexual harassment in the workplace; and in 18 countries, husbands still had the legal right to prevent their wives from working (World Bank, 2018).

2.7. Previous Quantitative Studies on the Measurement of Gender Occupational Segregation

Previous multivariate analyses of gender occupational segregation rely predominantly on making use of demographic data to assess the composition of the workplace. As a result, the majority of studies on this topic are quantitative by design.

However, similar to Oppenheimer's (1970) "sex labelling" argument mentioned earlier, MacDonald (2016) also argues current gender classifications are a limitation in the advancement of research in gender segregation. Traditional measurements of occupational segregation are in themselves non-inclusive and discriminatory in that they are based on dominant notions of group identities that limit labour force classification to either women/men or whites/non-whites (MacDonald, 2016), excluding groups such as queer communities in the debate. Quantitative research studies on occupational segregation should therefore be complemented with qualitative methods that take into account contextual narratives and different types of discourse as part of the debate on transforming labour market outcomes (MacDonald, 2016).

With that said, globally the ILO has published several studies on the progress of female labour force participation and transformation at an occupational level which has been key to tracking the extent of

transformation in the labour market globally. Amongst these studies is the report on *World Employment and Social Outlook Trends,* which is produced annually to provide a global outlook on employment and social trends by region, including Africa, the USA, Arab States and Asia. Most recently, the 2022 report also goes into detail on how the COVID-19 pandemic affected labour market dynamics in the Americas and its impact on temporary workers across the world (ILO, 2022). Similar to the PALMS database in South Africa, the ILO also provides labour data, including data on global employment and unemployment, covering key variables such as country, gender, age, employment by economic activity and geographical area.

In 2019, Das and Kotikula (2019) conducted a quantitative study on employment segregation using the ILO database on 80 developed and developing countries. Using the Duncan Index of Dissimilarity (ID), the study examined gender employment segregation by occupation and sector and further sought to understand factors contributing to segregation and policy interventions targeted at addressing gender gaps in the labour market (Das & Kotikula, 2019). Results from the study indicated that there are varying degrees of vertical and horizontal occupational segregation across different countries and industries. For instance, while the agriculture/fishery labour force was predominantly male-dominated in most countries, it was more gender-balanced in European and Central Asian countries (Das & Kotikula, 2019). In addition, there were several instances where the gender composition of industries in certain countries defied gender stereotypes altogether (Das & Kotikula, 2019). For instance, Indonesia was the only country that reported building trades as a female-dominated industry, while Namibia and Tanzania were the only countries that reported electrical trades female concentrated (Das & Kotikula, 2019). With that said, while the study provides a comprehensive analysis of gender employment concentration and briefly reflects on the underlying factors influencing divisions in job attainment at a policy level, the results of the analyses do not provide a comprehensive illustration of occupational concentration in South Africa and how targeted policies influence occupational outcomes at the country level.

Similarly, Bettio and Verashchagina (2009) conducted a quantitative study using the European Labour Force Survey. The study made use of three measures of segregation, namely, the Karmel-MacLachlan index, an index used by the European Labour Force Survey to assess the rate at which transformation needs to occur to bring about equal distribution either in occupations or industries (Bettio & Verashchagina, 2009). Secondly, the ID examines factors that contribute to the proportion of females in the workplace; and Hakim's measure of segregation, which is used to assess the profile of segregation and trends over time (Bettio & Verashchagina, 2009). Consistent with the findings from Das and Kotikula (2019), the degree of segregation varies across countries. Post-socialist countries such as

Estonia, Slovakia, Latvia and Finland recorded a high degree of segregation, while Scandinavian countries, namely, Sweden, Norway and Denmark were amongst the countries that recorded de-segregation over 15 years (from 1992 to 2007) (Bettio & Verashchagina, 2009). Similar to Das and Kotikula (2019), the key social and political factors associated with the degree of segregation are not disaggregated at the country level, however, the authors do highlight "social and stereotypes", "entry barriers and organisational practices" and "underinvestment" in the education and training of women as some of the root causes to discrimination and gender segregation in the workplace (Bettio & Verashchagina, 2009).

Acosta-Ballesteros, Osorno-del Rosal and Rodríguez-Rodríguez (2021) on the other hand conducted a similar study in Spain but made use of bivariate models to quantify the effect of occupational and sectoral segregation using the Spanish Labour Force Survey (Acosta-Ballesteros et al., 2021). The study focused more on youth employment and their risk of underemployment (Acosta-Ballesteros et al., 2021). Results from the bivariate probit model illustrate that the probability of underemployment rate for females was 0.163 compared to 0.124 for males, meaning that females are 1.31 percent more likely to be underemployed compared to their male counterparts (Acosta-Ballesteros et al., 2021).

At the domestic level, the majority of studies (Casale, 2003; Mosomi & Wittenberg, 2020; Ntuli, 2009; Ntuli & Wittenberg, 2013a; van Klaveren et al., 2009) tend to focus on labour force participation and its effects on wage inequality between the two genders. With that said, Lalthapersad conducted a study in 2002 to assess occupational segregation and its impact on wage and income disparities amongst South African Women (Lalthapersad, 2002). The study made use of the 1996 South African Household Census data to measure the Duncan Index of Dissimilarity to assess the level of segregation. Similar to the international studies outlined above, the results of the study showed that women were vulnerable to unequal access to labour market opportunities, which invariably results in income inequality (Lalthapersad, 2002). The occupational groups with the highest degree of segregation included managerial positions, skilled agriculture, craft workers and plant assemblers (Lalthapersad, 2002). The low representation of women in these occupations was mainly attributed to a lack of access to skills development opportunities such as technical education and apprenticeship programmes (Lalthapersad, 2002).

Most recently, Carlos Gradín conducted two studies on occupational segregation in South Africa in 2019 and 2021. 2019 only examined occupational segregation by race using data from the Household Census and Labour Force Surveys from Stats SA. Results from the study indicated that occupations

remain highly segmented by race, with a significant number of Black people occupying elementary occupations relative to Whites (Gradín, 2019). Occupational attainment was strongly correlated with the highest level of education as the improvement of education positively impacted segregation (Gradín, 2019). In 2021, Gradín analysed horizontal and vertical concentration trends between 1996 to 2007 using ID and the Gini coefficient (Gradín, 2021). The Gini indices were used to assess the extent of equality in the labour force relative to segregation and concentration, while the dissimilarity looked at analysing the rate at which females need to occupy male-dominated occupations for gender-balanced occupational outcomes (Gradín, 2021). Similar to the majority of the aforementioned studies, race and gender were key determining factors of labour market outcomes, especially for Black females. In addition, educational attainment was strongly correlated with positive labour force participation for females, especially White, Indian/Asian and Coloured women (Gradín, 2021).

2.8. Conclusion

This chapter has drawn on existing literature to gain a better understanding of the evolution of labour market dynamics in South Africa and the resultant divisions in occupational attainment within different demographic groups that make up the labour force. The labour market segmentation theory, as well as the occupational justice theory, were identified as the preferred theory to frame the study.

Throughout the nineteenth and twentieth centuries, discriminatory policies and social injustice shaped the extent to which non-whites participated in the South African labour market (Mariotti, 2012). Several authors attribute segregation mainly to three possible effects, namely, the institutionalisation of discriminatory labour laws such as job reservation policies during apartheid; segmented labour market theory and the division of labour market systems into unequal primary and secondary sectors; as well as social stereotypes on gender roles and occupation attainment.

As illustrated above, various labour market strategies have been employed both nationally and internationally which have led to the gradual feminisation of the labour market, where female labour force participation rates and employment rates have increased across the globe. In South Africa, the transformation of the labour market has been relatively slow since 1994. White males still dominate top management positions, especially in the private sector, even though Black females account for over six times the proportion of White males in the labour force. Divisions in the labour market are, however, not exclusive to the case of South Africa.

Gender inequality is prevalent across several counties in the world and the rate of closing the gender gap has been fluctuating since 2006. In addition, several countries across the globe still have laws legally restricting women from accessing employment opportunities as men. Based on the trajectory of labour market statistics, total occupational segregation is unlikely to occur as there has been a relative increase in gender representativity across all occupational groups. While numerous studies have been conducted in the field of occupational segregation, the concern of this research is to assess the extent to which segregation has transformed over the 20 years post-apartheid, relative to the number of individuals entering the labour market. That is "the relationship between the gendering of occupations and the sex of workers" (Siltanen et al., 1996, p. 4). The next chapter details the methodological approach employed for the execution of the research.

Chapter 3: Research Methodology

3.1. Introduction

The primary objective of this study was to understand the trajectory of horizontal occupational segregation, i.e., the degree to which occupational concentration is prevalent in the South African workforce using the PALMS data from 1993 to 2019. To achieve this, six measurement points were used in the data, namely 1994, 1999, 2004, 2009, 2014 and 2019. Instead of acquiring separate datasets for each of the labour force surveys from Stats SA and integrating them into a single consolidated dataset, the PALMS data has already stacked all the data into one dataset and contains numerous weight variables described in the description of data below.

In the preceding chapters, I posed the following key research questions this study sought to explore, namely:

a) How has the gendered occupation distribution changed over time over the past-apartheid period?
b) To what degree is high female occupational concentration prevalent in low-ranked occupation groups?
c) What are the determinants of being employed in an occupation group with a high female concentration versus being employed in an occupation group with a high male concentration?
d) Does the degree to which men and women are distributed into highly concentrated occupation groups differ between the youth and non-youth cohorts?

This chapter outlines the methods employed to understand the trajectory of occupational concentration against increased female labour force participation, employment, and occupational distribution. The first section (3.2) discusses the PALMS dataset used for the study. Section 3.3. provides a description of the study sample and variables utilised. Section 3.4. outlines the econometric tools employed to assess occupational concentration and outlines the regression model[1] used. Lastly, Section 3.5. outlines the limitations of the study.

3.2. Description of Data

This study uses secondary data solicited from the Post-Apartheid Labour Market Series (PALMS) dataset from 1993 to 2019[2] to describe the characteristics of the South African labour force, particularly the extent of gender concentration across the different occupational groups. PALMS is a staked cross-sectional dataset created by DataFirst at the University of Cape Town. The dataset (Kerr et al., 2019) consists of merged data from Stats SA which includes the October Household Survey (OHS) from 1993

[1] The statistical package STATA was utilised to analyse the data.
[2] PALMS data are freely available from https://www.datafirst.uct.ac.za/dataportal/index.php/catalog/434

to 1999, the bi-annual Labour Force Survey (LFS) from 2000 to 2007, and the Quarterly Labour Surveys (QLFS) from 2008 to 2019.

The OHS is a cross-sectional household survey conducted annually from 1993 to 1999, while the LFS is a rotating panel biannual survey established in 2000 to substitute the OHS together with the General Household Survey. Following a review of the LFS by the International Monetary Fund in 2005 (Yu, 2009), Stats SA introduced the QLFS in 2008 to replace the LFS. Similar to the LFS, the QLFS is a panel quarterly survey that collects data on the labour market activities of individuals of working age (15 years and older) (Statistics South Africa, 2008).

Various authors (Casale, 2003; Ntuli, 2009; Ntuli & Wittenberg, 2013a; Yu, 2007, 2009) highlight the comparability of the OHS, LFS and QLFS in analysing labour market trends in the country over some time. Some of the documented modifications which may alter labour market indicators include, "changes in the sampling frame, inconsistencies in the questionnaire design, changes in the methodology to derive labour market status, trends in numerous variables (e.g., demographics, educational attainment, labour force participation rates, unemployment rates, earnings, etc.) … and the continuous improvement of the questionnaire by Stats SA" (Yu, 2009, p. 3). The sample of households vary, especially in the early survey years, between 1993 to 2000, however sampling biases are taken into account using survey weights applied to the PALMS dataset. To confirm that the sample distribution accurately reflects the research population as a whole, the standard errors for each regression model were also calculated during the regression analysis.

Overall the PALMS dataset includes 120 variables and 6 million observations and mainly focuses on labour market data, however, household variables such as type of dwelling and access to social grants are also included (Kerr & Wittenberg, 2020). The cross-sectional analysis of this report makes use of post-stratification sample design weights created by the Southern Africa Labour and Development Research Unit (SALDRU) to ensure non-responses are calibrated for best estimates. The sampling procedure is based on a two-stage design with probability proportional to size (PPS) sampling of primary sampling units (PSUs) (Statistics South Africa, 2008). The adjustment for total non-response was computed at two levels of nonresponse: primary sampling units (PSUs) non-response and household non-response (Kerr & Wittenberg, 2020).

3.2.1. Description of variables

This study consists of one main outcome variable, namely, occupational concentration. It is used to determine the degree of concentration in the labour market based on the occupational distribution of females employed over the years.

Concentration

The study required a measure of occupational segregation between men and women. The concentration variable was used as a measure of occupational segregation. The majority of studies on occupational segregation (see (Bettio & Verashchagina, 2009; Das & Kotikula, 2019; Gradín, 2019, 2021; Lalthapersad, 2002) tend to make use of the Duncan Index of Dissimilarity to measure the degree of occupational segregation by looking at the separation of the two sexes across occupations. In this study, on the other hand, I measure occupational segregation by calculating the representation of the two sexes within the various occupations to give me the degree of gender concentration in each occupational group.

To obtain the degree of concentration, I first calculated the labour force participation rate (LFPR)[3]to count the total number of individuals employed and count the total number of women employed. This is a method introduced by Siltanen et al. (1996), who defines concentration as the distribution of the two sexes in an occupation, usually measured as the percentage of workers in an occupation who are either female or male. I then made use of the SASCO variable (described in the next section) to obtain the total number of individuals employed by occupation group and count the total number of women employed by SASCO. The sample is restricted to women and men of the working age group. To obtain the concentration percentage I then had to take the number of employed in an occupation and divide that total number of individuals in that occupation group and then take the total number of women employed in the labour market and divide it by total employment to create a variable with the level of concentration as follows

$$Cons = \frac{\frac{gender\ occupation}{total\ occupation}}{\frac{gender\ employed}{total\ employed}} \text{ x } 100$$

That is: $Cons = gender\ occupation\ /\ total\ occupation\ x\ 100$

[3] To obtain the degree of occupational concentration I first had to measure the LFPR of females and males in the labour market. LFPR is derived from the employment variable, "empstat2" and is restricted to individuals of working age i.e.,15 to 64 years. the labour force participation rate as the total labour force divided by the total working age population as follows:

$$LFPR = \frac{labour\ force = \ employed + \ unemployed}{working\ age\ population = employed + \ unemployed + NEA} \text{ x } 100$$

South African Classification of Occupations (SASCO)

SASCO is a coded occupational classification system which is based on the International Labour Organisation's International Standard Classification of Occupations (ISCO-08). Jobs are captured in the form of occupations and these occupations are further grouped according to broader categories and hierarchical levels based on similarities referred to as 'skills specialisations' within SASCO (Statistics South Africa, 2012). In this report, SASCO is derived from the "jobocccode" variable in PALMS. The "jobocccode" is a one-digit level major occupational group allocated to both employees and the self-employed, however, for this study the analysis was restricted to the employed. The one-digit major group is the broadest level in the SASCO classification system, which seeks to provide a framework for classifying occupations in the labour market (Statistics South Africa, 2012). As illustrated in table 1, the study makes use of the first digit level code occupation code, thus the occupations in the dataset are grouped into the following major occupational groups:

Table 1: Unit of analysis

First-digit major group	Skill level	NQF level
1. Managers	3+4	8+7+6+5
2. Professionals	4	8+7+6
3. Technicians and associate professionals	3	5
4. Clerical support workers	2	4+3+2+1
5. Service and sales workers and armed forces	1+2+4	4+3+2+1
6. Skilled agricultural, forestry and fishery workers	2	4+3+2+1
7. Craft and related trade workers	2	4+3+2+1
8. Plant and machine operators, and assemblers	2	4+3+2+1
9. Elementary workers	1	-

Source: South African Standard Classification of Occupations [adapted by Jack, 2023, based on Stats SA (2012)

The analysis of occupational distribution in the next chapter as well as the occupational concentration will take place at the first digit occupation level in line with SASCO.

Gender

Since the overall purpose of the study is to assess gender occupational trends across the years, this variable forms the basis for the analysis. Similar to previous studies (Bettio & Verashchagina, 2009; Das & Kotikula, 2019; Gradín, 2019, 2021; Lalthapersad, 2002) on occupational segregation, gender is a key variable in the measurement of occupational distribution as well as the concentration in the labour market. The study makes use of the binary "gender" variable in the PALMS dataset. For the regression analysis "gender" is a dummy variable that takes on the value of 1 if "female" and 2 if "male".

Age

For the age variable, the dataset range is 0 to 142 years of age, however, the analysis is restricted to individuals aged between 15 to 64 years in line with the Stats SA definition of the working-age population. Since the South African post-apartheid government has put in place several measures to promote fair access and equity in the labour market i.e., EEA and affirmative action measures, there is a possibility that generational developments may have occurred, which has narrowed the gap of unequal occupational outcomes between females and males post-1994. Therefore to assess whether there are variances in outcomes between the youth and non-youth, I created a binary variable named "age group" where observations under the "age" variable are categorised into two categorical age groups, namely, "youth" referring to individuals between 15 to 34 years, as well "non-youth" made up of individuals between 35 to 64 years (Statistics South Africa, 2022).

Race

As outlined in the literature review, race has been a defining factor in influencing the trajectory of labour market outcomes and occupational distribution in South Africa. Race as a variable of occupational distribution in South Africa is key to employment inequalities, and it provides a modern-day picture of the skewness of the South African labour market which is further exacerbated by gender inequalities in the workplace (Gradín, 2019; Mosomi & Wittenberg, 2020). Non-white women in South Africa and other countries such as France for instance, suffer a double dose of discrimination based on race and gender (South African History Archives, 2022; United Nations, 2017). Therefore, it would be difficult to assess gender relations in this context without assessing how race is associated with an individual's ability to firstly participate in the labour market, and secondly occupy a particular position in the workplace and the labour market.

The race variable was derived using the "popgroup" PALMS variable. The racial groups are classified into four main categories in line with South African racial designations i.e., 1 = African/Black, 2 = Coloured, 3 = Indian/Asian and 4 = White.

Survey Years

Since the primary objective of this study is to observe occupational trends over time, six survey years, namely, 1994, 1999, 2004, 2009, 2014 and 2019 have been sampled and included in the descriptive analysis of occupational distribution as well as the regression analysis. The variable "year" was used which ranges from 1993 to 2019. Analysing occupational distribution over an extended period allows the study to identify possible variances across the years which the researcher has then used to identify patterns in the distribution of occupations over time. The sampled six measurement points are also in line with the South African election cycles.

Highest level of education

A study on educational inheritance and occupational distribution in South Africa (Keswell et al., 2013) shows that Black females that obtained the same or lower levels of education as their parents in South Africa, were 6 percent to 10 percent more likely to occupy elementary occupations should they not be exposed to better educational opportunities (Gradín, 2019). As a result, exploring the relationship between occupational distribution and education is of great importance, since higher levels of education are often positively correlated with improved labour market outcomes.

This study makes use of "educhigh0", "educhigh1", "educhigh2", "educhigh3" and "educhigh4" variables to create the highest level of education completed variable. "Educhigh0" and "educhigh1" includes the highest levels of education achieved in the OHS. While "educhigh2" is the level of education under the QLFS between 2008 and 2012, and "educhigh3" is for between 2012 and 2016. And lastly, "educhigh4" from the QLFS from 2016 onwards. This was also coded into a categorical variable "education" wherein 1 = no schooling, 2 = primary, 3 = secondary, 4 = certificate/diploma/degree, and 5 = honours/masters/PhD. In the regression analysis the reference "no schooling" was used as the reference for the highest level of education.

Industry

To assess which industry individuals were employed in, the variable "jobindcode" from PALMS was used to derive the industry variable. As previously indicated, the composition of certain industries in the labour market is highly gendered. For instance, in developing countries such as South Africa, women tend to make up the majority of labourers in the Agricultural sector (ILO, 2018), while men are typically concentrated in the transport industry.

In line with the Stats SA industry codes, the "jobindcode" makes use of the one-digit industry code which includes codes for both the employed and self-employed. However, similar to the occupational major groups, this was restricted to employed for this study. In line with the "jobindcode" variable, the industry is made up of 10 codes, namely, 1 = Agriculture, Hunting, Forestry and Fisheries, 2 = Mining and Quarrying, 3 = Manufacturing, 4 = Utilities, 5 = Construction, 6 = Trade, 7 = Transport, 8 = Finance, 9 = Services and 10 = Domestic Services.

Community Status

One of the key outcomes of the various segregation policies during apartheid was the uneven development of communities in South Africa due to spatial segregation (Strauss, 2019). It is thus vital that cognisance be taken of an individual's geographical location in a study of the labour market. The community status variable is derived from the "urbrur", "urbrur2" and "urbrur3" variables in the dataset. "Urbrur" consists of data from 1993 up until March 2004 for two types of areas, namely, 1 = urban and

2 = rural. “Urbrur2” on the other hand provides data from 2008 to 2014 and categorises the community status according to 4 types of areas, 1 = urban formal, 2 = urban informal, 3 = tribal areas, and 4 = rural formal. Lastly, the “urbrur3” variable has four main categories for 2015 onwards, 1 = urban, 2 = traditional, 3 = farms, and 4 = mining areas. For this study, the three variables were recoded and combined to create the community status variable. Since there are variances in the classification of areas throughout different periods, a categorical variable “community status” was created and the three variables were recoded to create a binary variable, namely urban and non-urban. Under community status, all observations classified as urban include urban, urban formal and urban informal. Observations classified as non-urban include rural, tribal areas, rural formal, traditional, farms and mining areas.

3.3. Analysis Techniques

This study makes use of both descriptive and inferential statistics to investigate the identified research questions. The researcher makes use of descriptive statistics to numerically describe variables of interest to build a profile on the distribution of labour in South Africa since 1994. This was done mainly by looking at gender distribution by occupational group and trends across time.

The study consists of one main outcome variable, namely, occupational concentration. However, to get an accurate description of occupational concentration in the labour market, it was important to identify employed individuals within the dataset, by making use of employment status. Employment status refers to all economically active individuals of working age i.e., individuals in the country aged between 15 and 64, who are either employed, unemployed or not economically active (NEA) (inactive). The total sample is outlined in table 2 by gender and employment status. Between 1993 to 2019 there was a total of 794 482 observations. Out of the people employed, there was a total of 145 984 females employed and a total of 172 238 males employed. The employed individuals will form the basis of both the descriptive and regression analysis of occupational distribution.

Table 2: Sample size by employment status and gender

Gender	*Employment Status (aged 15 – 64 years)*	Survey Years						
		1994	**1999**	**2004**	**2009**	**2014**	**2019**	**Total**
Female	Unemployed	8,085	8,374	20,476	21,524	23,24	10,84	**92,539**
	Employed	14,38	11,077	21,896	42,418	39,995	16,218	**145,984**
	NEA	21,659	15,278	26,984	57,316	50,045	17,468	**188,75**
Male	Unemployed	5,635	6,074	14,822	18,227	20,732	9,506	**74,996**
	Employed	20,248	14,569	27,395	47,261	44,079	18,686	**172,238**
	NEA	11,696	10,105	18,406	35,605	32,647	11,516	**119,975**

Total		**81,703**	**65,477**	**129,979**	**222,351**	**210,738**	**84,234**	**794,482**

Source: PALMS dataset (1993 – 2019)

Notes:

1. *Own calculations.*

The gender composition of the various occupational groups is further broken down using independent variables i.e., gender, race, age group (youth and non-youth), educational status, as well as community status and industry. The variables were renamed and recoded from the original codes to align with the study objectives. The renaming and recoding of the variables did not change the interpretation of the results in any way (positive or negative).

Using the PALMS dataset, Chapter 4 of this study provides an overview of the labour force participation rate by gender from 1993 to 2019, as well as the occupational distribution by gender in 1994, 1999, 2004, 2009, 2014 and 2019. Since the composition of the various occupational groups cannot tell us how different independent variables influence occupational outcomes, I have used an Ordinary Least Squares (OLS) regression model to test the relationship between the degree of gender concentration and other factors such as age, race, industry etc.

3.4. Ordinary Least Squares Regression

For Chapter 5 of the study, a set of OLS multiple regressions were adopted to deductively test the relationship between gendered occupational concentration and the various explanatory variables using the PALMS dataset. This OLS is employed when the dependent variable is a continuous variable, which in this case is the concentration rate by gender. This technique is used to describe the linear relationship between the dependent variable with a set of independent explanatory variables. The regression estimates are disaggregated by female and male concentration, as well as to age categories, i.e., youth (15 to 34 years) and non-youth (35 to 64 years), and limited to the working age sample, i.e., those in the ages between 15 to 64 years. The observed demographic variables include age, occupational group, race, province, the highest level of education and marital status. The labour market characteristics observed include occupational groups and industry. The OLS model takes on the following form:

$$Y = \beta_o + \beta_1 X_1 + e$$

Where Y is occupational concentration, which takes on a value of one if there is absolute concentration and zero if there is no concentration observed, X_1 is the vector representing the explanatory variables including gender, age, race, age group, occupation group, province, education, industry, β_o is the value of Y when all the X_1 are equal to zero, β_1 is the estimated regression coefficient and 'e' is the error which is distributed normally with zero mean and variances.

3.5. Limitations, reliability and validity of data

Since the study seeks to explore trends associated with the distribution of occupations by gender, unobserved heterogeneity is unavoidable given the use of existing panel data which has been collected at different periods. Unobserved heterogeneity occurs mostly when explanatory variables do not fully account for differences between individuals which are not measured and/or measurable in the labour market and are not systematically homogenous (Hoffmann, 2008). For instance, the PALMS data does not measure the level of motivation and aspirations, which can likely be correlated to the desire, or lack thereof, to occupy middle to upper occupational categories versus elementary ones. In the case of this study, with occupational concentration concerning the gender of persons, one cannot account for unobserved heterogeneity such as the personal characteristics of persons that make up the labour force market. Although the OHS, LFS and QLFS data collection instruments have questions addressing labour market questions on the demographics, the composition of the labour force, and activities of the labour market, endogeneity has also been identified as a limitation as the study cannot correct for sampling selection. To ensure external validity the OHS, LFS and QLFS samples are representative of all provinces in the country, including ensuring representation at the local level i.e., metro/non-metro levels (Statistics South Africa, 2021a). In addition, the sample is quite large and representative of the study population, allowing for results to be generalisable. However, the study also made use of survey weights to account for sampling bias.

Over the years, Stats SA has made a concerted effort to improve these survey tools, sampling approach and how data is captured and processed (Yu, 2007). However, by using the PALMS dataset I was able to limit possible difficulties in constructing trends of gender distribution over the said period, as PALMS uses a consistent method for processing the dataset which is published publicly to allow for common use and critique (Kerr & Wittenberg, 2020). Reliability for each of the surveys is determined through variance estimation, coefficient of variation and p-value of an estimation of change. The OHS, LFS and QLFS datasets have been widely used in related research which also establishes the reliability of the data.

3.6. Conclusion

This chapter outlined the various quantitative methods employed to answer the key research questions of the study. The variables of interest have also been defined to assess female occupational distribution over time. The PALMS dataset has been identified as the most appropriate dataset for the study since it provides data from 1993 to 2019 and further includes several variables on labour market outcomes in the country. Since the study is predominantly interested in female occupational distribution, the bulk of the analysis in the following chapter will zoom into how the gender of working age has influenced performance in the labour market, particularly in terms of female occupational attainment, taking into

consideration factors such as race, level of education and industry. The analysis is further disaggregated by age groups to assess whether observations are different for those that have recently entered the labour market (the youth). Multiple linear regression will later be employed to assess the extent to which the explanatory variables are significantly associated with gender occupational concentration.

Chapter 4: Descriptive Analysis Results

4.1. Introduction

This chapter is divided into two main sections. The first section starts by looking at patterns in the labour force participation of women and men over the period under consideration. Then the analyses of the distribution of women and men across occupation groups are presented. The section highlights how the share of women and men across occupational distribution has changed over time. The last section uses the main variable of interest, occupational concentration, and analyses, descriptively using the various covariates identified in the methodology chapter.

Overall, this chapter presents the descriptive findings of the study using the five research questions outlined in the preceding chapters of the report, namely:

a) What is the nature of gender occupational distribution in the post-apartheid South African labour market?

b) To what degree is female occupational concentration prevalent in the country?

c) What is the relationship between the labour force participation rate of men and women in South Africa and gender occupational concentration in the labour market?

d) What are the determinants of female occupational concentration?

e) Does the degree of gender occupational concentration differ between the youth and non-youth cohorts of the workforce?

As highlighted in the literature review, several studies have been conducted on gender occupational segregation (Acosta-Ballesteros et al., 2021; Bettio & Verashchagina, 2009; Das & Kotikula, 2019; Gradín, 2019, 2021; Lalthapersad, 2002), however, a significant portion of the studies were conducted for shorter periods and tend to look at vertical segregation and not much has been done with regard to occupational concentration in the country. This paper will look to build on previous literature by including a sample of six measurement points, 1994, 1999, 2004, 2009, 2014 and 2019, as well as occupational concentration, gender, and other demographic and socio-economic characteristics that contribute to different outcomes in the labour market.

To contextualise South African labour market participation, this chapter firstly explores the labour force participation rate, and this is further disaggregated by the variables of interest, i.e., gender and race. Thereafter, to assess the observed change in the gender occupational distribution in the South African labour market as of 1994, the paper presents the descriptive distribution of the study sample. While the

characteristics explored include the occupational distribution by gender, age group, race, community status i.e., urban or non-urban, as well as industry, the analyses are restricted to the working age i.e., age 15 to 64 and further disaggregated by youth (15 to 34 years) and non-youth (35 to 64 years).

4.2. Gender occupational distribution

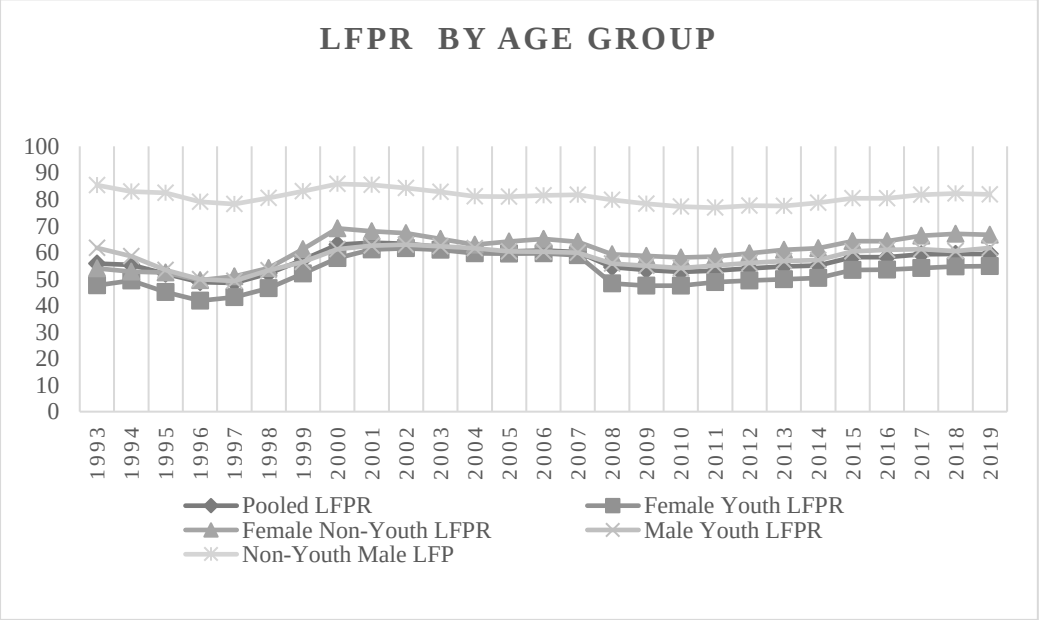
As discussed in the literature review, the apartheid system segmented the entire South African society according to race, combined with race supremacy, which led to unequal access to education, skilled jobs and several other spheres of life. As a result, features of the contemporary South African labour market and occupational attainment are rooted in injustices of the past.

4.2.1. Labour force participation rate by age and gender

Figure 1 displays the LFPR by gender and age group. More detailed tables of the breakdown are provided in the appendix, as well as LFPR by gender and race (see appendix A1 and A2). The assumption is that initiatives implemented since 1994 to close gender gaps in the labour market should have granted previously marginalised groups access to employment opportunities, as well as skilled jobs, which invariably narrows gaps in the labour market (Burger & Jafta, 2010). The figure below outlines the labour force participation rate immediately before the first democratic elections and post-1993 by gender and age group to provide a descriptive analysis of generational trends in labour force participation over the years.

The female labour force participation rate has increased over the years, this is especially the case for female non-youth (35 to 64 years), where female participation increased from 53.96 percent in 1993 to 66.64 percent in 2019, compared to 47.62 percent in 1993 and 54.83 percent in 2019 for female youth. The male labour force participation rate on the other hand has decreased since 1993, except for male youth between 2001 and 2003, where the participation rate increased to 63 percent compared to 61 percent in 1993. With that said, the labour force participation rate for non-youth males has been exceedingly higher than all the other three demographic groups throughout the years, with the group recording 85.39 percent in 1993 and 81.82 percent in 2019. This is especially true for Indian and White males (see appendix A2). In 1993 Indians and Whites accounted for the highest LFPR, 80.04 percent and 82.38 percent respectively. By 2019, LFPR for White males was 79.63 percent compared to 70.19 Black males and 61.28 percent for Black females (who make up the majority of the overall labour force).

Figure 1: Labour force participation rate by gender and age group (%)



Source: PALMS dataset (1993 – 2019)

Notes:

1. *Own calculations.*
2. *LFPR = (total employed + total unemployed) / (total employed + total unemployed + total NEA) x 100*

While there have been fluctuations in the labour force participation rate of both sexes across the years, the males (69.42 percent average) have consistently had a significantly higher participation rate than females (56.95 percent average) across the years. In terms of race, Indian and White males account for the highest LFPR. This is consistent with the findings of previous studies (Casale, 2003; Klaveren et al., 2009; Ntuli, 2009; Ntuli & Wittenberg, 2013b; Roberts & Schöer, 2021).

In addition, a study by the International Labour Organisation (2022) *World Employment and Social Outlook: Trends* foun3d that, while there are gender differences in labour force participation across several countries, the gap between men and women varies per country, based on the historical role of women in society. In countries where women have been historically overlooked compared to their counterparts (i.e., men), perhaps as a result of other factors such as religion, class and country's status (i.e., developed or underdeveloped), huge gaps have been observed when compared to other countries. For instance, the study reported that in 2019, the labour force participation rate for women in the Arab States was 12 percent compared to 70 percent for men; in North Africa, 20.6 percent for women and 68 percent for men (ILO, 2022). In countries such as Sweden, the gender gap in labour force participation is 7.3 points with women at 60.7 percent, and men at 68 percent of their respective populations. This is of importance if there is a desire to change the trajectory of women in the workplace and improve women's representation, and not just in terms of labour force participation, but in terms of improved placement of women in male-dominated occupations, as well as in managerial positions (Gradin, 2019

& 2021; Espi et al., 2019; Ntuli, 2009; Ntuli & Wittenberg, 2013; Posel & Casale, 2019). In this regard, the challenges facing women in the South African labour market represent opportunities for targeted and well-designed policies to address each of the employment dimensions (Hustad et al., 2020; Das & Kotikula, 2019; Yoon et al., 2017; Espi et al., 2019; Gradín, 2021; Ntuli, 2009; Ntuli & Wittenberg, 2013; Posel & Casale, 2019).

4.2.2. Gender occupational distribution

Table 3 outlines the occupational distribution by gender. Overall, there seems to be a gradual increase in the proportion of females employed across the various occupational groups. This is also evident in the total percentage of women employed across the years, relative to the percentage of males which has decreased as a result of the increase in female employment. For instance, the overall male proportion decreased from 64.63 percent in 1994 to 59.48 percent in 2019, whereas the female proportion increased from 35.37 percent to 40.52 percent in the same period. The data supports the findings of previous studies (Festus et al., 2016; Gradín, 2021; Maarten van Klaveren & Melanie Hughie-Williams, 2009; Mosomi & Wittenberg, 2020; Posel & Casale, 2019a) which have demonstrated the share of females in the post-apartheid South African labour market.

Table 3: Distribution by occupation and gender (%)

SASCO	1994		1999		2004		2009		2014		2019	
	M	***F***	***M***	***F***	***M***	***F***	***M***	***F***	***M***	***F***	***M***	***F***
Manager	78.31	21.69	74.93	25.07	74.05	25.95	69.83	30.17	68.62	31.38	70.47	29.53
	(1.17)	(1.17)	(1.22)	(1.22)	(1.04)	(1.04)	(0.68)	(0.68)	(0.66)	(0.66)	(0.87)	(0.87)
	100		**100**		**100**		**100**		**100**		**100**	
Professionals	**50.25**	**49.75**	54.25	45.75	50.42	49.58	53.77	46.23	55.64	44.36	**46.59**	**53.41**
	(1.44)	**(1.44)**	(1.49)	(1.49)	(1.68)	(1.68)	(0.85)	(0.85)	(0.96)	(0.96)	**(1.21)**	**(1.21)**
	100		**100**		**100**		**100**		**100**		**100**	
Technicians and Associate Professionals	**50.63**	**49.37**	**46.91**	**53.09**	**46.31**	**53.69**	**46.53**	**53.47**	**43.81**	**56.19**	**46.54**	**53.46**
	(1.14)	**(1.14)**	**(1.13)**	**(1.13)**	**(1.04)**	**(1.04)**	**(0.60)**	**(0.60)**	**(0.63)**	**(0.63)**	**(0.98)**	**(0.98)**
	100		**100**		**100**		**100**		**100**		**100**	
Clerical Support Workers	37.34	**62.66**	34.70	65.30	31.74	**68.26**	29.92	70.08	30.53	69.47	27.63	**72.37**
	(1.06)	**(1.06)**	(1.18)	(1.18)	(1.00)	**(1.00)**	(0.57)	(0.57)	(0.60)	(0.60)	(0.81)	**(0.81)**
	100		**100**		**100**		**100**		**100**		**100**	
Service and Sales Workers and Armed Forces	**56.01**	**43.99**	**55.82**	**44.18**	**56.37**	**43.63**	**51.92**	**48.08**	**51.76**	**48.24**	**51.17**	**48.83**
	(1.27)	**(1.27)**	**(1.06)**	**(1.06)**	**(0.86)**	**(0.86)**	**(0.55)**	**(0.55)**	**(0.55)**	**(0.55)**	**(0.71)**	**(0.71)**
	100		**100**		**100**		**100**		**100**		**100**	
Skilled Agricultural, Forestry and Fishery Workers	86.45	13.55	74.29	25.71	57.24	42.76	77.34	22.66	70.98	29.02	85.72	14.28
	(2.30)	(2.30)	(1.68)	(1.68)	(1.94)	(1.94)	(1.97)	(1.97)	(2.54)	(2.54)	(3.30)	(3.30)

SASCO	1994		1999		2004		2009		2014		2019	
	M	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*
	100		**100**		**100**		**100**		**100**		**100**	
Craft and Related Trade Workers	84.93	15.07	85.12	14.88	85.45	14.55	87.20	12.80	88.58	11.42	88.42	11.58
	(0.83)	(0.83)	(0.77)	(0.77)	(0.60)	(0.60)	(0.37)	(0.37)	(0.37)	(0.37)	(0.53)	(0.53)
	100		**100**		**100**		**100**		**100**		**100**	
Plant and Machine Operators, and Assemblers	83.92	16.08	85.48	14.52	86.72	13.28	85.54	14.46	86.59	13.41	86.97	13.03
	(1.10)	(1.10)	(0.86)	(0.86)	(0.72)	(0.72)	(0.49)	(0.49)	(0.52)	(0.52)	(0.69)	(0.69)
	100		**100**		**100**		**100**		**100**		**100**	
Elementary Workers	66.87	33.13	56.11	43.89	59.55	40.45	58.81	41.19	58.90	41.10	57.69	42.31
	(0.86)	(0.86)	(0.91)	(0.91)	(0.72)	(0.72)	(0.44)	(0.44)	(0.44)	(0.44)	(0.60)	(0.60)
	100		**100**		**100**		**100**		**100**		**100**	
Total	**64.63**	**35.37**	**62.38**	**37.62**	**61.81**	**38.19**	**60.13**	**39.87**	**59.84**	**40.16**	**59.48**	**40.52**
	(0.46)	**(0.46)**	**(0.40)**	**(0.40)**	**(0.35)**	**(0.35)**	**(0.20)**	**(0.20)**	**(0.20)**	**(0.20)**	**(0.27)**	**(0.27)**
	100		**100**		**100**		**100**		**100**		**100**	
N	**32234**		**22981**		**44919**		**82344**		**77960**		**32477**	

Source: PALMS dataset (1993 – 2019)

Notes:

1. *Own calculations.*
2. *The sample is restricted to the working age i.e., the ages 15 to 64.*
3. *The sample is restricted to the working age i.e., the ages 15 to 64, the survey years 1994, 1999, 2004, 2014 and 2019*

Without taking into account other characteristics such as age, race and community status, high-level observations of the female and male occupational distribution suggest that there is a balanced representation across genders in the service and sales workers and armed forces occupational category, particularly in the years following 2004, where the percentage gap between the two sexes gradually decreased from 56.01 percent males and 43.99 percent females in 1994 (a gap of 12.02 percentage point) to a gap of 3.84 percent in 2009, 3.52 percent in 2014 and 2.34 percent in 2019. This is also the case in professionals as well as technicians and associate professionals in 1994, where males make up 50.25 percent and females 49.75 percent under professionals, a percentage gap of 0.5 percentage points, and 50.63 percent males and 49.37 percent in the technicians and associate professionals group with a percentage gap of 1.26 percent. In both occupation groups, the representation of females has increased over the years, with females accounting for the majority of professionals, 53.41 percent in 2019 and a mean percentage of 53.98 for the years 1999, 2004, 2009, 2014 and 2019 in the technicians and associate professionals occupational category.

The occupation group that has consistently employed the most females relative to males in the said period is clerical support work, and the proportion of females in the group has been increasing throughout the years from 62.66 percent in 1994 to 68.26 in 2004 and 72.37 percent in 2019. These

findings are consistent with the results of previous studies (Burger & Woolard, 2005; Keane et al., 2017; Lues, 2001; Nishimwe-Niymbanira & Sabela, 2019; Ntuli, 2009; Posel & Casale, 2019a; Shepherd, 2008a; Siltanen et al., 1996) which found that women tend to be overrepresented in clerical occupations as well as technical occupations and sales and services occupations.

The male sample, on the other hand, accounts for a significantly higher proportion of employees in the skilled agriculture forestry and fishery occupation groups, as well as craft and trade, plant and machine operators and assemblers, and managerial positions. In the craft and related trade occupational group, males have accounted for approximately 85 percent and higher since 1994, and the percentage has been gradually increasing over the years from 84.93 percent in 1994 to 88.42 percent in 2019. A similar pattern is observed in the plant and machine operators and assemblers category. In the manager group, males have also accounted for the largest proportion of employees relative to females, with a mean value of 72.70 percent point across the six measurement points, compared to a mean percentage point of 27.29 for their female counterparts. The proportion of women in management positions has, however, slightly increased over the years, with the largest portion of females in the position recorded in 2009, 2014 and 2019 (30.17 percent, 31.38 percent and 29.53, percent respectively). Similar findings have been reported by the Commission for Employment Equity (2021; 2022, 2019) based on reports received from designated employers, wherein males continue to account for a significantly higher representation in senior management roles. For instance, for the year 2001, the Commission reported that males accounted for 80 percent of employees in senior management positions, by 2018 the proportion did, however, decrease to 65.5 percent and 64.7 percent in 2019. The over-representation of males in management positions compared to females has also been highlighted in studies by (Booysen, 2007; Burger & Woolard, 2005; Gradín, 2019, 2021; Kele & Pietersen, 2015; Matotoka & Odeku, 2021).

4.2.3. Gender occupational distribution by race

Table 4 outlines the distribution of female and male employment by race in different occupational categories. The column percentage for occupational distribution is calculated by gender for each racial group.

Black and Coloured females are mainly distributed in elementary positions. In 1994, 34.62 percent of Black females and 34.25 percent of Coloured females were employed in these occupations, compared to 1.53 percent of White females and 3.67 percent of Indian females in the same positions. The percentage distribution of Black females in elementary positions has gradually been decreasing over the years from 34.61 percent of Black females occupying elementary positions in 1994 to 29.76 percent in 2014 and 30.21 percent in 2019. A similar pattern is observed with the Indian female sample,

however, there was an increase in the percentage distribution for the sample in the years 1999 and 2004 (6.08 percent and 5.82 percent, respectively), and this declined by 2019 to 2.74 percent.

Clerical support work is identified as the occupation with the highest distribution of females across the years in table 3. Compared to the distribution in other occupational groups, this occupational group accounts for the highest percentage distribution of White and Indian females across the different years. The percentage of the two groups has, however, been gradually decreasing over the years. The percentage of White and Indian females have, however, been increasing in technicians and associate professionals, as well as the professionals' group. In 1994, White females accounted for 17.09 percent of technicians and associate professionals, while Indian females accounted for 10.89 percent. In 2019, the figures increased to 19.66 percent for White females and 12.60 for Indian females in the technicians and associate professionals group.

Table 4: Distribution by occupation, gender and race (%)

Race	SASCO	1994		1999		2004		2009		2014		2019	
		F	***M***	***F***	***M***	***F***	***M***	***F***	***M***	***F***	***M***	***F***	***M***
Black	Manager	3.01	4.06	1.97	4.13	2.30	3.74	3.22	4.65	4.24	5.98	4.28	6.65
		(0.33)	(0.32)	(0.24)	(0.25)	(0.25)	(0.23)	(0.14)	(0.15)	(0.18)	(0.21)	(0.23)	(0.25)
Coloured		1.42	3.91	3.39	6.29	4.07	6.74	5.46	7.16	6.71	8.83	7.10	8.69
		(0.29)	(0.51)	(0.52)	(0.75)	(0.60)	(0.65)	(0.45)	(0.37)	(0.47)	(0.47)	(0.70)	(0.75)
Indian		4.00	11.21	5.63	16.86	8.16	24.84	12.20	20.39	13.93	27.48	18.86	33.78
		(0.80)	(1.34)	(1.42)	(2.51)	(1.35)	(2.00)	(1.27)	(1.23)	(1.35)	(1.51)	(2.36)	(2.16)
White		6.88	18.84	12.30	24.33	15.77	31.31	31.31	16.61	21.39	34.04	20.78	38.37
		(0.69)	(1.16)	(0.94)	(1.18)	(1.08)	(1.20)	(0.73)	(0.70)	(0.89)	(0.96)	(1.28)	(1.51)
Black	Professionals	10.05	3.86	4.72	2.81	4.44	2.15	4.52	2.90	4.92	3.44	5.80	3.21
		(0.92)	(0.37)	(0.37)	(0.21)	(0.36)	(0.17)	(0.17)	(0.12)	(0.20)	(0.15)	(0.27)	(0.17)
Coloured		4.98	2.78	3.00	2.93	2.30	2.00	5.51	4.35	5.40	4.26	4.99	3.50
		(0.78)	(0.46)	(0.58)	(0.50)	(0.40)	(0.39)	(0.47)	(0.34)	(0.37)	(0.31)	(0.63)	(0.46)
Indian		7.27	5.18	9.63	6.55	9.17	7.06	10.04	9.25	11.64	12.79	13.73	6.25
		(1.47)	(0.61)	(2.48)	(1.40)	(1.85)	(1.25)	(1.13)	(0.99)	(1.26)	(1.36)	(1.97)	(1.00)
White		12.32	10.95	14.90	14.17	12.46	10.66	14.57	14.20	14.38	15.99	17.50	12.31
		(1.10)	(1.17)	(1.19)	(0.99)	(1.05)	(0.81)	(0.56)	(0.62)	(0.75)	(0.71)	(1.25)	(0.91)
Black	Technicians and Associate Professionals	12.26	4.86	15.28	5.97	13.07	6.02	14.11	7.43	13.77	6.82	11.64	6.11
		(0.79)	(0.42)	(0.65)	(0.32)	(0.44)	(0.29)	(0.29)	(0.18)	(0.28)	(0.18)	(0.35)	(0.23)
Coloured		8.44	4.35	11.43	6.94	12.62	7.71	14.42	10.24	13.10	9.08	9.46	7.75
		(0.92)	(0.50)	(1.09)	(0.75)	(1.01)	(0.66)	(0.62)	(0.53)	(0.57)	(0.44)	(0.90)	(0.70)
Indian		10.89	10.44	14.74	13.26	13.53	12.60	22.25	13.03	22.62	11.42	12.60	11.14
		(1.41)	(0.92)	(2.19)	(1.74)	(2.01)	(1.60)	(1.50)	(1.00)	(1.67)	(0.99)	(1.74)	(1.34)
White		17.09	14.60	19.02	16.52	23.45	15.49	17.45	25.19	23.09	12.83	19.66	13.94
		(0.93)	(0.82)	(1.09)	(0.94)	(1.39)	(0.90)	(0.63)	(0.78)	(0.82)	(0.61)	(1.15)	(0.91)
Black	Clerical Support	11.19	6.50	11.86	5.46	12.86	4.52	14.58	5.17	16.82	5.75	17.35	4.86
		(0.69)	(0.45)	(0.56)	(0.31)	(0.50)	(0.23)	(0.28)	(0.15)	(0.34)	(0.17)	(0.43)	(0.19)

Race	SASCO	1994		1999		2004		2009		2014		2019	
		F	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*
Coloured		22.15	8.22	22.61	6.76	26.10	7.64	27.56	8.77	26.06	7.85	23.66	7.03
		(1.49)	(0.91)	(1.60)	(0.70)	(1.44)	(0.76)	(0.86)	(0.43)	(0.77)	(0.41)	(1.29)	(0.69)
Indian		34.03	16.39	32.95	13.93	36.29	14.05	33.99	14.64	31.60	10.23	28.13	9.69
		(1.82)	(1.04)	(3.41)	(1.99)	(2.96)	(1.79)	(1.79)	(1.04)	(1.99)	(0.89)	(2.91)	(1.21)
White		45.57	9.30	34.86	7.51	34.52	7.23	4.37	34.30	29.31	4.32	28.30	3.82
		(1.86)	(0.67)	(1.43)	(0.69)	(1.32)	(0.62)	(0.30)	(0.89)	(0.86)	(0.38)	(1.46)	(0.51)
Black	Service and Sales Workers and Armed Forces	15.21	10.73	16.44	13.15	17.10	13.46	21.62	14.59	22.68	16.27	23.04	16.58
		(0.74)	(0.60)	(0.61)	(0.48)	(0.50)	(0.38)	(0.34)	(0.26)	(0.37)	(0.29)	(0.46)	(0.36)
Coloured		17.84	7.77	16.62	7.90	15.04	8.79	14.99	8.30	17.79	9.51	20.81	11.70
		(1.30)	(0.57)	(1.32)	(0.71)	(1.05)	(0.63)	(0.65)	(0.41)	(0.64)	(0.46)	(1.19)	(0.79)
Indian		15.24	15.15	13.80	10.81	12.57	13.18	10.84	12.72	12.55	13.92	20.15	15.44
		(1.62)	(1.19)	(2.21)	(1.60)	(2.01)	(1.43)	(1.12)	(1.13)	(1.33)	(1.18)	(2.63)	(1.55)
White		11.94	8.98	12.18	9.14	9.44	8.33	7.18	7.00	8.56	6.59	10.39	8.10
		(0.78)	(0.62)	(0.93)	(0.80)	(0.71)	(0.59)	(0.43)	(0.47)	(0.57)	(0.41)	(1.00)	(0.80)
Black	Skilled Agricultural, Forestry and Fishery Workers	0.44	1.14	4.88	7.01	4.86	3.11	0.51	0.54	0.45	0.40	0.11	0.45
		(0.13)	(0.19)	(0.49)	(0.39)	(0.36)	(0.23)	(0.06)	(0.05)	(0.05)	(0.04)	(0.03)	(0.06)
Coloured		1.02	2.73	2.83	5.83	0.61	1.48	0.07	0.75	0.32	1.11	0.00	0.24
		(0.52)	(0.62)	(0.70)	(0.76)	(0.20)	(0.29)	(0.03)	(0.11)	(0.09)	(0.19)	(0.00)	(0.12)
Indian		0.18	0.47	0.52	1.15	0.39	0.15	0.17	0.43	0.00	0.03	0.00	0.00
		(0.17)	(0.19)	(0.36)	(0.62)	(0.27)	(0.10)	(0.17)	(0.19)	(0.00)	(0.03)	(0.00)	(0.00)
White		0.65	4.06	0.76	3.41	0.47	2.37	2.92	0.31	0.22	1.74	0.26	0.98
		(0.20)	(0.50)	(0.23)	(0.45)	(0.12)	(0.28)	(0.30)	(0.07)	(0.06)	(0.19)	(0.14)	(0.22)
Black	Craft and Related Trade Workers	7.44	14.50	6.99	20.67	6.57	20.09	5.45	21.03	4.25	19.67	4.40	19.96
		(0.59)	(0.68)	(0.44)	(0.57)	(0.33)	(0.46)	(0.18)	(0.30)	(0.16)	(0.32)	(0.22)	(0.39)
Coloured		5.08	23.80	5.21	21.25	5.00	20.70	4.75	23.13	3.88	19.99	2.40	18.49
		(0.69)	(1.14)	(0.84)	(1.14)	(0.61)	(1.05)	(0.37)	(0.70)	(0.32)	(0.69)	(0.45)	(1.07)
Indian		7.84	17.88	5.24	15.83	4.98	10.62	2.76	12.48	1.23	10.79	1.79	11.04
		(1.59)	(1.43)	(1.47)	(1.86)	(1.42)	(1.25)	(0.57)	(0.93)	(0.37)	(0.96)	(0.62)	(1.21)
White		3.14	24.08	3.02	16.23	1.55	16.58	15.41	0.96	1.03	16.45	1.04	16.68
		(0.37)	(1.47)	(0.55)	(1.01)	(0.28)	(0.87)	(0.62)	(0.16)	(0.16)	(0.76)	(0.35)	(1.08)
Black	Plant and Machine Operators, and Assemblers	5.78	21.29	4.45	19.69	3.91	18.35	3.66	15.98	3.11	15.21	3.16	15.34
		(0.68)	(0.90)	(0.37)	(0.56)	(0.26)	(0.53)	(0.17)	(0.29)	(0.16)	(0.28)	(0.20)	(0.35)
Coloured		14.83	15.28	8.52	14.47	6.38	14.38	6.53	12.11	5.29	11.71	4.15	12.65
		(1.71)	(0.98)	(0.98)	(0.87)	(0.71)	(1.16)	(0.41)	(0.49)	(0.36)	(0.48)	(0.56)	(0.84)
Indian		16.88	17.02	11.41	13.53	9.09	10.64	4.75	11.10	3.01	7.70	2.00	6.04
		(2.93)	(1.65)	(2.16)	(2.20)	(1.69)	(1.25)	(0.65)	(0.87)	(0.56)	(0.82)	(0.74)	(1.12)
White		0.88	6.14	1.19	4.49	0.59	3.86	3.57	0.25	0.72	3.68	0.56	2.55
		(0.30)	(1.04)	(0.30)	(0.53)	(0.16)	(0.42)	(0.30)	(0.07)	(0.17)	(0.34)	(0.21)	(0.48)
Black	Elementary Workers	34.61	33.06	33.41	21.10	34.88	28.55	32.32	27.71	29.76	26.46	30.21	26.85
		(1.50)	(1.43)	(0.92)	(0.61)	(0.72)	(0.60)	(0.40)	(0.35)	(0.41)	(0.34)	(0.52)	(0.44)
Coloured		24.25	31.17	26.39	27.63	27.88	30.56	20.71	25.20	21.45	27.66	27.43	29.95

Race	SASCO	1994		1999		2004		2009		2014		2019	
		F	***M***	***F***	***M***	***F***	***M***	***F***	***M***	***F***	***M***	***F***	***M***
		(2.03)	(1.95)	(1.69)	(1.49)	(1.41)	(1.38)	(0.80)	(0.72)	(0.82)	(0.71)	(1.57)	(1.35)
		3.67	6.27	6.08	8.09	5.82	6.85	3.00	5.96	3.42	5.64	2.74	6.61
Indian		(0.68)	(0.87)	(1.46)	(1.55)	(1.20)	(1.54)	(0.57)	(0.75)	(0.74)	(0.70)	(0.92)	(1.16)
		1.53	3.05	1.77	4.19	1.74	4.15	3.22	1.18	1.30	4.36	1.53	3.24
White		(0.23)	(0.33)	(0.36)	(0.53)	(0.29)	(0.42)	(0.29)	(0.19)	(0.23)	(0.37)	(0.36)	(0.54)
N		**292824**											

Source: PALMS dataset (1993 – 2019)

Notes:

1. *Own calculations.*
2. *Columns add up to 100 for each race by gender and occupational group.*
3. *The sample is restricted to the working age i.e., the ages 15 to 64, the survey years 1994, 1999, 2004, 2014 and 2019*

Similar to the case of the female sample, the majority of Black and Coloured males occupy elementary positions across the six measurement points and the percentage has also been decreasing over the years for both racial groups, particularly for Black males. In 1994, 33.06 percent of Black men were employed in elementary occupations, while 31.17 percent of Coloureds were employed in the same group, compared to 3.05 percent of White males and 6.27 percent of Indian males. For the White and Indian samples, the figures have remained relatively unchanged over the period, while the Black and Coloured males have decreased to 21.10 percent and 27.63 percent in 1999, respectively and 26.85 percent and 29.95 percent by 2019.

As illustrated in the preceding section, the majority of males occupy Craft and Related Trade occupations and that shows in the distribution of race and gender in the occupation, especially concerning the female sample. The craft and related trade occupations are the second largest employers of Black, Coloured, Indian and White males, however, while the largest employer for the Black and Coloured male sample is elementary occupations, for Indian and White males it is managerial roles. In addition, the percentage distribution of White and Indian males has been significantly increasing compared to not only their male counterparts but also the overall distribution of the female sample by race.

For instance, in 1994, 11.21 percent of Indian males and 18.84 percent of White males were employed in management positions. By 2004, the percentage of Indian males increased to 24.84 percent and 31.31 percent of White males, and in 2019, 33.78 percent of Indian males and 38.37 percent of White males. If we compare these figures with other males and the female sample, the percentage distribution for employed Black males has increased by 2.59 percent between 1994 and 2019, from 4.06 percent to 6.65 percent, while in the same period and occupation groups, the figures for Coloured males increased by 4.78 percentage points from 3.91 percent to 8.69 percent. For the female sample on the other hand, 1.42

percent of Coloured females were employed in Management positions in 1994 while 3.01 percent of Black females were employed in the same years.

This figure declined for Black females to 1.97 percent in 1999 and 2.30 percent in 2004, only to increase again in 2009 (3.22 percent), 2014 (4.24 percent) and 6.65 percent in 2019. For the years 2009, 2014, and 2019 after Clerical Support Work, the largest share of Indian and White females are employed in Managerial positions, respectively accounting for 12.20 percent and 16.61 percent in 2009, 13.93 percent and 21.39 percent in 2014 and 18.86 percent and 20.78 percent in 2019.

Similar results were found in a study by Espi et al. (2019) Gender inequality in the South African labour market: Insights from the Employment Equity Act data using data from the Commission for Employment Equity as well as the Labour Market Dynamics Survey. In the study, Espi et al. (2019) highlighted that of the 20.92 percent of top female managers in the country, Black women only constituted 0.12 percent. White women were more likely to occupy higher occupational levels than their Black counterparts, while Black women were mainly distributed in lower-level groups of the hierarchical structure. The results of table 4 are further supported by the fact that in the report by Espi et al. (2019), only 6 percent of Black women worked in the highest three occupational groups and this was also found to be the case for coloured women compared to 22 to 29 percent of Indian and White women employed in the same categories.

4.2.4. Gender occupational distribution by age group

Table 5 illustrates the employment distribution by occupational category, gender and age group. The column percentage for occupational distribution is calculated by gender for each age group.

Overall, there seems to be a high percentage distribution of both female and male youth and non-youth employees in elementary positions with a mean percentage of 23.98 percent for the youth cohort across the years and 23.43 percent for the non-youth sample. Based on the results of the previous section depicted in table 5, this is most likely to be occupied by Coloured and Black employees of both sexes since they have a significantly higher distribution than that of the Indian and White sample of employees.

With that said, non-youth females seem to have slightly higher distribution levels compared to their female youth counterparts in elementary occupations; accounting for 23.47 percent of non-youth females in 1994, compared to 20.82 percent of female youth, and 27.81 percent in 2004 compared to

24.04 percent for the youth and 26.35 percent in 2019, compared to 23.94 percent of young females in the same positions. Based on the results below, female youth have significantly higher distribution levels in clerical occupations, relative to other employee groups. Which may mean that the high distribution of females outlined previously within this occupational group is predominantly made up of young females. While the percentage of both youth and non-youth females in clerical occupations has respectively decreased from 27.55 percent and 20.20 percent since 1994 to 24.66 percent (female youth) and 16.86 percent (female non-youth), the percentage distribution of young females has remained above 20.00 percent across the years, relative to the other sample groups (including the male sample).

While there is a higher distribution of female non-youth in elementary occupations compared to female youth, for the male sample, young employees have a higher distribution than their non-youth counterparts. Although the highest percentage distribution of both youth and non-youth males is in the elementary category, the male youth have a higher percentage compared to the non-youth, and the distribution of male youth in this category has remained relatively stable across the years except for 1999 where the percentage was 20.45 percent, versus a mean value of 26.60 percent for the years 1994, 2004, 2009, 2014 and 2019. Another occupational category that seems to account for a high percentage of both youth and non-youth males versus other sample groups is the craft and related trade category, which is again consistent with the overall distribution presented in the preceding sections; accounting for 20.95 percent and 20.28 percent male youth employment in the years 2009 and 2014, increasing from 17.93 percent in 1994. This is compared to 19.32 percent in 2009, 18.00 percent in 2014 and 18.09 percent in 1994 for the non-youth males in the same occupation groups.

Table 5: Distribution by occupation, gender and age group (%)

Age Group	SASCO	1994		1999		2004		2009		2014		2019	
		F	***M***	***F***	***M***	***F***	***M***	***F***	***M***	***F***	***M***	***F***	***M***
Youth (15-34)	Managers	**2.73**	**5.05**	**3.47**	**5.92**	**4.71**	**6.11**	**4.26**	**5.22**	**4.89**	**6.10**	**4.91**	**6.35**
		(0.27)	**(0.36)**	**(0.41)**	**(0.42)**	**(0.42)**	**(0.44)**	**(0.21)**	**(0.20)**	**(0.29)**	**(0.25)**	**(0.36)**	**(0.37)**
Non-youth (35-64)		**5.26**	**10.29**	**6.16**	**11.05**	**6.05**	**12.47**	**7.98**	**13.34**	**8.99**	**14.07**	**8.44**	**14.78**
		(0.45)	**(0.56)**	**(0.44)**	**(0.51)**	**(0.40)**	**(0.52)**	**(0.27)**	**(0.28)**	**(0.27)**	**(0.33)**	**(0.35)**	**(0.41)**
Youth (15-34)	Professionals	10.07	5.55	7.34	4.67	5.46	3.46	6.29	4.45	6.61	4.94	6.77	3.18
		(0.71)	(0.42)	(0.57)	(0.37)	(0.50)	(0.29)	(0.26)	(0.19)	(0.31)	(0.25)	(0.39)	(0.23)
Non-youth (35-64)		9.88	5.48	7.01	5.53	6.43	4.03	6.91	5.66	6.54	5.94	7.82	5.16
		(0.66)	(0.46)	(0.48)	(0.37)	(0.43)	(0.27)	(0.23)	(0.18)	(0.23)	(0.21)	(0.36)	(0.24)
Youth (15-34)	Technicians and associate professionals	12.91	7.57	14.53	9.07	12.26	8.09	12.39	8.36	11.83	7.58	10.81	7.06
		(0.69)	(0.45)	(0.69)	(0.48)	(0.63)	(0.40)	(0.35)	(0.27)	(0.38)	(0.25)	(0.49)	(0.35)
		13.43	7.24	16.79	7.73	17.30	8.03	19.90	10.46	17.68	8.33	13.41	7.57

Age Group	SASCO	1994		1999		2004		2009		2014		2019	
		F	***M***	***F***	***M***	***F***	***M***	***F***	***M***	***F***	***M***	***F***	***M***
Non-youth (35-64)		(0.66)	(0.41)	(0.65)	(0.39)	(0.55)	(0.34)	(0.36)	(0.22)	(0.33)	(0.21)	(0.41)	(0.28)
Youth (15-34)	Clerical support workers	**27.55**	9.48	**23.75**	7.56	**25.91**	6.46	**24.41**	6.26	**26.02**	6.97	**24.66**	6.76
		(1.02)	(0.51)	**(0.89)**	(0.42)	**(0.82)**	(0.37)	**(0.47)**	(0.21)	**(0.50)**	(0.24)	**(0.69)**	(0.32)
Non-youth (35-64)		**20.20**	6.36	**15.85**	5.29	**15.24**	5.11	**17.29**	5.44	**16.27**	5.24	**16.86**	4.15
		(0.80)	(0.35)	**(0.68)**	(0.32)	**(0.51)**	(0.24)	**(0.34)**	(0.17)	**(0.33)**	(0.18)	**(0.47)**	(0.20)
Youth (15-34)	Services and sales workers and armed forces	15.04	11.84	17.04	15.03	17.54	15.31	22.06	15.86	22.85	15.50	22.60	16.70
		(0.66)	(0.54)	(0.73)	(0.59)	(0.62)	(0.50)	(0.43)	(0.32)	(0.48)	(0.36)	(0.65)	(0.51)
Non-youth (35-64)		14.10	8.75	13.64	8.83	13.24	9.46	14.07	10.03	17.62	13.30	20.20	14.05
		(0.61)	(0.48)	(0.57)	(0.39)	(0.45)	(0.33)	(0.29)	(0.24)	(0.35)	(0.28)	(0.48)	(0.36)
Youth (15-34)	Skilled Agricultural, Forestry and Fishery	0.51	1.66	2.69	5.84	2.18	2.43	0.30	0.56	0.21	0.37	0.16	0.44
		(0.14)	(0.19)	(0.38)	(0.43)	(0.24)	(0.21)	(0.05)	(0.06)	(0.05)	(0.05)	(0.06)	(0.09)
Non-youth (35-64)		0.63	2.27	4.14	6.05	4.04	2.88	0.50	1.23	0.50	0.82	0.09	0.50
		(0.14)	(0.23)	(0.38)	(0.33)	(0.30)	(0.20)	(0.06)	(0.09)	(0.06)	(0.06)	(0.03)	(0.07)
Youth (15-34)	Craft and Related Trade Workers	4.59	17.93	5.16	18.61	4.55	18.63	4.43	**20.95**	3.70	**20.28**	3.55	19.65
		(0.40)	(0.70)	(0.43)	(0.66)	(0.35)	(0.54)	(0.22)	**(0.38)**	(0.21)	**(0.45)**	(0.28)	(0.55)
Non-youth (35-64)		7.07	**18.09**	6.25	20.62	5.83	19.56	4.45	**19.32**	3.59	**18.00**	3.74	18.75
		(0.50)	**(0.65)**	(0.43)	(0.58)	(0.30)	(0.48)	(0.16)	**(0.30)**	(0.15)	**(0.31)**	(0.22)	(0.41)
Youth (15-34)	Plant and Machine Operators, and	5.77	14.59	4.16	12.85	3.35	12.56	3.37	12.64	2.71	12.07	2.60	11.97
		(0.53)	(0.74)	(0.38)	(0.54)	(0.27)	(0.52)	(0.18)	(0.33)	(0.18)	(0.32)	(0.25)	(0.44)
Non-youth (35-64)		5.97	18.54	4.83	18.62	4.05	17.16	3.48	14.13	3.22	13.73	3.09	13.99
		(0.58)	(0.74)	(0.37)	(0.57)	(0.28)	(0.53)	(0.16)	(0.27)	(0.16)	(0.29)	(0.21)	(0.36)
Youth (15-34)	Elementary Workers	**20,82**	**26,31**	**21,87**	**20,45**	**24,04**	**26,96**	**22,49**	**25,71**	**21,17**	**26,18**	**23,94**	**27,88**
		(1.03)	**(1.15)**	**(0.94)**	**(0.72)**	**(0.78)**	**(0.67)**	**(0.45)**	**(0.41)**	**(0.47)**	**(0.43)**	**(0.70)**	**(0.60)**
Non-youth (35-64)		**23,47**	**22,96**	**25,32**	**16,28**	**27,81**	**21,3**	**25,43**	**20,39**	**25,58**	**20,58**	**26,35**	**21,05**
		(0.93)	**(0.91)**	**(0.79)**	**(0.54)**	**(0.69)**	**(0.56)**	**(0.36)**	**(0.32)**	**(0.39)**	**(0.32)**	**(0.51)**	**(0.42)**
N	**292915**												

Source: PALMS dataset (1993 – 2019)

Notes:

1. *Own calculations.*
2. *Columns add up to 100 for each age group by gender and occupational group.*
3. *The sample is restricted to the working age i.e., the ages 15 to 64, the survey years 1994, 1999, 2004, 2014 and 2019.*

Throughout the six measurement points, non-youth males have a higher percentage distribution in management positions throughout the years, compared to their female counterparts as well as young males, and the figures have been gradually increasing over the years. In the year 1994, 10.29 percent of employed non-youth males were in a management position and the number increased to 14.78 percent in 2019, compared to 5.26 percent and 8.44 percent for the female non-youth sample in the same years.

In the young adult age group, 2.73 percent of females were employed in the occupational category in 1994 and 4.91 percent in 2019, versus 5.05 percent of male youth employment in 1994 and 6.35 percent in 2019. Overall, there seems to be a disproportionate distribution of non-youth males compared to the other three sample groups concerning the managers' occupational category. However, the share of youth females occupying management positions almost doubled over the period under consideration. Providing some evidence that young women may be making inroads into male-dominated occupation groups, albeit at a slow pace.

4.2.5. Gender occupational distribution by level of education

As illustrated in the research methodology chapter, SASCO is a skilled-based classification system, therefore occupational groups are aligned to the hierarchical levels using the educational qualification typically required to be employed in a particular occupation group (Statistics South Africa, 2012). The assumption is therefore that, the higher the occupational group is in terms of ranking, the higher the educational requirements for the occupational. As highlighted in the literature review, education has been repeatedly identified as a key driver for upward mobility in the South African labour market.

Consistent with table 6 the results illustrate that in terms of occupational distribution, the majority of both females and males with no schooling and primary education were employed in elementary occupations. This was particularly evident for the female sample, wherein 70,22 percent and 70,59 percent of females with no schooling in 2014 and 2019 occupied elementary positions. In line with the assertion that occupational attainment is linked to educational status highlighted above, a significant percentage of employees have higher levels of education compared to elementary workers. For instance, the majority of both females and males with a post-graduate degree i.e., Honours/Masters/PhD are highly concentrated in the professionals' occupational category, accounting for 63,45 percent of females and 51,73 percent of males in 2019. This is also the case for managers. Overall, less than 2 percent of employees with no schooling are employed in managerial positions and several employees, particularly males, have a post-graduate degree (29,46 percent in 2014 and 39,09 percent in 2019).

This is consistent with findings of earlier studies (Gradin 2021) that illustrate that education is important for addressing occupational attainment, particularly for females (since they have been previously marginalised in the workplace). The studies show that higher education increases the rate of women employed and offers them a route to better paying professional occupations.

Table 6: Distribution by occupation, gender and the highest level of education (%)

Education	SASCO	1994		1999		2004		2009		2014		2019	
		F	M	F	M	F	M	F	M	F	M	F	M
No Schooling	Managers	0	0	0	0	0	0	0	0	0.71	1.54	0.89	1.95
										(0.38)	(0.46)	(0.53)	(0.92)
Primary		3.19	2.70	2.77	2.98	1.01	1.80	1.28	2.28	1.14	2.21	1.58	2.54
		(0.75)	(0.48)	(0.81)	(0.55)	(0.36)	(0.27)	(0.26)	(0.22)	(0.25)	(0.32)	(0.45)	(0.40)
Secondary		3.99	7.56	4.73	7.74	5.92	11.37	5.35	7.81	5.80	8.48	4.88	8.65
		(0.29)	(0.40)	(0.36)	(0.38)	(0.32)	(0.47)	(0.20)	(0.20)	(0.23)	(0.22)	(0.29)	(0.31)
Certificate/diploma/degree		4.79	17.46	7.00	20.73	16.64	20.40	11.42	24.58	13.13	25.79	12.91	26.24
		(0.68)	(1.22)	(0.76)	(1.26)	(3.14)	(2.31)	(0.50)	(0.64)	(0.51)	(0.77)	(0.68)	(1.00)
Honours/Masters/PhD		0	0	0	0	0	0	0	0	21.85	29.46	20.41	39.09
										(2.68)	(2.48)	(2.19)	(2.74)
No Schooling	Professionals	0	0	0	0	0	0	0	0	0.00	0.11	0	0
										(0.00)	(0.11)		
Primary		0	0	0.19	0.20	0.00	0.07	0.14	0.48	0.55	0.57	0	0
				(0.18)	(0.10)	(0.00)	(0.05)	(0.08)	(0.12)	(0.26)	(0.17)		
Secondary		1.96	0.78	1.45	1.31	5.60	3.69	3.54	2.12	2.30	1.70	0.54	0.45
		(0.26)	(0.10)	(0.20)	(0.16)	(0.33)	(0.23)	(0.15)	(0.09)	(0.14)	(0.10)	(0.09)	(0.07)
Certificate/diploma/degree		44.24	34.99	28.20	28.57	51.59	35.82	19.50	23.06	18.25	22.33	19.97	17.15
		(1.80)	(1.57)	(1.36)	(1.23)	(3.44)	(2.94)	(0.59)	(0.62)	(0.57)	(0.72)	(0.84)	(0.81)
Honours/Masters/PhD		0	0	0	0	0	0	0	0	41.89	39.31	63.45	51.73
										(4.11)	(2.68)	(2.63)	(2.71)
No Schooling	Technicians and Associate Professionals	0	0	0	0	0	0	0	0	4.67	2.37	4.33	3.28
										(0.93)	(0.69)	(1.54)	(1.57)
Primary		1.15	0.44	2.68	1.67	1.93	1.19	2.92	2.07	3.18	2.03	1.71	1.47
		(0.43)	(0.20)	(0.63)	(0.37)	(0.32)	(0.30)	(0.39)	(0.23)	(0.39)	(0.22)	(0.49)	(0.30)
Secondary		11.03	6.39	10.22	7.05	17.80	9.95	10.84	7.38	8.81	5.99	6.11	5.16
		(0.55)	(0.34)	(0.49)	(0.35)	(0.52)	(0.33)	(0.26)	(0.19)	(0.24)	(0.17)	(0.29)	(0.22)
Certificate/diploma/degree		28.71	21.41	39.85	23.74	5.50	6.69	40.43	25.88	36.74	21.29	32.72	21.88
		(1.52)	(1.25)	(1.49)	(1.19)	(1.43)	(1.87)	(0.74)	(0.68)	(0.66)	(0.60)	(0.93)	(0.89)
Honours/Masters/PhD		0	0	0	0	0	0	0	0	15.15	7.65	8.88	4.91
										(2.82)	(1.59)	(1.52)	(1.08)

Education	SASCO	1994		1999		2004		2009		2014		2019	
		F	M	F	M	F	M	F	M	F	M	F	M
No Schooling	Clerical Support Workers	0	0	0	0	0	0	0	0	0.93	0.81	1.55	0.33
										(0.40)	(0.27)	(0.93)	(0.33)
Primary		1.34	0.46	1.92	1.92	1.89	0.95	1.76	1.22	2.08	1.23	1.81	0.82
		(0.53)	(0.16)	(0.53)	(0.37)	(0.54)	(0.21)	(0.40)	(0.17)	(0.28)	(0.17)	(0.45)	(0.21)
Secondary		31.04	10.13	25.13	8.15	23.56	7.12	23.52	6.73	23.17	6.56	22.76	5.62
		(0.94)	(0.44)	(0.78)	(0.38)	(0.55)	(0.28)	(0.36)	(0.17)	(0.38)	(0.18)	(0.54)	(0.23)
Certificate/diploma/degree		14.60	6.60	16.53	5.75	10.36	2.15	18.91	5.61	20.61	8.05	20.14	7.63
		(0.99)	(0.68)	(1.13)	(0.63)	(1.79)	(0.72)	(0.61)	(0.31)	(0.60)	(0.45)	(0.77)	(0.53)
Honours/Masters/PhD		0	0	0	0	0	0	0	0	3.54	1.76	4.89	1.22
										(1.01)	(0.53)	(1.16)	(0.62)
No Schooling	Service and Sales Workers and Armed Forces	0	0	0	0	0	0	0	0	15.69	7.33	17.83	5.04
										(1.71)	(0.90)	(2.54)	(1.30)
Primary		9.93	6.79	13.91	5.13	12.73	5.18	19.37	5.70	20.42	7.24	19.99	8.45
		(1.23)	(1.13)	(1.40)	(0.56)	(0.92)	(0.44)	(0.97)	(0.37)	(0.90)	(0.50)	(1.44)	(0.68)
Secondary		18.54	12.68	19.63	14.90	16.07	14.22	21.14	15.47	24.74	17.32	26.98	18.02
		(0.66)	(0.46)	(0.64)	(0.50)	(0.44)	(0.36)	(0.33)	(0.26)	(0.38)	(0.30)	(0.53)	(0.39)
Certificate/diploma/degree		5.13	4.55	4.09	6.32	3.96	4.90	5.84	5.92	7.52	8.36	8.90	10.85
		(0.59)	(0.54)	(0.55)	(0.65)	(0.97)	(1.16)	(0.32)	(0.36)	(0.36)	(0.41)	(0.55)	(0.64)
Honours/Masters/PhD		0	0	0	0	0	0	0	0	8.41	5.33	1.05	0.58
										(2.24)	(1.11)	(0.53)	(0.30)
No Schooling	Skilled Agricultural, Forestry and Fishery Workers	0	0	0	0	0	0	0	0	1.69	1.12	0.00	0.54
										(0.48)	(0.29)	(0.00)	(0.19)
Primary		1.05	2.11	9.32	10.76	9.32	4.74	1.17	0.93	1.39	1.04	0.25	1.03
		(0.48)	(0.39)	(1.28)	(0.88)	(0.86)	(0.47)	(0.27)	(0.14)	(0.21)	(0.15)	(0.16)	(0.25)
Secondary		0.49	1.95	2.45	4.99	2.04	2.02	0.33	0.85	0.36	0.58	0.11	0.43
		(0.11)	(0.19)	(0.30)	(0.32)	(0.19)	(0.15)	(0.05)	(0.07)	(0.05)	(0.05)	(0.03)	(0.06)
Certificate/diploma/degree		0.26	1.79	0.44	1.41	0.11	1.84	0.17	1.14	0.06	0.55	0.12	0.29
		(0.12)	(0.29)	(0.19)	(0.31)	(0.07)	(0.45)	(0.06)	(0.16)	(0.03)	(0.09)	(0.07)	(0.08)
Honours/Masters/PhD		0	0	0	0	0	0	0	0	0.00	0.24	0.00	0.38
										(0.00)	(0.14)	(0.00)	(0.27)

Education	SASCO	1994		1999		2004		2009		2014		2019	
		F	M	F	M	F	M	F	M	F	M	F	M
No Schooling	Craft and Related Trade Workers	0	0	0	0	0	0	0	0	4.72	20.33	4.26	22.54
										(0.76)	(1.69)	(1.69)	(2.35)
Primary		8.48	15.04	7.25	21.58	10.12	22.50	7.36	27.32	6.17	25.46	5.80	24.21
		(1.28)	(1.19)	(1.04)	(1.11)	(0.91)	(0.91)	(0.60)	(0.79)	(0.50)	(0.79)	(0.81)	(1.05)
Secondary		6.88	21.20	6.67	21.60	4.63	18.79	5.08	21.63	4.38	20.79	4.53	20.86
		(0.44)	(0.68)	(0.43)	(0.57)	(0.24)	(0.42)	(0.17)	(0.29)	(0.17)	(0.32)	(0.24)	(0.42)
Certificate/diploma/degree		1.40	8.90	1.66	9.07	1.91	10.92	1.09	7.30	1.01	7.70	1.22	9.47
		(0.30)	(0.86)	(0.36)	(0.78)	(0.82)	(1.52)	(0.16)	(0.39)	(0.13)	(0.46)	(0.20)	(0.66)
Honours/Masters/PhD		0	0	0	0	0	0	0	0	0.17	4.68	0.00	0.98
										(0.12)	(1.05)	(0.00)	(0.62)
No Schooling	Plant and Machine Operators	0	0	0	0	0	0	0	0	1.36	11.82	0.55	12.60
										(0.42)	(1.17)	(0.36)	(1.84)
Primary		5.30	19.25	5.29	23.63	4.53	19.73	4.32	14.02	2.90	15.92	2.33	13.90
		(0.94)	(1.19)	(1.09)	(1.10)	(0.59)	(1.00)	(0.52)	(0.57)	(0.33)	(0.63)	(0.55)	(0.81)
Secondary		7.76	19.54	5.94	17.25	3.72	14.22	4.30	15.68	4.17	15.25	3.84	15.97
		(0.62)	(0.80)	(0.41)	(0.50)	(0.22)	(0.41)	(0.16)	(0.28)	(0.18)	(0.28)	(0.23)	(0.37)
Certificate/diploma/degree		0.14	2.19	0.32	2.01	2.24	6.49	0.60	2.55	0.41	3.12	1.12	3.42
		(0.07)	(0.54)	(0.12)	(0.36)	(0.88)	(1.21)	(0.09)	(0.22)	(0.08)	(0.30)	(0.21)	(0.36)
Honours/Masters/PhD		0	0	0	0	0	0	0	0	0.00	2.64	0.56	1.10
										(0.00)	(1.32)	(0.41)	(0.54)
No Schooling	Elementary Workers	0	0	0	0	0	0	0	0	70.22	54.59	70.59	53.72
										(1.99)	(2.01)	(3.18)	(2.88)
Primary		69.55	53.21	56.67	32.12	58.48	43.84	61.68	45.97	62.16	44.30	66.52	47.57
		(2.35)	(1.95)	(2.15)	(1.31)	(1.47)	(1.30)	(1.17)	(0.89)	(1.07)	(0.84)	(1.70)	(1.17)
Secondary		18.30	19.76	23.78	17.01	20.66	18.62	25.89	22.33	26.27	23.34	30.25	24.86
		(0.78)	(0.79)	(0.81)	(0.53)	(0.55)	(0.44)	(0.37)	(0.31)	(0.39)	(0.32)	(0.55)	(0.43)
Certificate/diploma/degree		0.72	2.10	1.90	2.39	7.69	10.79	2.03	3.96	2.27	2.81	2.90	3.08
		(0.20)	(0.35)	(0.37)	(0.46)	(1.51)	(2.30)	(0.20)	(0.31)	(0.20)	(0.26)	(0.31)	(0.36)
Honours/Masters/PhD		0	0	0	0	0	0	0	0	8.99	8.92	0.76	0.00
										(2.47)	(1.74)	(0.46)	(0.00)

Education	SASCO	1994		1999		2004		2009		2014		2019	
		F	M	F	M	F	M	F	M	F	M	F	M
N	280827												

Source: PALMS dataset (1993 – 2019)

Notes:

1. *Own calculations.*
2. *Columns add up to 100 for each educational level by gender and occupational group.*
3. *The sample is restricted to the working age i.e., the ages 15 to 64, the survey years 1994, 1999, 2004, 2014 and 2019.*

In terms of community status (refer to appendix A3 for a detailed table), the results of table A3 illustrate that community status is an important determinant for the occupational distribution of employees in the various occupational groups. There is a higher distribution of elementary workers in non-urban areas for both females and males. While the percentage of female elementary workers has remained unchanged in the years 1999 and 2019 versus 42,49 in 1994, there was a spike in the percentage of females in non-urban areas employed as elementary workers in 2004 (47,27) and 2009 (44,03) compared to their male counterparts, as well as female employees in urban areas. There has, however, been a gradual increase in the distribution of females in urban areas entering elementary occupations from 13,68 percent in 1994 to 20,32 percent by 2019. Since elementary occupations account for a large proportion of females employed in non-urban areas, the distribution of this sample in other occupational categories is quite low, however, there has been a significant increase of non-urban women entering services and sales and the armed forces group from 12,14 percent in 1994 to 23,10 percent in 2014 and 22,30 in 2019. Compared to women in non-urban areas, women in urban areas seem to be mostly distributed in clerical support work, as well as service and sales and armed forces occupational groups.

If we compare the results of females in elementary occupations to those of the male sample, the figures have been decreasing for men in non-urban areas. In 1994 there was a high distribution of non-urban males in elementary positions (46,44) compared to 37,03 percent in 2019. Similar to the case of women in urban areas, the percentage of men in urban areas has been increasing over the years in elementary positions, however, a higher proportion of urban males are employed in the craft and related trades. The results of the distribution by community status seem to indicate that the high distribution of women in clerical work and men in craft and related occupations highlighted in the preceding sections is mostly accounted for by women and men in urban areas.

4.2.6. Gender occupational distribution and industry

As mentioned in the literature review, industry plays a role in determining gendered occupational concentration. The results in appendix A4 illustrate that overall, there is a higher percentage distribution of males in management positions across all the sampled years. The industry with the highest observed change in female distribution in management positions is the transport industry where the share increased from 4,42 percent in 1994 to 13,98 percent in 2019. The share of females in the utility industry also peaked in 2014 from 0,70 percent in 1994 to 22,53 percent, only to go down again to 2,69 percent in 2019. Eskom is the largest producer of power supply in Africa and therefore is the largest employer in the utility industry in the country (Commonwealth Governance, 2023). Therefore this industry may be disproportionately affected by one employer, Eskom, which then means that changes at an organisational level might be construed to speak to challenges or advancements at an industry level.

In the professionals' category, the mining and quarrying industry has a higher share of females than males, however, the female percentage has been decreasing over the years, from 13,44 percent in 1994 to 7,47 percent in 1999 and a mean percentage of 3,5 percent for the years 2014 and 2019. In the Agriculture, Hunting, Forestry and Fisheries industry the majority of females and males are employed as elementary workers across all the years, accounting for 83,81 percent of female employment in the industry in 1994 versus 72,08 percent of males and 91,51 percent of females in 2019 versus 72,24 percent males. In domestic services, almost all males in the industry were employed in elementary occupations in the years 2014 (98,52 percent) and 2019 (98,79 percent). In addition, males have higher distribution levels in this industry and occupational group than their female counterparts, across the years.

4.3. Occupational Concentration Analysis

The remaining sections of this chapter discuss the descriptive results on the degree of occupational concentration based on the characteristics of employed females and males. As mentioned in the methodology section, to obtain the degree of concentration across the different occupational groups, the report looked at the share of each gender in a particular occupation, relative to the overall employment rate. Similar to the preceding section, the concentration is measured at different times to assess whether the observed trends have changed over time.

Consistent with the results of the distribution presented in the preceding section, there is a higher concentration of both females and males in elementary occupations. Relative to other occupational groups, both sexes have relatively equal rates of concentration in the occupational group across the six survey years. This is in line with the distribution statistics presented earlier, where on average, there was 60/40 in the distribution of men and women in the occupational group.

Table 7: Occupational concentration by gender (%)

SASCO	1994		1999		2004		2009		2014		2019	
	Female	***Male***	***Female***	***Male***	***Female***	***Male***	***Female***	***Male***	***Female***	***Male***	***Female***	***Male***
Manager	3.46	9.01	3.71	8.34	4.09	9.11	4.97	9.54	5.72	10.44	5.92	11.01
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Professionals	7,95	5,49	5,42	4,66	4,26	3,48	5,52	5,07	5,61	5,19	6,12	4,3
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Technicians and Associate Professionals	**10,67**	7,68	**13,19**	7,97	**13,1**	7,87	**15,09**	10,23	**14,24**	8,77	**11,16**	7,45
	(0.00)	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(.)**	(0.00)
Clerical Support Workers	**23,03**	8,19	**15,39**	6,22	**15,65**	5,68	**17,19**	6,33	**17,42**	6,21	**17,35**	5,61
	(0.00)	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)

SASCO	1994		1999		2004		2009		2014		2019	
	Female	***Male***	***Female***	***Male***	***Female***	***Male***	***Female***	***Male***	***Female***	***Male***	***Female***	***Male***
Service and Sales Workers and Armed Forces	**13,05**	10,21	**13,44**	11,93	**13,62**	12,29	**16,32**	13,53	**18,08**	15,01	**19,92**	16,33
	(0.00)	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(.)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)
Skilled Agricultural, Forestry and Fishery Workers	0.67	2.89	3.28	7.09	3.46	3.63	0.40	1.10	0.42	0.90	0.12	0.56
	(0.00)	(.)	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Craft and Related Trade Workers	4.30	**19.38**	5.21	**21.43**	4.96	**20.68**	4.13	**21.90**	3.66	**20.26**	3.49	**20.75**
	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**
Plant and Machine Operators, and Assemblers	5.34	**15.06**	4.06	**18.73**	3.39	**16.31**	3.11	**14.52**	2.75	**14.29**	2.62	**14.36**
	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(.)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**
Elementary Workers	**20,54**	**26,41**	**24,75**	**22,39**	**26,51**	**29,69**	**23,96**	**26,13**	**24,05**	**26,24**	**25,29**	**26,58**
	(0.00)	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**
N	**292939**											

Source: PALMS dataset (1993 – 2019)

Notes:

1. *Own calculations.*
2. *All concentration rates were significant with p<0.001.*
3. *Concentration = (total gender in occupation÷ total employees in occupation) ÷ (total gender employed ÷total employed) x 100*
4. *The sample is restricted to the working age i.e., the ages 15 to 64 years.*

With the other occupational groups, the concentration by gender is quite prominent. Particularly in the occupational groups that were established as either male-dominated or female dominated in the previous section on distribution. For instance, craft and related trade occupations have a significantly higher degree of male concentration relative to women throughout the years (20,75 percent for males versus 3,49 percent for women in 2019). A similar pattern is observed in plant and machine operators, and assemblers, where males in 2019 had a concentration level of 14,36 percent versus 2,62 percent for females in the same year.

In addition, the level of male concentration in the craft and related trade, as well as the plant and machine operators, and assemblers occupational groups have remained relatively high throughout the years, while the female concentration rate has been decreasing in the same period, from 4,30 percent in 1994 to 3,49 percent by 2019 in the craft and related trade occupations, and 5,34 percent in 1994 for the plant and machine operators, and assemblers to 2,62 percent in 2019. The decline in female representation in these occupational groups may be attributed to several barriers to entry, including, stereotypes about the role of and prospects for women in predominantly male occupations and industries. If for instance, there is a perception that women's participation is low or discouraged this may influence the career choices of women entering the labour market, which may then explain the decline in those occupations over time.

Consistent with the distribution results, overall, four out of the nine occupational groups, namely technicians and associate professionals, clerical support work, service and sales and armed forces, as well as elementary occupations account for an average of 70,52 percent throughout the years. In addition, the concentration levels of women in these occupations have also been increasing over the years, from 67,29 percent in 1994, 66,77 percent in 1999, 68,88 percent in 2004 to 72,56 in 2009, 73,79 in 2014 and 73,72 percent in 2019. Comparative results were found in a similar study conducted by Das (2019) who cited that female-dominated occupations tend to be health associate professionals, elementary occupations, sales and services, customer service clerks, and teaching professionals, while males are concentrated in professional, mining/construction/manufacturing/transport occupations, stationary plant or machine operator, and agricultural occupations (amongst others).

An interesting feature of female-dominated occupations and concentration levels presented in table 7 is that the concentration of men in those occupations is relatively the same, while the concentration of females in male-dominated occupations is significantly lower. Indicating that although the share of women in an occupational group may be higher than men, men are not necessarily underrepresented in those occupation groups.

4.3.1. Gender occupational concentration by age group

Overall, with the feminisation of the labour market as well as the adoption of legislation and strategies to promote equity in the workplace, one would expect to see a shift in the composition of employment since 1994, especially with the youth since they have entered the labour market under a new political and labour market dispensation. The general pattern for non-youth and youth female concentration in occupations with a high share of males remains low and relatively the same across the years. However, the share of young males in occupation groups with a higher representation of females is slightly higher than male non-youth. Therefore, the effects of new labour laws seem to have affected some but not all of the groups in ensuring equal representation across all occupational categories.

In addition, female-dominated occupations, such as clerical work and service and sales have a higher concentration of young females than non-youth females. And the figures are even more pronounced in the clerical work group, where females had a concentration of 25,02 percent and 23,51 percent in 2014 and 2019, compared to 13,29 percent and 14,16 percent for female non-youth.

The concentration of non-youth males in management positions is higher than that of male youth, female non-youth and especially female youth. In 1994 women had a concentration rate of 2,32 compared to 11,77 percent of male non-youth. While the number has slightly increased for youth males to 4,20 percent the concentration of non-youth males has also increased to 14,23 in the same year. In elementary occupations, there is a higher concentration of male youth compared to all the other groups, with approximately 30 percent in both 2014 and 2019, compared to concentration levels of 25 percent and lower for the other three groups in the same years.

Table 8: Occupational concentration by gender and age group (%)

Age Group	SASCO	1994		1999		2004		2009		2014		2019	
		F	***M***	***F***	***M***	***F***	***M***	***F***	***M***	***F***	***M***	***F***	***M***
Youth (15-34)	Manager	**2.32**	**5.52**	**2.71**	**5.24**	**3.32**	**5.35**	**3.83**	**5.16**	**3.91**	**5.45**	**4.20**	**5.88**
		(0.00)	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**
Non-Youth (35-64)		**4.52**	**11.77**	**4.44**	**10.66**	**4.57**	**11.76**	**5.65**	**12.67**	**6.71**	**13.80**	**6.81**	**14.23**
		(0.00)	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**
Youth (15-34)	Professionals	8.10	5.14	5.67	4.27	3.68	2.98	5.80	4.53	5.64	4.43	5.81	3.15
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Non-Youth (35-64)		7.81	5.76	5.23	4.96	4.64	3.84	5.35	5.45	5.60	5.70	6.29	5.01
		(0.00)	(0.00)	(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Youth (15-34)	Technicians and Associate Professionals	10.76	7.79	12.25	8.62	10.49	7.65	11.52	8.51	11.15	8.17	10.18	7.24
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Non-Youth (35-64)		10.59	7.59	13.88	7.49	14.73	8.03	17.19	11.46	15.92	9.17	11.67	7.59
		(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Youth (15-34)	Clerical Support Workers	**26.85**	**9.75**	**20.25**	**7.58**	**21.08**	**6.52**	**23.37**	**7.16**	**25.02**	**7.46**	**23.51**	**7.33**
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Non-Youth (35-64)		**19.50**	6.96	**11.81**	5.20	**12.23**	5.09	**13.55**	5.74	**13.29**	5.38	**14.16**	4.53
		(0.00)	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(.)
Youth (15-34)	Service and Sales Workers and Armed	**13.63**	12.48	**15.38**	15.47	**16.89**	15.64	**22.31**	17.56	**22.72**	16.91	**23.22**	18.30
		(0.00)	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)
Non-Youth (35-64)		**12.51**	8.43	**12.00**	9.27	**11.56**	9.94	**12.79**	10.65	**15.55**	13.73	**18.21**	15.11
		(0.00)	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)
Youth (15-34)	Skilled Agricultural, Forestry and	0.65	2.29	2.99	6.72	2.71	3.23	0.28	0.71	0.24	0.49	0.16	0.45
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Non-Youth (35-64)		0.69	3.37	3.50	7.37	3.93	3.91	0.47	1.38	0.52	1.18	0.10	0.63
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Youth (15-34)	Craft and Related Trade Workers	3.59	18.88	5.08	20.37	4.74	20.29	4.21	22.43	3.83	21.29	3.63	21.30
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Non-Youth (35-64)		4.95	19.78	5.30	22.22	5.10	20.96	4.09	21.52	3.56	19.57	3.41	20.40
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Youth (15-34)	Plant and Machine Operators, and	5.52	13.21	4.08	15.06	3.58	12.95	3.32	13.06	2.76	13.11	2.66	12.99
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Non-Youth (35-64)		5.18	16.52	4.04	21.49	3.27	18.68	2.99	15.56	2.75	15.08	2.59	15.22
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Age Group	SASCO	1994		1999		2004		2009		2014		2019	
		F	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*
Youth (15-34)	Elementary Workers	**20.81**	**29.31**	**25.43**	**25.52**	**27.60**	**34.17**	**22.93**	**29.39**	**23.36**	**30.14**	**24.60**	**30.47**
		(0.00)	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**
Non-Youth (35-64)		**20.29**	**24.11**	**24.25**	**20.04**	**25.83**	**26.54**	**24.56**	**23.80**	**24.43**	**23.61**	**25.65**	**24.15**
		(0.00)	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**
N	**292939**												

Source: PALMS dataset (1993 – 2019)

Notes:

1. *Own calculations.*
2. *All concentration rates were significant with p<0.001.*
3. *Concentration = (total gender age group in occupation÷ total employees in occupation) ÷ (total gender age group employed ÷total employed) x 100*
4. *The sample is restricted to the working age i.e., the ages 15 to 64 years.*
5. *The youth category consists of the sample between 15 to 34 years and the non-youth are between 35 and 64 years.*

4.3.2. Gender occupational concentration by race

Table 9 illustrates the occupational concentration by gender and race. Similar to the results in table 8 the level of concentration is calculated using the share of women and men in a particular occupational group by race against overall working-age employment. For the female sample, the results indicate that there is an overrepresentation of Indian and White females in the top four occupational groups compared to Black and Coloured females. The inverse is true with Black and Coloured women being overrepresented in the bottom 5 occupational groups compared to Indian and White females. This is consistent with results from a study conducted by Gradín (2019) revealed that occupations remain highly segmented by race, with a significant number of Black people occupying elementary occupations relative to Whites.

The only occupational group that seems to have transformed to have a higher concentration of Black and Coloured women over the years is the service and sales workers and armed forces category, where initially Black women had a concentration rate of 11,36 in 1994 and 14,52 percent for Coloured women, to 20,77 percent and 20,94 percent respectively, versus a concentration rate of 13,04 percent for White women to a reduced number of 10,74 percent by 2019.

Table 9: Occupational concentration by gender and race (%)

Industry	SASCO	1994		1999		2004		2009		2014		2019	
		F	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*
Black	Manager	2,1	3,95	**1,53**	2,97	**1,64**	3,86	2,78	5,02	**3,08**	**5,57**	**3,61**	**6,49**
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**
Coloured		1,19	3,38	**3,07**	5,64	**2,92**	5,21	4,58	7,7	**5,68**	**8,59**	**6,66**	**9,07**

Industry	SASCO	1994		1999		2004		2009		2014		2019	
		F	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Indian		5,07	**14,69**	**8,07**	**20,87**	**10,42**	**27,55**	12,59	**23,19**	**13,89**	**28,24**	**17,54**	**33,81**
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**
White		7,64	**19,58**	**13,77**	**26,84**	**16,74**	**32,5**	17,11	**32,55**	**21,92**	**36,08**	**23,26**	**41,2**
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	**(0.00)**	(0.00)	**(0.00)**
Black	Professionals	7,72	3,95	3,97	6,29	3,32	2,25	3,79	3,09	4,05	3,2	4,81	3,14
		(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Coloured		3.24	2.14	2.39	2.69	1.78	1.75	4.99	4.12	4.65	4.20	4.90	3.71
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)
Indian		6.89	5.91	8.42	6.58	8.06	7.68	11.16	9.96	13.66	11.52	14.67	7.46
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
White		13.16	10.63	15.13	13.90	11.20	9.85	15.43	15.53	15.80	16.23	17.62	13.14
		(0.00)	(0.00)	(.)	(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)	(0.00)
Black	Technicians and Associate Professionals	9.33	4.50	12.30	5.52	11.76	6.38	12.86	8.58	12.62	7.46	10.09	6.23
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Coloured		6.78	3.94	9.57	6.50	10.41	6.71	14.16	10.42	13.17	9.86	9.68	7.80
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Indian		10.34	10.16	16.14	13.15	14.55	11.85	24.74	13.54	22.84	12.37	14.67	11.59
		(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
White		16.92	14.96	20.90	16.06	22.92	15.00	27.65	18.15	24.78	14.10	21.94	15.47
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Black	Clerical Support Workers	**8.42**	6.12	**9.15**	13.34	**9.07**	4.71	**11.92**	5.65	**13.73**	5.84	**14.92**	5.27
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Coloured		17.83	6.59	17.18	6.30	18.63	6.23	24.26	8.63	23.04	8.16	22.21	7.36
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Indian		**39.83**	16.26	**35.44**	13.38	**39.13**	14.00	**34.57**	15.14	**32.14**	11.87	**30.62**	12.22
		(0.00)	(0.00)	(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
White		**49.76**	9.31	**38.46**	7.66	**40.71**	7.49	**37.37**	5.14	**31.78**	4.45	**30.13**	3.91
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Black	Service and Sales Workers and Armed Forces	**11.36**	10.14	13.43	7.70	14.01	13.67	18.13	15.47	19.56	17.04	**20.77**	17.83
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Coloured		14.52	6.94	13.99	7.87	13.94	8.72	14.75	9.02	17.42	10.78	**20.94**	12.50
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Indian		18.75	17.64	15.44	11.79	14.55	14.56	12.70	13.48	14.72	15.60	**20.41**	17.14
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)
White		13.04	9.66	12.34	9.56	11.12	9.38	7.96	7.63	9.64	7.89	**10.74**	8.07
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Black	Skilled Agricultural, Forestry and Fishery Workers	0.32	1.28	3.88	22.30	4.72	3.90	0.44	0.67	0.00	0.58	0.00	0.00
		(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)	(.)	(.)
Coloured		1.32	3.48	3.19	6.70	0.64	2.11	0.09	0.97	0.00	1.10	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)	(.)	(.)
Indian		0.10	1.48	0.70	0.91	0.98	0.45	0.11	0.45	0.00	0.07	0.00	0.00
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)	(.)	(.)
White		0.89	5.76	1.14	6.23	0.97	4.83	0.56	3.78	0.00	2.79	0.00	0.00
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)	(.)	(.)
Black	Craft and Related Trade Workers	4.96	13.65	5.96	22.56	5.69	21.24	4.68	22.50	4.02	20.89	3.95	21.57
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Coloured		3.86	22.20	4.11	21.37	4.21	20.53	4.09	24.21	3.84	21.48	2.30	19.80
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Indian		6.59	18.66	4.21	17.69	5.31	13.43	2.65	13.41	1.65	12.79	3.19	13.18
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
White		2.81	27.00	3.21	18.60	2.13	20.13	1.16	18.53	1.41	17.31	0.85	17.97
		(0.00)	(0.00)	(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Black	Plant and Machine Operators, and Assembler	4.44	20.23	3.53	23.73	3.30	19.56	2.92	16.75	2.52	16.50	2.67	16.31
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Coloured		9.57	14.75	7.12	16.55	4.91	14.26	6.05	13.30	5.23	12.74	3.81	13.44
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Indian		12.77	15.33	11.58	12.47	9.64	12.42	5.85	13.09	4.83	9.77	2.55	6.19

Industry	SASCO	1994		1999		2004		2009		2014		2019	
		F	***M***	***F***	***M***	***F***	***M***	***F***	***M***	***F***	***M***	***F***	***M***
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
White		0.73	6.51	1.43	4.97	0.82	4.91	0.39	3.96	0.55	4.41	0.62	2.63
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Black	Elementary Workers	29.41	38.68	29.15	4.26	30.56	33.01	28.72	30.39	28.46	30.01	28.26	29.50
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Coloured		28.46	40.21	29.32	35.74	32.72	43.38	22.19	30.44	21.84	30.86	26.69	33.24
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Indian		3.95	6.14	7.72	9.98	6.49	7.68	4.09	6.64	3.77	5.62	3.51	5.71
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
White		1.74	3.61	2.35	5.23	2.36	5.13	1.27	3.60	1.46	4.57	1.70	3.48
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
N		**292824**											

Source: PALMS dataset (1993 – 2019)

Notes:

1. *Own calculations.*
2. *All concentration rates were significant with p<0.001.*
3. *Concentration = (total gender race in occupation÷ total employees in occupation) ÷ (total gender race employed ÷total employed) x 100*
4. *The sample is restricted to the working age i.e., the ages 15 to 64 years.*

One significant feature is that while the overall concentration for females in table 7, is just above 5 percent, the concentration of Indian and White women in management positions is well above 10 percent across the different years, especially from the year 2004 for Indian women. In addition, relative to their Black and Coloured counterparts, the concentration of Indian and White females in management positions has been increasing exponentially compared to Black and Coloured females in the same positions. In the year 1994, the concentration of women in management positions was 2,1 percent for Black females, 1,19 percent for coloured females, 5,07 percent for Indian women and 7,64 percent for White women. By 2014 and 2019, these figures increased by only 0,9 percent and 1,51 percent for Black women, 4,49 percent and 5,47 percent for Coloured women, 8,82 and 12,47 percent for Indian women and 14,28 percent and 15,62 percent for White. As a result, one may argue that the gradual increase in the distribution, as well as the concentration of women in management positions, is largely accounted for by Indian and White women.

The concentration of White males in management positions as expected has been higher than the concentration of any other group throughout the years. The overrepresentation of White males in management positions has also been increasing significantly throughout the years compared to other demographic groups. White males in management positions in 2019 (41,2 percent) is almost 6 times more than the concentration rate of Black males (6,49 percent) in the position and almost 14 times more than the concentration of Black women in this category (3,61 percent).

4.3.3. Gender occupational concentration by the level of education

Table 10 outlines occupational concentration by the highest level of education. No data was recorded for no schooling and honours/masters/PhD for the years preceding 2014 in the dataset. As described earlier, the respective occupational groups associated with skills levels are based on education qualification, therefore it comes as no surprise that the concentration levels depicted in this table are aligned with the level of education.

Relative to other characteristics profiled above, there is quite a high concentration of women with post-graduate qualifications in management positions for the years 2014 and 2019 (22,92 percent and 21,76 percent respectively). With that said, males with a post-graduate degree are over-concentrated in management positions (30,73 percent in 2014 and 39,15 percent in 2019), whereas the highest over-concentration of females with a post-graduate qualification is two levels below management i.e., the technicians and associate professionals' category. In addition, males with an undergraduate qualification were also mostly concentrated in management positions (24,49 percent in 2014 and 26,36 percent in 2019), whereas women with the same level of qualifications were concentrated in five occupational categories below in the service and sales and armed forces group with a concentration of 22,78 percent in 2014 and 25,13 percent in 2019.

Table 10: Occupational concentration by gender and highest level of education (%)

Education	SASCO	1994		1999		2004		2009		2014		2019	
		F	***M***	***F***	***M***	***F***	***M***	***F***	***M***	***F***	***M***	***F***	***M***
No Schooling	Manager	0	0	0	0	0	0	0	0	0.34	1.57	0.88	1.87
										(0.00)	(0.00)	(0.00)	(0.00)
Primary		0	0	0	0	0	0	0	0	0.71	2.13	1.09	2.35
										(0.00)	(0.00)	(0.00)	(0.00)
Secondary		0	0	0	0	0	0	0	0	4.73	8.53	4.13	8.45
										(0.00)	(0.00)	(0.00)	(0.00)
Certificate/Diploma/Degree		0	0	0	0	0	0	0	0	12.14	**26.49**	12.74	**26.36**
										(0.00)	**(0.00)**	(0.00)	**(0.00)**
Honours/Masters/PhD		0	0	0	0	0	0	0	0	**22.92**	**30.73**	**21.76**	**39.15**
										(0.00)	**(0.00)**	**(0.00)**	**(0.00)**
No Schooling	Professionals	0	0	0	0	0	0	0	0	0	0.10	0	0.00
											(0.00)		(.)
Primary		0	0	0	0	0	0	0	0	0	0.39	0	0.00
											(0.00)		(.)
Secondary		0	0	0	0	0	0	0	0	0	1.66	0	0.00
											(.)		(.)
Certificate/Diploma/Degree		0	0	0	0	0	0	0	0	0	23.03	0	0.00
											(0.00)		(.)
Honours/Masters/PhD		0	0	0	0	0	0	0	0	0	45.60	0	0.00

Education	SASCO	1994		1999		2004		2009		2014		2019	
		F	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*
											(0.00)		(.)
No Schooling	Technicians and Associate Professionals	0	0	0	0	0	0	0	0	3.04	1.57	3.24	1.87
										(0.00)	(0.00)	(0.00)	(0.00)
Primary		0	0	0	0	0	0	0	0	2.17	2.12	0.89	1.38
										(0.00)	(0.00)	(0.00)	(0.00)
Secondary		0	0	0	0	0	0	0	0	8.24	6.64	5.40	5.31
										(0.00)	(0.00)	(0.00)	(0.00)
Certificate/Diploma/Degree		0	0	0	0	0	0	0	0	**42.35**	**25.53**	**35.85**	**23.42**
										(0.00)	**(0.00)**	(0.00)	**(0.00)**
Honours/Masters/PhD		0	0	0	0	0	0	0	0	14.40	9.20	10.49	6.14
										(0.00)	(0.00)	(0.00)	(0.00)
No Schooling	Clerical Support Workers	0	0	0	0	0	0	0	0	0.59	0.88	0.88	0.31
										(0.00)	(0.00)	(0.00)	(0.00)
Primary		0	0	0	0	0	0	0	0	1.44	1.43	1.23	0.97
										(0.00)	(0.00)	(0.00)	(0.00)
Secondary		0	0	0	0	0	0	0	0	20.83	7.00	19.58	6.14
										(0.00)	(0.00)	(0.00)	(0.00)
Certificate/Diploma/Degree		0	0	0	0	0	0	0	0	20.63	8.32	21.98	8.63
										(0.00)	(0.00)	(0.00)	(0.00)
Honours/Masters/PhD		0	0	0	0	0	0	0	0	4.41	2.35	5.50	1.02
										(0.00)	(0.00)	(0.00)	(0.00)
No Schooling	Service and Sales Workers and Armed Forces	0	0	0	0	0	0	0	0	11.72	7.36	13.54	4.98
										(0.00)	(0.00)	(0.00)	(0.00)
Primary		0	0	0	0	0	0	0	0	13.56	7.27	13.58	8.33
										(0.00)	(0.00)	(0.00)	(0.00)
Secondary		0	0	0	0	0	0	0	0	**22.78**	18.26	**25.13**	19.45
										(0.00)	(0.00)	**(0.00)**	(0.00)
Certificate/Diploma/Degree		0	0	0	0	0	0	0	0	8.08	9.69	9.54	12.25
										(0.00)	(0.00)	(0.00)	(0.00)
Honours/Masters/PhD		0	0	0	0	0	0	0	0	6.76	5.28	1.31	1.02
										(0.00)	(0.00)	(0.00)	(0.00)
No Schooling	Skilled Agricultural, Forestry and Fishery Workers	0	0	0	0	0	0	0	0	0	1.77	0	0.93
											(0.00)		(0.00)
Primary		0	0	0	0	0	0	0	0	0	1.25	0	1.02
											(0.00)		(0.00)
Secondary		0	0	0	0	0	0	0	0	0	0.79	0	0.47
											(0.00)		(0.00)
Certificate/Diploma/Degree		0	0	0	0	0	0	0	0	0	0.98	0	0.52
											(0.00)		(0.00)
Honours/Masters/PhD		0	0	0	0	0	0	0	0	0	0.59	0	0.51
											(0.00)		(0.00)
No Schooling	Craft and Related Trade Workers	0	0	0	0	0	0	0	0	3.79	20.31	0.00	25.23
										(0.00)	(0.00)	(.)	(0.00)
Primary		0	0	0	0	0	0	0	0	4.48	25.75	0.00	26.08
										(0.00)	(0.00)	(.)	(0.00)
Secondary		0	0	0	0	0	0	0	0	4.32	22.22	0.00	22.35
										(0.00)	(0.00)	(.)	(0.00)
Certificate/Diploma/Degree		0	0	0	0	0	0	0	0	1.23	7.47	0.00	9.90
										(0.00)	(0.00)	(.)	(0.00)
Honours/Masters/PhD		0	0	0	0	0	0	0	0	0.59	4.70	0.00	0.77

Education	SASCO	1994		1999		2004		2009		2014		2019	
		F	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*	*F*	*M*
										(0.00)	(0.00)	(.)	(0.00)
No Schooling	Plant and Machine Operators, and Assemblers	0	0	0	0	0	0	0	0	0.00	12.46	0.88	13.71
										(.)	(0.00)	(0.00)	(0.00)
Primary		0	0	0	0	0	0	0	0	0.00	17.23	1.36	14.47
										(.)	(0.00)	(0.00)	(0.00)
Secondary		0	0	0	0	0	0	0	0	0.00	16.45	3.42	17.02
										(.)	(0.00)	(.)	(0.00)
Certificate/Diploma/Degree		0	0	0	0	0	0	0	0	0.00	3.24	1.13	4.10
										(.)	(0.00)	(0.00)	(0.00)
Honours/Masters/PhD		0	0	0	0	0	0	0	0	0.00	1.96	0.52	1.54
										(.)	(0.00)	(0.00)	(0.00)
No Schooling	Elementary Workers	0	0	0	0	0	0	0	0	**49.58**	**58.97**	**49.47**	0.00
										(0.00)	**(0.00)**	**(0.00)**	(.)
Primary		0	0	0	0	0	0	0	0	41.53	49.00	45.38	0.00
										(0.00)	(0.00)	(0.00)	(.)
Secondary		0	0	0	0	0	0	0	0	26.10	25.87	29.16	0.00
										(.)	(0.00)	(0.00)	(.)
Certificate/Diploma/Degree		0	0	0	0	0	0	0	0	2.85	3.04	3.56	0.00
										(0.00)	(0.00)	(0.00)	(.)
Honours/Masters/PhD		0	0	0	0	0	0	0	0	9.11	7.24	0.79	0.00
										(0.00)	(0.00)	(0.00)	(.)
N	**100327**												

Source: PALMS dataset (1993 – 2019)

Notes:

1. *Own calculations.*
2. *All concentration rates were significant with p<0.001.*
3. *Concentration = (total gender education in occupation÷ total employees in occupation) ÷ (total gender education employed ÷total employed) x 100*
4. *The sample is restricted to the working age i.e., the ages 15 to 64 years.*

In terms of community status, the vast majority of both sexes living in non-urban areas were concentrated in elementary occupations throughout the years concentration levels for both females and males have been above 35 percent, compared to a maximum percentage point of 22 percent for individuals in urban areas. (refer to A5). Consistent with the results of the distribution statistics, there was also a higher concentration of women in urban areas occupying clerical support positions, however, the figures have been decreasing over the years from 29,79 percent in 1994 to an average of 20,67 percent for the years 2009, 2014 and 2019. Other than elementary occupations, males from urban and non-urban areas were also concentrated in what has been established as "male-dominated" occupations i.e., craft and related trade occupations, with an average of 20,85 percent for males in urban areas and 21,31 percent for the years 2009, 2014 and 2019, compared to 3,53 percent for females in urban areas and 4,37 percent non-urban females in the same period.

4.3.4. Gender occupational concentration by industry

As illustrated in the literature review, traditionally certain industries have been designated by society for certain gender preferences. This has further been corroborated by the statistics in the distribution of the two sexes by occupation and industry (see appendix A4).

Overall occupational concentration by industry (see appendix A6) shows that females are concentrated in a narrower range of occupations and industries than males. However, results have shown that there is an overrepresentation of both sexes in the agriculture, hunting, forestry and fisheries industry. This is especially the case for women in this industry where for the years 2009, 2014 and 2019, the concentration of women in elementary occupations has been over 90 percent versus an average of 72,39 percent concentration rate for males. The construction industry also accounts for a concentration level of over 50 percent of women in elementary occupations and similar to the case of Agriculture, Hunting, Forestry and Fisheries, the figures have been increasing substantially over the years, from 31,12 percent in 2009 to 58,07 percent 10 years later in 2019. Similar to the results in the concentration by race, education and community status, there is a high concentration of women in the Trade industry employed in the service and sales and armed forces occupational group relative to males. However, the Finance industry accounts for a significantly higher concentration rate of males in the service and sales and armed forces occupation, relative to females (39,42 percent in 2019 versus 15,12 percent of females in the same year).

Consistent with the results of the overall concentration by gender, there is an underrepresentation of females in male-dominated occupations and sectors. For instance, in the Construction industry, and under the craft and related occupation, males accounted for 64,88 percent in 2009, 67,02 percent in 2014 and 69,32 percent in 2019; whereas females accounted for 18,65 in 2009 and there was no concentration recorded in the following years. A similar pattern is observed in the mining and quarrying, manufacturing, and utility industries. The underrepresentation of women in male-dominated industries can be attributed to several barriers to entry, including the socio-cultural customs and stereotypes that classify women with restrictive features and capabilities to participate in these occupation groups (Adisa et al., 2021). For instance, the physical intensity of industries in South Africa might mean there is an inherent bias towards male-oriented labour forces versus females. These norms may amplify existing disparities by justifying discrimination in the labour market, despite improvements in education and skills, and inevitably, shape women's engagement and preferences in the labour force. These rigid gender roles affect not only the kinds of work performed by females and males but also the volumes of work they do, when considering that women bear the larger burden of unpaid care and household labour.

4.4. Conclusion

This chapter of the report presented the descriptive statistics for occupational distribution in the South African labour market for the years 1994, 1999, 2004, 2009 and 2019. The first section of the report looked at the labour force participation rate of both females and males and further disaggregated the data by youth and non-youth. Despite the results illustrating that women make up the majority of the South African labour force, men have consistently had a higher labour force participation rate than women throughout the years.

The section also provided a descriptive account of the extent to which females occupy certain occupational groups relative to males. As alluded to in the literature review, the majority of males still make up the majority of individuals in management occupations, however, there was a higher proportion of females in the technicians and associate professionals occupations. The clerical support work and service and sales and armed forces occupational groups also came out as female-dominated occupations, whereas males tend to dominate craft and related occupations, as well as plant and machine operators' occupations.

This was proved by the results of the occupational concentration by gender. While there was an overrepresentation of both sexes in elementary occupations, even when taking into account race, education, industry and community status, females had higher concentration levels in elementary occupations compared to males, especially when data is disaggregated by industry. There was also a high concentration of female youth in the service and sales and armed forces, as well as clerical support occupations. Overall, the results of the descriptive analyses show that the majority of occupational groups are highly gender.

To explore the relationship between female occupational concentration and other characteristics such as race, education and industry, the next chapter of the report outlines the results of the multiple linear regression model.

Chapter 5: Inferential Statistics

5.1. Introduction

The final chapter on the data analysis presents the results of the regression analysis as described in the methodology section. As presented in the literature review, various factors influence labour market outcomes, therefore to assess what characteristics are correlated to female concentration in the respective occupational groups a multiple linear regression model is employed. Using the PALMS dataset from 1993 to 2019, this chapter examines the determinants of gender occupational concentration for labour market participants. Since the analyses are mainly concerned with those that are employed, all analyses are restricted to the labour force of working age. The main variable of interest is female concentration.

The first section outlines the probability of female and male occupational concentration based on demographic characteristics such as age, race, province, and community status, as well as the labour market characteristics i.e., SASCO and industry. In the second part of this chapter, this analysis is disaggregated by age group to assess the extent to which the regression estimates are different for those characterised as youth and non-youth.

5.2. Multiple linear regression analysis of the determinants of gender occupational concentration

Table 11 outlines the estimations of individual factors that correlate with gendered occupational concentration. Two sets of regression estimates have been constructed to test the likelihood of female occupational concentration and the likelihood of male occupational concentration with various possible covariates including demographic characteristics such as age, race, year, province, community status and marital status, as well as human capital variables such as occupational attainment (SASCO), the highest level of education and industry.

There is a linear relationship between age and female occupational concentration – as individuals get older, the more likely they are to be concentrated across the different occupational groups with female concentration. For the male-concentrated occupations, the coefficient is negative, however, these coefficients are both not significant. With that said, this is consistent with the results of the descriptive analysis, where there was a higher concentration of male youth in female-dominated occupations and low distribution of females in male-dominated. Based on this, women are therefore more likely to be concentrated in what is already considered female-dominated occupational groups as they get older.

Table 11: OLS regression of occupational concentration by gender (coefficients displayed)

Multiple Linear Regression Model		
Dependent Variable: Occupational Concentration	**Female Cons.**	**Male Cons.**
Age	**0.005**	**-0.001**
	(0.002)	**(0.002)**
Age2	-0.000*	-0.000
	(0.000)	(0.000)
Gender (Ref: Male)		
Female	0.028***	0.006
	(0.007)	(0.006)
Race (Ref: Black)		
Coloured	0.010	0.006
	(0.013)	(0.011)
Indian	0.027	**0.036***
	(0.019)	**(0.016)**
White	0.012	**-0.044*****
	(0.013)	**(0.010)**
Age Group (Ref: Youth)		
Non-Youth	0.046***	0.055***
	(0.011)	(0.009)
SASCO (Ref: Manager)		
Professional	0.461***	**-5.202*****
	(0.014)	(0.012)
Technicians and Associate Professionals	**8.477*****	**-1.193*****
	(0.016)	(0.013)
Clerical Support Workers	**12.214*****	**-3.825*****
	(0.016)	(0.011)
Service and Sales Workers and Armed Forces	**12.041*****	**4.308*****
	(0.015)	(0.013)
Skilled Agricultural, Forestry and Fishery Workers	-3.362***	**-6.910*****
	(0.052)	(0.077)
Craft and Related Trade Workers	-1.230***	**10.845*****
	(0.010)	(0.011)
Plant and Machine Operators, and Assemblers	-2.072***	4.796***
	(0.013)	(0.014)
Elementary Workers	**19.073*****	**16.240*****
	(0.011)	(0.011)
Province (Ref: Western Cape)		
Eastern Cape	0.012	-0.005
	(0.016)	(0.014)
Northern Cape	**-0.036***	**-0.069*****
	(0.018)	**(0.017)**
Free State	-0.020	0.021
	(0.019)	(0.015)
Kwa-Zulu Natal	0.002	-0.024
	(0.015)	(0.013)
North-West	-0.023	-0.034*
	(0.019)	(0.016)
Gauteng	-0.026	-0.016
	(0.015)	(0.012)
Mpumalanga	**-0.035***	**-0.053*****
	(0.017)	**(0.015)**
Limpopo	-0.032	**-0.039****
	(0.019)	**(0.015)**
Community Status (Ref: Urban)		
Non-Urban	0.013	**0.047*****
	(0.010)	**(0.009)**
Education (Ref: No Schooling)		
Primary	**0.091*****	**0.142*****

Multiple Linear Regression Model		
Dependent Variable: Occupational Concentration	**Female Cons.**	**Male Cons.**
	(0.021)	**(0.016)**
Secondary	0.065**	**0.072***
	(0.020)	**(0.015)**
Certificate/Diploma/Degree	**0.106***	**0.145***
	(0.023)	**(0.017)**
Honours/Masters/PhD	0.017	0.025
	(0.030)	(0.027)
Industry (Ref: Agriculture, hunting, forestry and fishing)		
Mining and Quarrying	**0.081**	**0.074***
	(0.030)	**(0.030)**
Manufacturing	**0.080***	-0.003
	(0.024)	(0.022)
Utilities	-0.045	**-0.126***
	(0.037)	**(0.032)**
Construction	-0.019	-0.037
	(0.024)	(0.021)
Trade	0.030	-0.048*
	(0.024)	(0.021)
Transport	-0.031	**-0.087***
	(0.025)	**(0.022)**
Finance	0.072**	0.022
	(0.024)	(0.022)
Services	0.076**	-0.003
	(0.025)	(0.021)
Domestic Services	**-0.118***	**0.187***
	(0.033)	**(0.029)**
Marital Status (Ref: Married)		
Widow/Widower	0.002	-0.004
	(0.017)	(0.015)
Divorced	0.003	0.005
	(0.016)	(0.014)
Never married	-0.004	-0.012*
	(0.007)	(0.006)
Years (Ref: 1994)		
1999	**-0.128**	**-0.072***
	(0.047)	**(0.030)**
2004	**0.193***	**0.891***
	(0.051)	**(0.034)**
2009	**0.314***	**0.637***
	(0.043)	**(0.018)**
2014	**0.499***	**0.545***
	(0.043)	**(0.018)**
2019	**0.842***	**0.755***
	(0.044)	**(0.019)**
Constant	4.601***	9.475***
	(0.076)	(0.052)
N	**705598**	**705598**

Source: PALMS dataset (1993 – 2019)

Notes:

1. *Own calculations. Data are weighted, Standard errors are in parentheses*
2. ** p < 0.05, ** p < 0.01, *** p < 0.001*
3. *The sample is restricted to those of working age i.e., the ages 15 to 64 years.*

In terms of race, despite the stark differences in the occupational distribution and concentration of females of different racial groups, the race coefficients were not significant for the female concentration

results. Whereas for the male-concentrated occupations, Indian employees were 0,036 percentage points more likely to be employed in occupation groups where males are over-represented. White individuals, on the other hand, were less likely to be employed in occupation groups with a male over-representation, with a coefficient of -0,044. The negative coefficient for White in the male concentration reflects the relatively smaller sample size of the White workforce. They may not necessarily be crowded into occupation groups where other race groups are over-represented.

In terms of the actual occupational groups, the correlation coefficients were all statistically significant and much higher than all other explanatory variables. Overall, there is a higher chance of employees in elementary occupations being concentrated in highly concentrated occupation groups than in any other occupational group, with a 19.07 coefficient for individuals in female concentrated occupations and a 16.24 percentage point for individuals in male concentrated occupations. This is also reflective of the descriptive statistics where there was a higher percentage of both females and males concentrated in elementary occupations than in any other occupation, especially Black and Coloured employees. The Stats SA (2022) QLFS data also illustrates that there is a higher proportion of employees in elementary positions than in management ones. For instance, in 2021 elementary occupations accounted for 3,60 million employees versus 1,40 million employees in management positions, and in 2022, there were 3,64 million employees in elementary occupations, versus 1,25 million employees in management positions (Statistics South Africa, 2022).

Consistent with the results of the descriptive statistics, individuals employed in clerical support occupations are 12.21 percent points more likely to be concentrated in highly feminised occupations, whereas those that are in male concentrated occupations are less likely to occupy clerical support work was 3.85 percentage points less likely to be employed in a male concentrated occupation group. Based on the descriptive statistics, the sample group with the highest concentration in this occupational group were females, and when the data was further disaggregated by race, Indian females had a concentration of rate of 30.62 percent while, White females accounted for 30.13 percent in 2019, compared to 5.27 percent of Black females. The service and sales occupational group also had a significantly higher correlation with female concentration than other occupational groups. These findings are consistent with the results of studies on gender occupational segregation in South Africa (Gradín, 2019, 2021) which indicated that there is a large cumulative proportion of females at the bottom of the occupational structure, as well as in intermediary positions. To some degree, this segregation contributes to the large variances in earnings between males and females, while occupations considered to be female-dominated are consistently undervalued and incur wage drawbacks for both men and women within the occupation (Das & Kotikula, 2019; Gradín, 2019, 2021; Hustad et al., 2020). Similar to clerical support workers,

individuals employed in service and sales and armed forces were 12.04 more likely to be employed in the occupation group with high female concentration compared to those in management positions. However, unlike clerical support work, the service and sales and armed forces is the only occupational group with a positive correlation for individuals that are employed in both female and male-concentrated occupations.

As mentioned earlier, previous studies (Gradín, 2019, 2021; Ntuli, 2009; Parashar, 2014) have positively correlated the returns from education relative to other factors for upward mobility and gender representativity in the South African labour market. Concentration was insignificant for individuals with a post-graduate qualification and the correlation between female concentration and male concentration was high for employed individuals with a certificate/diploma/degree qualification. Meaning that the probability of being employed in concentrated occupations was higher by 0.10 and 0.14 percentage points than individuals with no schooling. If we compare this with the outcomes of the descriptive statistics, the results show that there was a higher percentage of individuals with a certificate/diploma/degree in all the female and male-dominated occupations, while individuals with no schooling were mostly concentrated in elementary occupations. Therefore, individuals with a qualification are more likely to be employed in highly concentrated occupational groups, supporting the point that education positively influences employment outcomes.

The correlation between province and gender concentration was insignificant for most of the provinces, except for individuals in the Northern Cape and Mpumalanga, as well as Limpopo. Relative to the Western Cape, individuals living in the Northern Cape and Mpumalanga were less likely to be concentrated in high female-concentrated occupation groups, with a coefficient of -0,036 and -0,035 for individuals in female concentrated occupations respectively, and -0,069 and -0,053 for male concentrated occupation groups.

In terms of industry, individuals employed in the mining and quarrying industry (0.08 coefficient), as well as manufacturing (0.08 coefficient), were most likely to be employed in female-concentrated occupation groups, which is consistent with the descriptive results which illustrated that mining and quarrying, as well as manufacturing, had higher female concentration levels for females employed as technicians and associate professionals, clerical support work and service and sales, than the agriculture, hunting and fisheries industry across all the measurement points. Individuals employed in male-concentrated occupations on the other hand, had a higher chance of being concentrated in agriculture, hunting, forestry and fishing, than in all other significant industries, except for the mining and quarrying

industry where the percentage point was 0,07 and domestic services with a 0,18 percentage point of likelihood.

5.3. Multiple linear regression analysis of the determinants of gender occupational concentration by age group

Similar to the section above, table 12 presents the outcomes of the regression model to assess the likelihood of gender occupational concentration for both females and males concentration by age group. Overall, the coefficients for the youth and non-youth samples are relatively similar for both individuals employed in female and male-concentrated occupations. Age was only significant for young individuals employed in male-concentrated occupations with a negative percentage point of 0.025, meaning that young individuals employed in male-concentrated occupations were less likely to be concentrated in these occupations the older they get. While the coefficients for female concentration and the gender variable were relatively low, gender was significant for both young individuals in female-concentrated occupations (0.02) and the non-youth (0.03), indicating that females were more likely to be employed in female-concentrated occupation groups than in male concentrated occupations. That is further illustrated by the even lower coefficients and insignificant coefficients for females in male-concentrated occupation groups. Race was also only statistically significant for White individuals in male-concentrated occupation groups. Similar to the previous set of regressions, both youth and non-youth Whites are unlikely to be employed in male concentrated occupations.

Overall, the results show that when it comes to occupational concentration, gender concentration for both youth and non-youth follows a similar pattern as the overall results in the previous regression, especially for individuals in female concentrated occupations. Consistent with the previous regression analysis, when we look at the regression results by occupational group, except for elementary occupations, both youth and non-youth individuals in clerical support occupations were also most likely to be concentrated in female-concentrated occupations, with a 12.28 percentage point for youth and 12.16 for the non-youth. In addition, individuals occupying positions in female-concentrated occupational groups had a higher chance of also being employed as service and sales workers and technicians, as well as associate professional occupations compared to their counterparts in male-concentrated occupations.

Despite the higher proportions of male youth in the service and sales and armed forces occupational group in the descriptive statistics, in the regression analysis, the probability of young individuals being employed in male concentrated occupations in the service and sales and armed forces occupation group is similar to the likelihood of the non-youth with positive coefficients of 4,19 and 4,45 respectively.

Education was insignificant for individuals classified as youth employed in female concentrated occupations. Similar to the results in the previous section, non-youth individuals with a certificate/diploma/degree qualification had the highest probability of being employed in both female and concentrated occupations, with 0.11 and 0.15 percentage points, respectively. Except for domestic services, the likelihood of being concentrated in feminised occupation was higher for non-youth individuals working in the finance industry than all other industries. Based on the outcomes of the descriptive statistics, this is likely made up of females in clerical support occupations, technicians and associate professionals and those in the service and sales, and armed forces.

Lastly, consistent with the results of the overall regression, the likelihood of concentration for both youth and non-youth individuals employed in female-concentrated occupational groups has been increasing throughout the different measurement points. A similar pattern is also observed for individuals in male-concentrated occupational groups. Therefore, based on these statistics, the trajectory of the labour market seems to be reinforcing gender occupational distribution and concentration in occupations that have already been established as highly concentrated by either males or females, with very little change in the generations that make up the labour force.

Table 12: OLS regression of occupational concentration by gender and age group (coefficients displayed)

Multiple Linear Regression Model				
Dependent Variable: Occupational Concentration	**Female Cons.**		**Male Cons.**	
	Youth	**Non-Youth**	**Youth**	**Non-Youth**
Age	-0.019	0.011	**-0.025***	0.008
	(0.013)	(0.006)	**(0.012)**	(0.005)
Age2	0.000	-0.000*	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Gender (Ref: Male)				
Female	0.024*	**0.031*****	0.007	0.006
	(0.010)	**(0.008)**	(0.009)	(0.007)
Race (Ref: Black)				
Coloured	-0.009	0.016	-0.006	0.010
	(0.019)	(0.015)	(0.016)	(0.014)
Indian	0.040	0.017	0.041	0.033
	(0.028)	(0.021)	(0.024)	(0.019)
White	0.011	0.007	**-0.062*****	**-0.035****
	(0.023)	(0.014)	**(0.016)**	**(0.011)**
SASCO (Ref: Manager)				
Professional	0.588***	0.385***	**-5.062*****	**-5.278*****
	(0.019)	(0.016)	**(0.019)**	**(0.014)**
Technicians and Associate Professionals	**8.543*****	**8.439*****	-1.103***	-1.234***
	(0.025)	**(0.019)**	(0.022)	(0.015)
Clerical Support Workers	**12.280*****	**12.160*****	**-3.747*****	**-3.876*****
	(0.023)	**(0.019)**	**(0.017)**	**(0.013)**

Multiple Linear Regression Model				
Dependent Variable: Occupational Concentration	**Female Cons.**		**Male Cons.**	
	Youth	**Non-Youth**	**Youth**	**Non-Youth**
Service and Sales Workers and Armed Forces	**11.885*****	**12.210*****	**4.195*****	**4.450*****
	(0.021)	**(0.018)**	**(0.020)**	**(0.016)**
Skilled Agricultural, Forestry and Fishery Workers	**-2.958*****	**-3.589*****	**-6.191*****	**-7.309*****
	(0.083)	**(0.055)**	**(0.136)**	**(0.075)**
Craft and Related Trade Workers	-1.176***	-1.262***	**10.922*****	**10.805*****
	(0.016)	(0.012)	**(0.019)**	**(0.013)**
Plant and Machine Operators, and Assemblers	-2.000***	-2.110***	4.865***	4.768***
	(0.020)	(0.015)	(0.023)	(0.015)
Elementary Workers	**19.080*****	**19.077*****	**16.244*****	**16.260*****
	(0.017)	**(0.012)**	**(0.018)**	**(0.013)**
Province (Ref: Western Cape)				
Eastern Cape	0.006	0.009	-0.006	-0.013
	(0.023)	(0.019)	(0.019)	(0.016)
Northern Cape	**-0.084****	-0.001	**-0.124*****	-0.026
	(0.026)	(0.021)	**(0.025)**	(0.020)
Free State	-0.045	-0.011	0.012	0.020
	(0.028)	(0.021)	(0.020)	(0.019)
Kwa-Zulu Natal	-0.017	0.009	**-0.041***	-0.018
	(0.022)	(0.017)	**(0.018)**	(0.016)
North-West	-0.042	-0.016	-0.019	**-0.051****
	(0.028)	(0.022)	(0.023)	**(0.019)**
Gauteng	**-0.046***	-0.017	**-0.034***	-0.010
	(0.021)	(0.016)	**(0.017)**	(0.015)
Mpumalanga	**-0.083****	0.001	**-0.090*****	-0.023
	(0.025)	(0.020)	**(0.021)**	(0.017)
Limpopo	-0.051	-0.029	**-0.051***	**-0.039***
	(0.028)	(0.022)	**(0.022)**	**(0.018)**
Community Status (Ref: Urban)				
Non-Urban	0.008	0.012	0.046***	0.044***
	(0.014)	(0.012)	(0.013)	(0.011)
Education (Ref: No Schooling)				
Primary	0.042	**0.077*****	0.141**	0.120***
	(0.053)	**(0.022)**	(0.044)	(0.017)
Secondary	0.036	0.046*	0.042	0.063***
	(0.051)	(0.021)	(0.041)	(0.015)
Certificate/Diploma/Degree	0.043	**0.113*****	0.090*	0.159***
	(0.053)	**(0.025)**	(0.043)	(0.018)
Honours/Masters/PhD	-0.119	0.082**	-0.065	0.070*
	(0.068)	(0.031)	(0.058)	(0.029)
Industry (Ref: Agriculture, hunting, forestry and fishing)				
Mining and Quarrying	0.074	0.084**	0.063	0.079*
	(0.041)	(0.032)	(0.040)	(0.034)
Manufacturing	**0.078***	**0.076****	-0.018	0.002
	(0.032)	**(0.026)**	(0.029)	(0.026)
Utilities	-0.088	-0.021	-0.192***	-0.094*
	(0.056)	(0.043)	(0.045)	(0.038)
Construction	-0.049	-0.001	-0.061*	-0.028

Multiple Linear Regression Model				
Dependent Variable: Occupational Concentration	**Female Cons.**		**Male Cons.**	
	Youth	**Non-Youth**	**Youth**	**Non-Youth**
	(0.031)	(0.026)	(0.029)	(0.026)
Trade	0.035	0.020	-0.038	-0.064*
	(0.031)	(0.025)	(0.028)	(0.026)
Transport	**-0.073***	-0.004	-0.124***	-0.066*
	(0.034)	(0.027)	(0.030)	(0.027)
Finance	0.001	**0.125*****	-0.042	0.064*
	(0.032)	**(0.026)**	(0.029)	(0.026)
Services	0.013	0.106***	-0.055	0.018
	(0.033)	(0.026)	(0.029)	(0.026)
Domestic Services	**-0.096***	**-0.143*****	**0.261*****	**0.112*****
	(0.048)	**(0.035)**	**(0.042)**	**(0.034)**
Marital Status				
Widow/Widower	0.062	-0.010	0.021	-0.008
	(0.096)	(0.017)	(0.093)	(0.014)
Divorced	0.043	-0.005	0.054	-0.004
	(0.054)	(0.016)	(0.044)	(0.014)
Never married	-0.015	0.007	-0.024**	-0.001
	(0.010)	(0.009)	(0.009)	(0.008)
Years (Ref: 1994)				
1999	**-0.306*****	0.042	**-0.277*****	0.124***
	(0.063)	(0.050)	**(0.039)**	(0.036)
2004	0.088	0.287***	0.890***	0.901***
	(0.069)	(0.054)	(0.044)	(0.039)
2009	0.225***	0.399***	0.591***	0.686***
	(0.058)	(0.045)	(0.024)	(0.022)
2014	0.469***	0.528***	0.542***	0.554***
	(0.058)	(0.045)	(0.024)	(0.022)
2019	**0.876*****	**0.828*****	**0.754*****	**0.758*****
	(0.060)	**(0.047)**	**(0.027)**	**(0.023)**
Constant	5.061***	4.421***	9.876***	9.250***
	(0.197)	(0.144)	(0.168)	(0.122)
N	881000	997351	881000	997351

Source: PALMS dataset (1993 – 2019)

Notes:

1. *Own calculations. Data are weighted, Standard errors are in parentheses*
2. *$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$*
3. *The sample is restricted to those of working age i.e., the ages 15 to 64 years.*
4. *The youth category consists of the sample between 15 to 34 years and the non are women between 35 and 64 years.*

5.4. Conclusion

In this chapter, the results for the regression have been presented where the relationship between female and male concentration and the explanatory variables was explored. Most of the explanatory variables were statistically significant for gender occupational concentration except for marital status. Consistent with the results of the descriptive statistics, females were likely to be concentrated in female concentrated occupations, and when the results were further disaggregated by age group, the correlation between concentration and female youth and non-youth remained relatively the same. A similar pattern was observed with male concentration. The regression analyses further showed that, amongst all the

racial groups, White males were less likely to be concentrated in male-concentrated occupational groups. Overall, even though there were differences in the occupational distribution and concentration of different age groups, results from the regression analysis illustrated that different age groups experienced relatively the same outcomes depending on whether they were individuals employed in female-concentrated occupational groups or male-concentrated ones. Therefore, age group is not as significant for determining occupational outcomes that gender.

Chapter 6: Discussion of Results and Conclusion

To assess female employment in post-apartheid South Africa this study sought to examine gender occupational concentration in the labour market, considering various characteristics of the labour force, including demographic data such as race and age group, as well as socio-economic factors such as highest level of education, community status and industry employment.

The study made use of secondary data solicited from the PALMS dataset from 1993 to 2019 to describe the characteristics of the South African labour force, particularly the extent of gender concentration across different occupational groups. Since the primary objective of the study was to observe occupational trends over time, six survey years, namely, 1994, 1999, 2004, 2009, 2014 and 2019 were sampled as the key measurement points and included in both the descriptive analysis of occupational distribution and concentration in Chapter 4, as well as the multiple linear regression analysis in Chapter 5. The significance of these years is that they were electoral years in South Africa, so demarcate the different presidential administrations, which the government could use as inflexion points for legislative changes to address discrimination, driven by political will.

In Chapter 2 this report explored existing literature on the theories and factors that influences gender occupational segregation to contextualise and understand the research problem. The segmented labour market theory and occupational justice theory were selected as the most appropriate theoretical frameworks for explaining the determinants of gender occupational segregation in the labour market. The findings from both the descriptive and regression analysis, in line with the segmentation labour market theory, show that the economic conditions, which in the case of South Africa have been largely influenced by apartheid exclusionary laws, have shaped labour market outcomes and the employment system through a process of segmentation, whether by race or gender (amongst other things) (Reich et al., 1973). Additionally, the trajectory of the labour market since 1994 supports the social justice theory that there are structural factors which act as enables or barriers that shape the nature of labour market participation (Chichaya et al., 2018). This is evidenced by the fact that even though the labour participation rate for women has improved since 1994, their concentration amongst the top two occupational groups remains low. The distribution and concentration of women in what has been established as female-dominated occupations in Chapters 4 and 5 can be interpreted as women moved from being legislatively excluded to now being socially excluded by gender, based on social norms which stereotype occupations according to traditional gender roles in society.

Chapters 4 and 5 of the report presented the descriptive and inferential statistics to respectively investigate the identified research questions. It further focused on the distribution of occupational groups to explore the degree of occupational concentration, determined how occupational concentration

has changed over time or not, and explored the determinants of the possible observed changes in the labour market. Results from the descriptive analysis revealed that there was an overrepresentation of both sexes in elementary occupations, however, females had higher concentration rates in this occupation than males, especially in the trade and construction industry. In addition, when the analysis was further disaggregated by race, the vast majority of employees in elementary occupations were Black and Coloured with the concentration rates ranging between 28 to 32 percent for Black and Coloured employees and 3 to 6 percent for Indian and White employees across the six measurement points. While there seems to have been a feminisation of the labour force, the concentration rates in the different occupation groups follow the lines of traditional gender roles. Throughout the years, occupational gender segregation is prominent, especially in occupations that have a high degree of concentration of either sex i.e., male-dominated, or female-dominated occupations.

To explore the determinants of gender occupational distribution, a multiple linear regression model was employed in Chapter 5. Consistent with the results of the descriptive analysis, individuals from the two sexes are more likely to be concentrated in occupational groups where there is a high distribution of the group i.e., occupations that are considered female-dominated or male-dominated. In addition, there is a higher likelihood of male concentration in female-dominated occupations, than females in male-dominated occupations. Despite the different racial groups experiencing vastly different outcomes in the descriptive results, the race coefficients were not significant for female concentration. Whereas for male-concentrated regressions, Indian males were more likely to be concentrated in male-concentrated occupational groups. If we compare this with the results of the descriptive analysis, Indian males are concentrated in a small pool of occupational groups, namely management positions and technicians and associate professionals, which are both in the top three occupational groups.

The sampled survey years on the other hand were all statistically significant and the likelihood of higher female concentration increased with each measurement point. If we juxtapose this with the results of the descriptive statistics, where females were consistently concentrated in clerical support work, service and sales and armed forces and elementary occupations across the different years; the results illustrate that the likelihood of women being employed and concentrated in these occupations has increased over time and there is a chance that this will continue to increase. Therefore, women have been limited to the same pool of occupational groups across the period under review.

In the second set of regressions, age was only significant for the youth under male concentration. The results illustrate that the youth were less likely to be employed in highly male-concentrated occupational groups. Individuals in the Northern Cape, Mpumalanga and Gauteng are less likely to be concentrated in any occupational group, which could mean that they are more likely to be evenly distributed across

the occupational structure. There was a higher chance of non-youth individuals with a primary education to be employed in highly female-concentrated occupations, compared to those with no schooling. Lastly, non-youth individuals employed in occupational groups with high female concentration were more likely to be employed in the finance industry and the results of the descriptive statistics show that this would be more likely be in clerical support occupations, technicians and associate professionals, as well as the services and sales occupations.

Overall, the results of the regression analysis show that, to varying degrees, there is a linear relationship between high female and male occupational concentration and other characteristics such as gender, age group, province, industry, and the highest level of education etc. Although both gender and race have proven to have a more prolonged impact on occupational attainment, both the descriptive and regression analysis show that gender remains a key determining factor in labour market outcomes and occupational attainment. This can be understood to mean that while legislation has had some success in addressing barriers to entry for previously disadvantaged groups in terms of race and gender, legislation aimed at addressing various forms of discrimination cannot necessarily address intrinsic societal norms and perceptions around gender roles or the perceived competence of individuals who form part of particular racial groups. Individuals in elementary occupations are more likely to be employed in occupational groups with higher female concentration ratios. Some occupations and industries continue to be gendered in their concentration levels, especially those that a male-dominated, i.e., craft and related trade, plant and machine – the overwhelming majority of males in these occupations may be deterring women and there might be certain barriers to entry that keep women away from these occupations.

Recommendations

There is an overwhelming concentration of White males in management positions relative to other groups and an underrepresentation of White males across other occupational groups. While there has been a gradual increase in the number of women entering management occupations over the years, the concentration by race illustrates that this increase is largely accounted for by Indian and White women. The service and sales industry has had a significantly higher representation of Black and Coloured women, which is representative of the composition of the labour force, and the figures have also increased over time.

Based on the trajectory of occupational concentration over time, young women are more likely to be concentrated in what are already female-dominated occupations as they get older, whereas young men are more likely to be equally distributed across the occupational structure over time. Meaning that there needs to be more targeted action towards new female labour market entrants for greater representation

and mobility across all occupational groups. There should be a national strategy for transformation that sets apart transformation goals with defined outcomes and targets addressing transformation of the South African labour market, in addition to the NDP 2030 and the enforcement of the Employment Equity Act through affirmative action measures. The objectives can then be followed up on and assessed through midterm reviews and impact assessments at the conclusion of the designated term for the transformation strategy.

From the increased labour force participation rate of women that has been observed since 1994/1999, it is clear that the legislation put in place has had some impact, however, it has had limited effects on women's participation and while legislation is a necessary and required intervention, this alone is not sufficient in addressing disparities in the workplace (Booysen, 2007; Burger & Jafta, 2010; Duval et al., 2021; Horwitz et al., 2005; Kraak, 1995; Matotoka & Odeku, 2021; Selby & Sutherland, 2006; Thomas, 2002). Buy-in from employers and largely private sector employers, especially because the CEE (2021) reported that the private sector is still reluctant and disinclined to redress the historical imbalances of the past through the effective implementation and monitoring of Affirmative Action in the workplace. Therefore, there needs to be tighter rules on the enforcement of EEA and recommended actions of the employment equity plan. In the US, for instance, the Department of Labour oversees two state organisations that are responsible for enforcing affirmative action in the workplace. To ensure it can achieve the needed labour market reform, the South African government must increase the resources devoted to enforcing and monitoring compliance with employment equity targets.

In order to overcome opposition to the inclusion of women in these businesses, this should also be followed with lobbying and a shift in perspective regarding the role of women in the workforce, particularly in male-dominated industries. This needs to be done as a part of the transformation strategy that was earlier suggested, one of the objectives of which would be to promote gender equality through awareness campaigns.

Appendices

A1: Labour force participation rate by gender and age group (%)

Year	Female		Male	
	Female Youth LFPR (15 -34)	Female Non-Youth LFPR (35-64)	Male Youth LFPR (15-34)	Non-Youth Male LFP (15-34)
1993	47.62	53.96	61.71	85.39
	(0.00)	(0.00)	(.)	(0.00)
1994	49.45	52.80	58.55	82.92
	(0.00)	(0.00)	(0.00)	(0.00)
1995	45.04	52.43	53.33	82.51
	(0.00)	(0.00)	(0.00)	(0.00)
1996	41.82	49.55	49.90	79.13
	(0.00)	(0.00)	(0.00)	(0.00)
1997	43.12	50.94	49.25	78.20
	(0.00)	(0.00)	(0.00)	(.)
1998	46.48	54.10	53.30	80.48
	(0.00)	(0.00)	(0.00)	(0.00)
1999	52.11	61.25	56.41	83.02
	(0.00)	(0.00)	(0.00)	(0.00)
2000	57.80	69.08	61.29	85.81
	(0.00)	(0.00)	(0.00)	(0.00)
2001	61.07	67.98	62.60	85.53
	(0.00)	(0.00)	(0.00)	(0.00)
2002	61.54	67.30	62.96	84.24
	(0.00)	(0.00)	(0.00)	(0.00)
2003	60.98	65.11	62.28	82.82
	(0.00)	(0.00)	(0.00)	(0.00)
2004	59.65	62.89	61.54	81.16
	(0.00)	(0.00)	(0.00)	(0.00)
2005	59.54	64.15	60.42	81.03
	(0.00)	(0.00)	(0.00)	(0.00)
2006	59.64	65.15	60.23	81.56
	(0.00)	(0.00)	(0.00)	(0.00)
2007	58.98	64.03	59.95	81.69
	(0.00)	(0.00)	(0.00)	(0.00)
2008	48.29	59.32	55.85	79.87
	(0.00)	(0.00)	(0.00)	(0.00)

Year	Female		Male	
	Female Youth LFPR (15 -34)	Female Non-Youth LFPR (35-64)	Male Youth LFPR (15-34)	Non-Youth Male LFP (15-34)
2009	47.47	58.67	54.95	78.39
	(0.00)	(0.00)	(0.00)	(0.00)
2010	47.46	58.04	54.09	77.34
	(0.00)	(0.00)	(0.00)	(0.00)
2011	48.83	58.47	55.11	76.87
	(0.00)	(0.00)	(0.00)	(0.00)
2012	49.42	59.71	56.10	77.60
	(0.00)	(0.00)	(0.00)	(0.00)
2013	49.84	61.04	56.76	77.50
	(0.00)	(0.00)	(0.00)	(0.00)
2014	50.34	61.65	57.14	78.72
	(0.00)	(0.00)	(0.00)	(0.00)
2015	53.39	64.28	60.44	80.39
	(0.00)	(0.00)	(0.00)	(0.00)
2016	53.47	64.26	60.96	80.43
	(0.00)	(0.00)	(0.00)	(0.00)
2017	54.12	66.26	61.20	81.74
	(0.00)	(0.00)	(0.00)	(0.00)
2018	54.76	67.04	60.51	82.28
	(0.00)	(0.00)	(0.00)	(0.00)
2019	54.83	66.64	61.73	81.82
	(0.00)	(0.00)	(0.00)	(0.00)
N	**3732435**			

A2: Labour force participation rate by gender and race (%)

Year	Female				Male			
	Black	Coloured	Indian	White	Black	Coloured	Indian	White
1993	47.99	60.49	42.92	58.79	67.25	77.37	80.04	82.38
	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)	(0.00)	(0.00)
1994	49.63	57.09	37.64	55.34	62.89	73.96	75.23	78.02
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
1995	46.41	56.29	39.79	52.10	61.05	71.95	76.83	78.24
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Year	Female				Male			
	Black	**Coloured**	**Indian**	**White**	**Black**	**Coloured**	**Indian**	**White**
1996	43.58	54.07	37.83	51.93	57.62	72.22	71.58	76.01
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
1997	45.44	51.53	39.46	49.72	56.75	70.53	71.58	73.58
	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)	(0.00)	(0.00)
1998	49.11	53.34	40.54	53.19	61.56	70.47	74.43	73.47
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
1999	55.15	60.88	49.03	59.19	64.34	74.69	77.22	77.73
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
2000	62.94	64.12	51.44	60.77	69.44	77.13	77.36	78.78
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
2001	64.54	65.36	51.79	60.80	70.13	78.31	78.39	78.72
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
2002	64.58	65.54	53.33	60.90	69.93	77.46	76.30	78.15
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
2003	63.23	64.78	50.98	60.30	68.78	75.65	77.84	79.05
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
2004	61.42	62.36	48.11	59.74	67.39	74.81	77.97	78.80
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
2005	61.67	63.27	51.41	60.44	66.39	74.72	78.65	79.32
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
2006	62.32	63.53	50.35	60.42	66.53	75.17	78.56	79.21
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
2007	61.11	64.76	46.56	60.43	66.39	75.81	76.14	79.97
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
2008	52.23	56.99	47.11	63.09	63.09	74.11	74.62	79.71
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
2009	51.51	56.70	42.03	63.59	61.96	72.30	74.35	78.87
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Year	Female				Male			
	Black	Coloured	Indian	White	Black	Coloured	Indian	White
2010	51.26	56.21	48.34	62.52	60.96	71.70	74.44	79.05
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
2011	52.45	56.85	44.46	62.02	61.64	70.71	72.11	79.45
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
2012	53.64	57.47	45.11	60.63	62.87	72.13	71.03	79.51
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
2013	54.42	57.73	48.46	62.92	63.38	70.92	74.90	79.03
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
2014	55.22	58.58	46.22	60.98	64.01	72.62	75.36	80.27
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
2015	58.60	59.66	46.36	61.78	67.97	70.54	74.80	80.03
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
2016	58.78	58.54	45.37	62.74	68.36	71.19	75.91	79.89
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
2017	60.20	59.55	49.16	62.77	69.36	72.26	77.08	79.08
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
2018	61.16	59.71	48.71	62.14	69.34	72.15	75.84	79.32
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
2019	61.28	59.31	45.58	61.05	70.19	71.70	74.03	79.63
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
N	**3732313**							

A3: Distribution by occupational level, gender and community status (%)

Community Status	SASCO	1994		1999		2004		2009		2014		2019	
		F	M	F	M	F	M	F	M	F	M	F	M
Urban	Managers	4.46	10.21	6.00	10.76	6.51	11.46	7.49	11.22	8.87	12.56	8.49	13.75
		(0.35)	(0.52)	(0.41)	(0.49)	(0.54)	(0.64)	(0.23)	(0.23)	(0.25)	(0.29)	(0.34)	(0.38)
Non-urban		2.93	3.62	1.75	3.91	2.48	3.85	2.05	4.18	1.96	4.51	2.67	4.40
		(0.45)	(0.38)	(0.31)	(0.34)	(0.51)	(0.38)	(0.19)	(0.23)	(0.17)	(0.24)	(0.31)	(0.34)

Community Status	SASCO	1994		1999		2004		2009		2014		2019	
		F	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**
Urban	Professionals	**9.64**	6.71	9.08	6.64	7.78	5.55	7.74	6.16	7.63	6.63	**8.51**	5.22
		(0.63)	(0.52)	(0.54)	(0.37)	(0.63)	(0.45)	(0.22)	(0.17)	(0.23)	(0.22)	**(0.34)**	(0.22)
Non-urban		10.78	3.27	2.20	1.65	2.92	0.85	2.69	1.45	2.83	1.65	3.91	1.72
		(1.37)	(0.41)	(0.34)	(0.23)	(0.43)	(0.15)	(0.22)	(0.12)	(0.22)	(0.15)	(0.41)	(0.21)
Urban	Technicians and associate professionals	13.81	9.50	**16.90**	10.03	16.81	9.96	17.68	10.40	16.36	8.92	12.84	8.21
		(0.56)	(0.46)	**(0.60)**	(0.41)	(0.85)	(0.48)	(0.31)	(0.22)	(0.30)	(0.20)	(0.37)	(0.26)
Non-urban		11.65	3.43	12.44	4.45	10.14	4.54	12.24	6.39	11.68	4.86	11.13	4.61
		(1.12)	(0.35)	(0.89)	(0.38)	(0.80)	(0.45)	(0.47)	(0.26)	(0.43)	(0.23)	(0.60)	(0.37)
Urban	Clerical support workers	**30.43**	9.96	**24.21**	7.90	**25.80**	7.11	**23.91**	6.59	23.44	6.80	22.51	5.95
		(0.96)	(0.45)	**(0.75)**	(0.37)	**(0.78)**	(0.38)	**(0.36)**	(0.16)	(0.35)	(0.18)	(0.50)	(0.22)
Non-urban		8.02	3.65	8.27	2.73	7.31	2.28	8.62	3.11	8.69	2.99	10.85	2.45
		(0.65)	(0.36)	(0.69)	(0.29)	(0.78)	(0.26)	(0.38)	(0.18)	(0.36)	(0.20)	(0.59)	(0.25)
Urban	Services and sales workers and armed forces	15.58	11.83	16.21	12.96	15.63	13.25	16.82	13.20	18.77	14.65	**20.72**	15.41
		(0.59)	(0.53)	(0.57)	(0.46)	(0.64)	(0.51)	(0.30)	(0.24)	(0.34)	(0.28)	**(0.45)**	(0.34)
Non-urban		12.14	6.98	13.06	8.73	12.39	8.44	20.82	10.85	23.10	12.64	22.30	13.87
		(0.90)	(0.54)	(0.82)	(0.56)	(0.83)	(0.65)	(0.52)	(0.36)	(0.54)	(0.39)	(0.83)	(0.63)
Urban	Skilled Agricultural, Forestry and Fishery Workers	0.20	0.75	0.41	3.23	0.41	0.77	0.20	0.53	0.20	0.36	0.07	0.25
		(0.06)	(0.12)	(0.09)	(0.24)	(0.10)	(0.29)	(0.04)	(0.06)	(0.04)	(0.04)	(0.03)	(0.05)
Non-urban		1.46	4.35	11.23	12.26	8.39	7.24	1.15	2.30	1.03	1.58	0.28	1.21
		(0.36)	(0.43)	(1.05)	(0.75)	(1.04)	(0.58)	(0.13)	(0.17)	(0.11)	(0.13)	(0.09)	(0.17)
Urban	Craft and Related Trade Workers	5.54	21.47	5.72	20.07	4.28	19.73	4.07	20.00	3.35	18.59	3.53	18.73
		(0.40)	(0.77)	(0.39)	(0.55)	(0.36)	(0.64)	(0.15)	(0.28)	(0.14)	(0.32)	(0.20)	(0.39)
Non-urban		6.58	11.52	5.68	18.81	5.99	16.92	5.76	20.28	4.64	20.18	4.12	20.28
		(0.71)	(0.73)	(0.56)	(0.82)	(0.62)	(0.81)	(0.29)	(0.54)	(0.26)	(0.50)	(0.38)	(0.71)
Urban	Plant and Machine Operators, and Assemblers	6.67	16.77	4.84	14.59	3.71	14.56	3.65	13.30	3.14	12.79	3.01	12.86
		(0.53)	(0.85)	(0.35)	(0.51)	(0.31)	(0.73)	(0.14)	(0.26)	(0.14)	(0.25)	(0.19)	(0.32)
Non-urban		3.96	16.75	3.61	19.14	3.10	19.36	2.64	13.96	2.57	13.95	2.59	14.43
		(0.79)	(0.90)	(0.52)	(0.77)	(0.52)	(1.26)	(0.24)	(0.41)	(0.22)	(0.47)	(0.32)	(0.63)
Urban	Elementary Workers	13.68	12.80	16.63	13.83	19.07	17.60	18.45	18.61	18.23	18.70	20.32	19.61
		(0.56)	(0.53)	(0.69)	(0.51)	(0.88)	(0.78)	(0.32)	(0.28)	(0.33)	(0.29)	(0.45)	(0.37)
Non-urban		42.49	46.44	41.75	28.32	47.27	36.52	44.03	37.48	43.51	37.62	42.17	37.03
		(2.20)	(1.84)	(1.44)	(1.02)	(1.44)	(1.29)	(0.72)	(0.67)	(0.69)	(0.61)	(1.01)	(0.91)
N	**270207**												

A4: Distribution by occupational level, gender and industry (%)

Industry	SASCO	1994		1999		2004		2009		2014		2019	
		F	M	F	M	F	M	F	M	F	M	F	M
Agriculture, Hunting, Forestry and Fisheries	Managers	0.56	0.67	0.84	3.74	1.66	4.36	1.67	3.94	0.64	4.80	1.60	3.42
		(0.29)	(0.15)	(0.29)	(0.48)	(0.33)	(0.42)	(0.42)	(0.41)	(0.19)	(0.67)	(0.53)	(0.55)
Mining and Quarrying		2.88	1.45	3.32	3.76	2.92	2.68	8.77	2.29	3.44	2.54	5.36	2.49
		(1.86)	(0.56)	(2.41)	(0.91)	(1.42)	(0.83)	(1.91)	(0.39)	(1.05)	(0.54)	(2.04)	(0.54)
Manufacturing		2.43	7.00	4.00	9.20	4.92	10.95	4.44	8.73	7.07	10.74	8.09	12.59
		(0.42)	(0.69)	(0.72)	(0.82)	(0.65)	(0.83)	(0.40)	(0.41)	(0.75)	(0.48)	(0.89)	(0.75)
Utilities		**0.70**	3.97	12.64	7.40	15.85	12.32	8.38	9.84	**22.53**	10.45	**2.69**	17.08
		(0.70)	(1.35)	(11.38)	(2.74)	(7.00)	(3.68)	(3.20)	(1.64)	(8.47)	(2.01)	(2.06)	(3.21)
Construction		6.17	6.63	5.85	7.57	5.33	6.51	7.73	8.22	8.77	9.48	5.90	9.60
		(3.63)	(1.08)	(2.66)	(1.06)	(1.39)	(0.78)	(1.18)	(0.43)	(1.12)	(0.48)	(1.53)	(0.69)
Trade		11.63	15.57	6.73	12.96	6.83	14.53	7.11	12.35	7.92	13.25	6.67	13.26
		(0.89)	(0.98)	(0.60)	(0.87)	(0.53)	(0.86)	(0.35)	(0.44)	(0.39)	(0.51)	(0.50)	(0.64)
Transport		**4.42**	13.66	11.03	14.73	16.00	17.16	12.42	14.71	11.65	16.13	**13.98**	17.80
		(1.42)	(1.40)	(3.10)	(1.38)	(3.37)	(1.31)	(1.31)	(0.74)	(1.23)	(0.85)	(2.02)	(1.03)
Finance		5.53	13.76	8.36	13.20	10.65	13.10	10.22	13.63	11.44	14.23	11.24	14.83
		(0.99)	(1.54)	(1.10)	(1.25)	(1.22)	(1.09)	(0.63)	(0.63)	(0.64)	(0.69)	(0.77)	(0.79)
Services		1.73	7.09	2.71	5.39	2.60	6.95	4.15	8.19	5.59	9.01	5.61	10.35
		(0.39)	(0.65)	(0.43)	(0.58)	(0.35)	(0.73)	(0.23)	(0.40)	(0.26)	(0.45)	(0.38)	(0.67)
Domestic Services		0.47	4.17	0	0		0	0.69	0.00	0	0	0	0
		(0.22)	(1.27)					(0.35)	(0.00)				
Agriculture, Hunting, Forestry and Fisheries	Professionals	0.09	0.25	0.29	0.19	0.10	0.39	0.56	0.31	0.00	0.54	0.19	0.00
		(0.09)	(0.11)	(0.22)	(0.13)	(0.10)	(0.15)	(0.19)	(0.10)	(0.00)	(0.14)	(0.14)	(0.00)
Mining and Quarrying		**13.44**	2.39	**7.47**	1.79	**4.71**	1.09	**5.50**	4.41	**3.91**	3.83	**3.10**	1.52
		(5.67)	(0.60)	(4.45)	(0.46)	(2.65)	(0.27)	(1.41)	(0.58)	(1.01)	(0.64)	(1.64)	(0.48)
Manufacturing		1.36	2.13	1.70	2.66	0.97	1.98	2.24	2.91	3.14	3.00	1.61	2.27
		(0.40)	(0.35)	(0.49)	(0.45)	(0.35)	(0.39)	(0.28)	(0.24)	(0.54)	(0.31)	(0.39)	(0.34)

Industry	SASCO	1994		1999		2004		2009		2014		2019	
		F	M	F	M	F	M	F	M	F	M	F	M
Utilities		13.48	2.48	2.04	4.47	7.15	7.20	6.25	5.77	12.09	5.33	14.43	3.31
		(6.88)	(1.18)	(2.06)	(2.06)	(3.08)	(2.61)	(2.17)	(1.45)	(5.61)	(1.37)	(4.42)	(1.39)
Construction		1.84	1.12	4.08	0.49	0.00	0.52	2.99	2.12	2.15	1.47	1.10	0.69
		(1.25)	(0.39)	(3.95)	(0.19)	(0.00)	(0.21)	(0.77)	(0.22)	(0.82)	(0.27)	(0.59)	(0.17)
Trade		0.61	0.82	0.80	1.01	0.28	0.86	1.05	1.18	1.10	1.20	0.45	0.58
		(0.19)	(0.22)	(0.25)	(0.25)	(0.11)	(0.23)	(0.12)	(0.13)	(0.15)	(0.17)	(0.13)	(0.14)
Transport		2.55	0.73	2.72	1.43	1.50	1.52	4.98	2.54	6.71	2.49	2.81	1.97
		(1.50)	(0.25)	(1.28)	(0.46)	(0.67)	(0.40)	(0.93)	(0.34)	(1.46)	(0.47)	(0.96)	(0.36)
Finance		4.27	17.66	10.88	14.47	9.75	9.91	13.21	13.32	12.60	14.45	9.33	9.10
		(0.92)	(2.40)	(1.51)	(1.40)	(1.27)	(1.06)	(0.64)	(0.58)	(0.72)	(0.71)	(0.76)	(0.63)
Services		28.65	19.31	17.54	17.94	15.20	13.17	11.64	13.04	10.00	13.41	14.70	14.67
		(1.49)	(1.15)	(1.01)	(1.06)	(0.88)	(0.82)	(0.37)	(0.48)	(0.33)	(0.52)	(0.61)	(0.74)
Domestic Services		2.30	3.29	0.36	0.00	0	0	0.44	0.00	1.56	0.00	0	0
		(0.55)	(1.26)	(0.36)	(0.00)			(0.44)	(0.00)	(1.54)	(0.00)		
Agriculture, Hunting, Forestry and Fisheries	Technicians and Associate Professionals	1.10	0.32	0.18	0.47	0.70	0.27	1.62	0.66	1.72	0.94	0.46	0.47
		(0.37)	(0.09)	(0.10)	(0.17)	(0.21)	(0.08)	(0.34)	(0.16)	(0.43)	(0.22)	(0.29)	(0.19)
Mining and Quarrying		1.99	2.52	8.25	2.54	9.11	2.14	7.37	3.37	9.69	3.84	7.04	3.98
		(1.49)	(0.59)	(3.22)	(0.57)	(2.81)	(0.44)	(1.49)	(0.52)	(1.73)	(0.49)	(2.38)	(0.79)
Manufacturing		6.25	5.95	7.01	7.64	6.67	7.56	9.42	8.52	8.31	6.97	8.77	7.67
		(0.84)	(0.53)	(0.84)	(0.71)	(0.76)	(0.57)	(0.58)	(0.43)	(0.56)	(0.42)	(0.87)	(0.62)
Utilities		8.71	10.52	10.03	6.18	11.55	15.34	10.62	10.67	14.95	10.40	13.11	11.25
		(4.70)	(2.31)	(6.75)	(1.92)	(4.93)	(4.94)	(2.99)	(1.66)	(3.99)	(1.83)	(3.79)	(2.51)
Construction		11.28	2.02	4.07	0.67	3.94	1.02	4.97	3.02	5.54	2.81	4.00	1.77
		(3.16)	(0.43)	(1.92)	(0.31)	(1.55)	(0.24)	(0.78)	(0.29)	(1.14)	(0.29)	(1.36)	(0.30)
Trade		3.58	3.70	2.57	4.58	2.32	3.50	3.58	4.92	3.04	4.48	1.52	2.34
		(0.50)	(0.41)	(0.41)	(0.52)	(0.45)	(0.36)	(0.24)	(0.27)	(0.23)	(0.27)	(0.23)	(0.28)

Industry	SASCO	1994		1999		2004		2009		2014		2019	
		F	M	F	M	F	M	F	M	F	M	F	M
Transport		7.14	7.78	8.65	7.14	11.53	4.74	8.57	6.20	8.35	5.54	9.62	4.18
		(2.06)	(0.98)	(2.40)	(0.99)	(2.12)	(0.63)	(1.37)	(0.69)	(1.01)	(0.48)	(1.64)	(0.55)
Finance		22.66	24.93	17.25	19.40	16.15	17.26	14.98	15.58	13.82	13.64	13.69	14.16
		(2.03)	(2.02)	(1.55)	(1.48)	(1.38)	(1.23)	(0.71)	(0.64)	(0.69)	(0.57)	(0.82)	(0.70)
Services		25.04	16.35	**38.92**	22.63	**36.83**	24.70	**36.25**	26.41	**29.62**	18.73	**22.96**	18.31
		(1.17)	(0.95)	(1.20)	(1.12)	(0.94)	(1.03)	(0.56)	(0.62)	(0.51)	(0.53)	(0.67)	(0.84)
Domestic Services		10.49	5.18	3.76	0.00	0	0	1.33	0.03	0	0	0	0
		(1.05)	(1.56)	(2.18)	(0.00)			(0.77)	(0.03)				
Agriculture, Hunting, Forestry and Fisheries	Clerical Support Workers	2.38	0.59	1.94	0.50	2.84	0.54	3.13	0.36	2.38	0.42	2.73	0.61
		(0.65)	(0.17)	(0.41)	(0.18)	(0.52)	(0.12)	(0.49)	(0.09)	(0.38)	(0.12)	(0.71)	(0.22)
Mining and Quarrying		50.67	7.39	37.95	2.96	35.10	2.23	21.85	4.48	28.63	3.73	19.91	2.30
		(8.68)	(1.34)	(6.87)	(0.56)	(5.69)	(0.40)	(2.60)	(0.55)	(2.56)	(0.46)	(3.99)	(0.65)
Manufacturing		19.03	7.97	12.71	6.14	13.33	5.08	16.20	5.23	12.48	5.57	15.66	3.80
		(1.41)	(0.72)	(1.30)	(0.63)	(0.96)	(0.47)	(0.76)	(0.29)	(0.82)	(0.43)	(1.24)	(0.43)
Utilities		69.53	8.74	34.39	8.67	38.23	5.18	43.16	5.92	20.86	7.09	27.43	2.85
		(8.14)	(2.17)	(11.53)	(2.74)	(7.61)	(1.37)	(5.52)	(1.83)	(4.31)	(1.39)	(5.19)	(1.20)
Construction		35.42	1.71	21.75	1.23	15.97	0.82	20.78	1.51	17.41	0.91	15.79	1.08
		(5.48)	(0.43)	(4.98)	(0.48)	(2.59)	(0.23)	(1.73)	(0.19)	(1.58)	(0.16)	(2.46)	(0.27)
Trade		29.47	8.11	21.22	8.35	20.41	7.45	20.83	7.13	23.20	6.38	22.21	6.21
		(1.26)	(0.68)	(1.02)	(0.65)	(0.92)	(0.60)	(0.50)	(0.31)	(0.57)	(0.33)	(0.78)	(0.44)
Transport		74.56	12.61	49.76	11.72	42.98	8.03	41.89	8.46	42.13	9.09	47.93	7.77
		(3.35)	(1.21)	(4.21)	(1.13)	(3.32)	(0.86)	(1.98)	(0.59)	(2.15)	(0.65)	(2.83)	(0.69)
Finance		63.39	19.13	45.95	11.41	40.58	11.55	31.63	7.81	29.51	7.72	27.36	6.74
		(2.49)	(1.83)	(2.03)	(1.15)	(1.85)	(0.91)	(0.84)	(0.43)	(0.86)	(0.45)	(1.11)	(0.50)
Services		18.97	10.97	15.00	8.37	17.54	9.16	16.63	9.15	16.32	9.96	15.60	8.97
		(1.23)	(0.70)	(0.89)	(0.71)	(0.71)	(0.59)	(0.44)	(0.40)	(0.43)	(0.43)	(0.56)	(0.59)

Industry	SASCO	1994		1999		2004		2009		2014		2019	
		F	M	F	M	F	M	F	M	F	M	F	M
Domestic Services		9.24	4.51	4.54	0.00	0	0	0.00	0.13	0	0	0	0
		(1.06)	(1.26)	(2.64)	(0.00)			(0.00)	(0.07)				
Agriculture, Hunting, Forestry and Fisheries	Service and Sales Workers and Armed Forces	3.19	1.17	2.43	1.22	1.13	1.09	0.74	1.54	1.40	1.28	0.73	1.69
		(0.77)	(0.33)	(0.52)	(0.28)	(0.36)	(0.25)	(0.24)	(0.30)	(0.40)	(0.29)	(0.37)	(0.40)
Mining and Quarrying		8.53	4.44	5.14	3.44	9.87	2.11	3.93	3.50	1.35	1.25	0.00	2.29
		(5.65)	(0.81)	(2.28)	(0.79)	(4.63)	(0.50)	(1.08)	(0.51)	(0.44)	(0.26)	(0.00)	(0.72)
Manufacturing		2.66	3.17	3.17	2.28	5.73	2.52	4.22	1.52	4.80	1.69	3.76	2.11
		(0.43)	(0.41)	(0.60)	(0.38)	(0.74)	(0.43)	(0.33)	(0.16)	(0.43)	(0.21)	(0.60)	(0.35)
Utilities		0.00	2.82	7.59	7.65	2.96	1.13	3.48	4.63	1.82	4.26	2.13	1.62
		(0.00)	(1.31)	(5.42)	(2.44)	(2.94)	(0.81)	(1.47)	(1.21)	(1.30)	(1.05)	(1.26)	(0.96)
Construction		1.61	0.58	4.05	0.70	0.33	0.17	1.23	0.72	0.33	0.47	0.31	0.28
		(1.13)	(0.30)	(2.59)	(0.25)	(0.23)	(0.08)	(0.45)	(0.13)	(0.19)	(0.14)	(0.31)	(0.11)
Trade		39.02	25.19	34.20	25.27	28.51	24.55	29.22	24.55	32.10	27.61	32.87	28.00
		(1.36)	(1.07)	(1.12)	(1.03)	(0.90)	(0.86)	(0.57)	(0.57)	(0.64)	(0.63)	(0.88)	(0.84)
Transport		5.28	3.75	4.34	4.76	5.97	2.77	5.06	2.47	6.64	3.39	7.76	1.52
		(1.70)	(0.63)	(1.81)	(0.91)	(1.59)	(0.51)	(0.70)	(0.36)	(1.17)	(0.45)	(1.50)	(0.32)
Finance		1.80	9.15	4.80	26.24	7.75	32.36	11.87	30.33	13.71	29.76	13.58	34.35
		(0.53)	(2.24)	(0.93)	(1.71)	(0.81)	(1.53)	(0.58)	(0.79)	(0.72)	(0.81)	(0.77)	(0.96)
Services		11.36	20.31	13.24	20.72	15.70	21.25	19.97	19.64	21.76	23.00	26.31	22.01
		(0.72)	(1.06)	(0.78)	(1.17)	(0.71)	(0.91)	(0.46)	(0.61)	(0.46)	(0.60)	(0.71)	(0.88)
Domestic Services		15.35	16.20	40.95	1.69	28.13	0.07	57.37	0.90	70.81	1.15	59.37	0.97
		(1.16)	(2.38)	(6.80)	(0.67)	(7.63)	(0.05)	(3.55)	(0.31)	(3.95)	(0.44)	(6.91)	(0.41)
Agriculture, Hunting, Forestry and Fisheries	Skilled Agricultural, Forestry and Fishery Workers	7.00	9.25	28.51	24.07	32.67	22.33	7.34	10.98	7.73	8.61	1.89	6.60
		(1.65)	(0.89)	(2.56)	(1.55)	(1.90)	(1.27)	(0.81)	(0.82)	(0.92)	(0.61)	(0.54)	(0.79)
Mining and Quarrying		0.63	2.15	1.76	3.00	0.71	2.08	1.84	4.61	0.71	1.15	0.79	2.15
		(0.30)	(0.35)	(0.61)	(0.51)	(0.22)	(0.31)	(0.39)	(0.97)	(0.26)	(0.19)	(0.61)	(0.41)

Industry	SASCO	1994		1999		2004		2009		2014		2019	
		F	M	F	M	F	M	F	M	F	M	F	M
Manufacturing		0.16	0.25	0.22	0.53	0.15	0.20	0.09	0.42	0.04	0.12	0.00	0.11
		(0.16)	(0.11)	(0.11)	(0.25)	(0.09)	(0.07)	(0.06)	(0.08)	(0.03)	(0.05)	(0.00)	(0.07)
Utilities		0	0	2.61	0.00	0.00	0.24	1.29	0.90	0.75	0.24	0	0
				(2.62)	(0.00)	(0.00)	(0.24)	(1.04)	(0.43)	(0.76)	(0.24)		
Construction		0.00	0.10	0.00	0.08			0.00	0.18	0.05	0.03	0.00	0.04
		(0.00)	(0.10)	(0.00)	(0.08)			(0.00)	(0.05)	(0.05)	(0.03)	(0.00)	(0.04)
Trade		0.10	0.08	0.07	0.98	0.10	0.18	0.08	0.07	0.04	0.12	0.03	0.03
		(0.07)	(0.04)	(0.04)	(0.41)	(0.07)	(0.07)	(0.03)	(0.03)	(0.02)	(0.04)	(0.03)	(0.02)
Transport		0.00	0.10	0.43	0.34	0	0	0.00	0.03	0	0	0	0
		(0.00)	(0.08)	(0.31)	(0.21)			(0.00)	(0.03)				
Finance		0.13	0.24	0.32	2.01	0.01	0.09	0.03	0.19	0.17	0.11	0.07	0.10
		(0.09)	(0.15)	(0.24)	(0.55)	(0.01)	(0.05)	(0.02)	(0.07)	(0.07)	(0.04)	(0.07)	(0.06)
Services		0.16	1.46	0.16	3.01	0.07	0.44	0.12	0.41	0.14	0.45	0.05	0.10
		(0.08)	(0.31)	(0.07)	(0.41)	(0.04)	(0.13)	(0.04)	(0.09)	(0.04)	(0.09)	(0.03)	(0.07)
Domestic Services		0.14	5.64	30.97	83.47	0	0	0.00	0.22	0	0	0	0
		(0.10)	(1.69)	(6.50)	(2.03)			(0.00)	(0.13)				
Agriculture, Hunting, Forestry and Fisheries	Craft and Related Trade Workers	0.00	0.37	0.00	0.40	0.00	0.03	0.40	0.83	0	0	0	0
		(0.00)	(0.26)	(0.00)	(0.24)	(0.00)	(0.03)	(0.40)	(0.25)				
Mining and Quarrying		14.80	44.07	15.96	37.57	14.89	29.73	20.73	38.40	15.56	34.22	18.00	28.21
		(6.14)	(3.00)	(5.22)	(1.87)	(4.26)	(1.67)	(2.62)	(1.43)	(1.97)	(1.43)	(3.59)	(2.13)
Manufacturing		27.36	24.15	26.94	24.85	26.26	27.13	19.94	30.61	19.97	27.11	18.93	30.48
		(1.75)	(1.21)	(1.54)	(1.17)	(1.27)	(0.94)	(0.75)	(0.70)	(0.83)	(0.75)	(1.17)	(1.02)
Utilities		5.69	40.72	3.63	35.15	3.13	36.21	5.52	28.97	7.63	30.17	8.23	28.12
		(3.93)	(3.82)	(2.71)	(4.68)	(1.73)	(4.78)	(1.88)	(2.51)	(2.11)	(2.71)	(3.07)	(3.53)
Construction		25.08	60.08	30.55	68.64	33.23	65.53	16.78	58.02	16.20	62.09	23.22	63.43
		(4.78)	(2.22)	(5.38)	(1.71)	(3.29)	(1.39)	(1.59)	(0.77)	(1.59)	(0.85)	(2.70)	(1.16)
Trade		4.02	21.21	3.23	19.63	2.22	19.28	3.22	17.81	2.82	18.49	2.98	18.16

Industry	SASCO	1994		1999		2004		2009		2014		2019	
		F	M	F	M	F	M	F	M	F	M	F	M
		(0.51)	(1.08)	(0.43)	(0.95)	(0.27)	(0.83)	(0.22)	(0.50)	(0.20)	(0.54)	(0.31)	(0.69)
Transport		1.56	12.86	3.75	9.95	1.39	6.42	0.56	5.55	1.08	3.76	1.09	4.10
		(0.96)	(1.12)	(1.56)	(1.04)	(0.67)	(0.74)	(0.25)	(0.45)	(0.36)	(0.41)	(0.46)	(0.54)
Finance		0.17	6.23	0.33	4.35	0.52	4.30	0.95	3.96	0.49	5.68	1.07	6.48
		(0.12)	(1.02)	(0.19)	(0.63)	(0.23)	(0.65)	(0.17)	(0.30)	(0.11)	(0.38)	(0.26)	(0.53)
Services		0.66	5.93	0.51	5.62	0.46	4.10	0.78	4.26	0.45	2.08	0.12	1.33
		(0.19)	(0.60)	(0.16)	(0.63)	(0.12)	(0.45)	(0.10)	(0.26)	(0.07)	(0.23)	(0.05)	(0.24)
Domestic Services		0.88	10.83	0.00	7.19	0	0	1.15	1.08	0.00	0.18	0.00	0.24
		(0.28)	(1.75)	(0.00)	(1.46)			(0.84)	(0.27)	(0.00)	(0.17)	(0.00)	(0.24)
Agriculture, Hunting, Forestry and Fisheries		1.24	13.53	1.11	17.73	0.63	13.99	0.92	11.10	0.62	12.95	0.11	12.82
		(0.49)	(1.36)	(0.67)	(1.10)	(0.18)	(0.79)	(0.31)	(0.65)	(0.21)	(0.86)	(0.11)	(1.20)
Mining and Quarrying		1.99	19.08	**5.99**	38.65	3.61	44.58	16.79	28.48	13.56	29.12	21.77	34.57
		(1.56)	(2.66)	(3.34)	(1.82)	(2.08)	(1.89)	(2.15)	(1.17)	(1.98)	(1.63)	(3.63)	(2.16)
Manufacturing		33.30	36.43	25.92	29.71	21.34	27.62	22.99	28.00	23.18	28.39	20.49	26.06
		(2.04)	(1.63)	(1.46)	(1.25)	(1.15)	(1.03)	(0.82)	(0.74)	(0.95)	(0.74)	(1.22)	(0.96)
Utilities		1.89	16.89	0.00	14.36	5.39	14.63	7.99	24.07	6.12	20.60	26.81	31.01
		(1.89)	(2.93)	(0.00)	(3.76)	(2.31)	(2.75)	(3.25)	(3.03)	(2.38)	(2.15)	(5.39)	(3.22)
Construction	Plant and Machine Operators	6.40	7.17	2.50	3.59	0.37	3.31	0.73	4.54	1.35	3.89	0.95	3.41
		(2.93)	(1.07)	(1.51)	(0.63)	(0.27)	(0.45)	(0.27)	(0.35)	(0.42)	(0.33)	(0.61)	(0.38)
Trade		1.14	9.39	0.35	5.75	0.90	6.11	0.50	6.99	0.42	5.42	0.37	5.05
		(0.27)	(0.77)	(0.14)	(0.53)	(0.25)	(0.50)	(0.08)	(0.34)	(0.08)	(0.31)	(0.11)	(0.39)
Transport		3.26	38.56	7.86	41.14	6.83	47.18	4.08	46.81	6.69	46.73	8.23	52.55
		(1.31)	(2.20)	(2.53)	(1.74)	(1.49)	(1.71)	(0.60)	(0.98)	(0.95)	(1.06)	(1.48)	(1.33)
Finance		0.76	2.54	0.54	3.30	0.31	2.41	0.33	3.56	0.38	3.59	0.33	3.44
		(0.32)	(0.64)	(0.29)	(0.58)	(0.15)	(0.54)	(0.08)	(0.28)	(0.13)	(0.30)	(0.14)	(0.36)
Services		0.30	4.60	0.73	5.28	0.54	3.97	0.37	3.79	0.28	3.58	0.28	4.19
		(0.10)	(0.46)	(0.17)	(0.59)	(0.11)	(0.40)	(0.06)	(0.27)	(0.05)	(0.24)	(0.09)	(0.41)

Industry	SASCO	1994		1999		2004		2009		2014		2019	
		F	M	F	M	F	M	F	M	F	M	F	M
Domestic Services		0.18	9.04	1.29	4.10	0.00	0.13	0.93	0.33	0.00	0.14	0	0
		(0.13)	(2.40)	(1.29)	(0.96)	(0.00)	(0.13)	(0.57)	(0.15)	(0.00)	(0.09)		
Agriculture, Hunting, Forestry and Fisheries	Elementary Workers	83.81	72.08	62.95	49.09	59.55	54.94	82.19	66.51	84.80	69.30	91.51	72.24
		(2.12)	(1.66)	(2.55)	(1.60)	(1.92)	(1.41)	(1.18)	(1.25)	(1.18)	(1.12)	(1.31)	(1.54)
Mining and Quarrying		5.70	18.29	15.92	8.88	19.79	15.41	14.67	14.25	23.87	21.47	24.82	24.64
		(3.91)	(1.97)	(5.68)	(1.00)	(4.27)	(1.44)	(2.24)	(1.30)	(3.07)	(1.33)	(4.09)	(2.01)
Manufacturing		7.44	12.95	18.34	17.00	20.63	16.96	20.46	14.06	21.01	16.39	22.69	14.91
		(0.85)	(1.00)	(1.27)	(1.03)	(1.17)	(0.80)	(0.77)	(0.50)	(0.89)	(0.61)	(1.45)	(0.79)
Utilities		0.00	13.87	27.07	16.13	15.75	7.75	13.32	9.23	13.23	11.47	5.17	4.77
		(0.00)	(2.76)	(9.83)	(3.45)	(5.23)	(1.72)	(3.54)	(1.52)	(2.96)	(1.57)	(2.70)	(1.56)
Construction		12.21	20.58	27.16	17.02	40.84	22.12	44.78	21.67	48.21	18.84	**48.74**	19.70
		(3.60)	(1.74)	(5.34)	(1.31)	(3.71)	(1.25)	(2.18)	(0.66)	(2.05)	(0.66)	(3.02)	(0.91)
Trade		10.43	15.94	30.84	21.48	38.43	23.54	34.42	25.00	29.37	23.06	32.92	26.37
		(0.89)	(0.96)	(1.19)	(1.07)	(0.95)	(0.93)	(0.61)	(0.58)	(0.60)	(0.59)	(0.88)	(0.76)
Transport		1.21	9.95	11.45	8.78	13.79	12.16	22.45	13.22	16.75	12.86	8.59	10.10
		(0.65)	(1.15)	(2.61)	(1.05)	(2.16)	(1.02)	(1.58)	(0.65)	(1.43)	(0.73)	(1.37)	(0.80)
Finance		1.28	6.36	11.58	5.62	14.28	9.02	16.79	11.60	17.88	10.83	23.32	10.81
		(0.45)	(1.12)	(1.28)	(0.86)	(1.18)	(0.84)	(0.64)	(0.61)	(0.71)	(0.51)	(0.98)	(0.61)
Services		13.12	13.99	11.20	11.05	11.05	16.26	10.08	15.12	15.84	19.79	14.37	20.06
		(0.81)	(1.35)	(0.70)	(0.82)	(0.59)	(0.99)	(0.32)	(0.47)	(0.40)	(0.56)	(0.53)	(0.80)
Domestic Services		60.95	41.14	18.12	3.55	71.87	99.80	38.08	97.31	27.64	98.52	40.63	98.79
		(1.88)	(3.37)	(5.41)	(0.90)	(7.63)	(0.14)	(3.48)	(0.46)	(3.81)	(0.48)	(6.91)	(0.47)
N		**292380**											

A5: Concentration by occupational level, gender and community status (%)

Community Status	SASCO	1994		1999		2004		2009		2014		2019	
		F	M	F	M	F	M	F	M	F	M	F	M
Urban	Manager	4.06	11.89	4.71	10.37	5.31	12.22	6.15	11.17	7.11	12.36	7.06	12.90
		(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Non-Urban		2.12	4.25	1.73	4.68	2.25	4.53	1.71	4.63	1.99	5.05	2.63	5.08
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Urban	Professionals	8.58	7.24	7.32	6.42	6.35	5.79	6.70	6.21	6.74	6.39	6.97	5.07
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Non-Urban		6.55	2.57	1.67	1.50	2.25	0.94	2.23	1.60	2.59	1.82	3.68	1.86
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)	(0.00)	(0.00)	(0.00)
Urban	Technicians and Associate Professionals	12.18	10.39	15.27	10.15	15.63	10.80	16.39	11.11	15.56	9.97	11.59	8.31
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Non-Urban		7.32	3.17	9.09	4.04	8.34	4.17	11.45	7.57	10.67	5.41	9.91	4.77
		(0.00)	(0.00)	(0.00)	(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Urban	Clerical Support Workers	**29.79**	10.80	**19.88**	8.12	**22.73**	8.42	**20.81**	7.27	**20.99**	7.32	**20.22**	6.56
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Non-Urban		8.02	3.85	6.55	2.79	5.57	2.33	7.15	3.49	7.83	3.12	9.06	2.62
		(0.00)	(0.00)	(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Urban	Service and Sales Workers and Armed Forces	15.08	12.64	15.02	13.96	14.54	14.47	15.80	14.14	17.42	15.65	19.76	16.86
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Non-Urban		8.55	6.18	10.32	8.25	10.12	7.67	17.79	11.67	19.85	13.21	20.39	14.67
		(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Urban	Skilled Agricultural, Forestry and Fishery Workers	0.17	0.91	0.41	3.87	0.46	0.76	0.17	0.55	0.17	0.43	0.07	0.27
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Non-Urban		1.78	6.18	8.94	12.91	6.71	7.47	1.03	2.77	1.09	2.20	0.26	1.48
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Urban	Craft and Related Trade Workers	4.70	24.10	5.36	22.97	3.96	22.01	**3.84**	**22.22**	**3.40**	**20.01**	**3.36**	**20.33**
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Non-Urban		3.39	11.56	4.90	18.65	5.45	16.85	**4.95**	**20.92**	**4.34**	**20.96**	**3.84**	**22.06**
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(.)	(0.00)
Urban	Plant and Machine Operators, and Assemblers	6.53	14.90	4.65	16.95	3.67	15.13	3.51	14.36	2.99	14.15	2.73	14.21
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Non-Urban		2.70	15.34	2.90	21.96	2.18	21.14	2.02	14.98	2.10	14.66	2.29	14.83

Community Status	SASCO	1994		1999		2004		2009		2014		2019	
		F	M	F	M	F	M	F	M	F	M	F	M
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(.)
Urban	Elementary Workers	12.34	12.13	17.76	15.72	18.08	19.37	18.58	21.33	18.23	21.05	20.45	22.41
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Non-Urban		**38.78**	**50.09**	**38.52**	**34.42**	**43.59**	**43.76**	**38.91**	**40.65**	**39.71**	**40.81**	**39.26**	**39.73**
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
N		292939											

A6: Concentration by occupational level, gender and industry (%)

Industry	SASCO	1994		1999		2004		2009		2014		2019	
		F	M	F	M	F	M	F	M	F	M	F	M
Agriculture, Hunting, Forestry and Fisheries	Manager	0.30	1.21	0.00	0.00	0.00	0.00	1.39	0.00	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(.)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)	(.)
Mining and Quarrying		2.86	1.61	0.00	0.00	0.00	0.00	7.80	0.00	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(.)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)	(.)
Manufacturing		2.62	8.64	0.00	0.00	0.00	0.00	4.42	0.00	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(.)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)	(.)
Utilities		2.24	4.90	0.00	0.00	0.00	0.00	7.15	0.00	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(.)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)	(.)
Construction		5.73	7.32	0.00	0.00	0.00	0.00	7.41	0.00	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(.)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)	(.)
Trade		9.91	19.53	0.00	0.00	0.00	0.00	6.70	0.00	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(.)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)	(.)
Transport,		5.29	14.98	0.00	0.00	0.00	0.00	13.03	0.00	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(.)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)	(.)

Industry	SASCO	1994		1999		2004		2009		2014		2019	
		F	M	F	M	F	M	F	M	F	M	F	M
Finance		4.93	14.43	0.00	0.00	0.00	0.00	9.86	0.00	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(.)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)	(.)
Services		1.86	7.72	0.00	0.00	0.00	0.00	4.32	0.00	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(.)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)	(.)
Domestic Services		0.38	4.44	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(.)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)	(.)
Agriculture, Hunting, Forestry and Fisheries	Professionals	0.08	0.21	0.18	0.00	0.00	0.00	0.54	0.00	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)	(.)
Mining and Quarrying		11.46	2.64	6.38	0.00	0.00	0.00	5.30	0.00	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)	(.)
Manufacturing		1.03	2.49	1.50	0.00	0.00	0.00	2.15	0.00	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)	(.)
Utilities		8.95	3.39	3.99	0.00	0.00	0.00	7.95	0.00	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Construction		2.15	1.27	1.07	0.00	0.00	0.00	2.72	0.00	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Trade		0.57	0.85	0.68	0.00	0.00	0.00	1.02	0.00	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)	(.)
Transport,		1.22	0.94	3.02	0.00	0.00	0.00	4.06	0.00	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)	(.)
Finance		4.10	17.60	9.35	0.00	0.00	0.00	13.05	0.00	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)	(.)
Services		25.25	20.41	18.27	0.00	0.00	0.00	12.19	0.00	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)	(.)
Domestic Services		1.46	2.37	0.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)	(.)

Industry	SASCO	1994		1999		2004		2009		2014		2019	
		F	M	F	M	F	M	F	M	F	M	F	M
Agriculture, Hunting, Forestry and Fisheries	Technicians and Associate Professionals	0.98	0.42	0.36	0.00	0.00	0.00	1.69	0.66	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(0.00)	(0.00)	(.)	(.)	(.)	(.)
Mining and Quarrying		2.86	3.33	11.16	0.00	0.00	0.00	9.05	3.96	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(0.00)	(0.00)	(.)	(.)	(.)	(.)
Manufacturing		5.41	7.25	7.04	0.00	0.00	0.00	9.19	8.69	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(0.00)	(0.00)	(.)	(.)	(.)	(.)
Utilities		8.95	10.18	11.96	0.00	0.00	0.00	12.72	12.30	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(0.00)	(0.00)	(.)	(.)	(.)	(.)
Construction		10.74	2.47	5.36	0.00	0.00	0.00	5.68	2.81	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(0.00)	(0.00)	(.)	(.)	(.)	(.)
Trade		3.37	4.46	2.23	0.00	0.00	0.00	3.33	5.31	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(0.00)	(0.00)	(.)	(.)	(.)	(.)
Transport,		6.51	9.17	9.05	0.00	0.00	0.00	7.05	5.49	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)
Finance		20.01	28.95	18.98	0.00	0.00	0.00	15.28	16.63	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(0.00)	(0.00)	(.)	(.)	(.)	(.)
Services		**22.72**	16.20	**43.52**	0.00	**0.00**	0.00	**40.47**	29.77	**0.00**	0.00	**0.00**	0.00
		(0.00)	(0.00)	**(.)**	(.)	**(.)**	(.)	**(0.00)**	(0.00)	**(.)**	(.)	**(.)**	(.)
Domestic Services		6.32	4.44	0.15	0.00	0.00	0.00	0.04	0.06	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(.)	(.)	(.)	(.)	(0.00)	(0.00)	(.)	(.)	(.)	(.)
Agriculture, Hunting, Forestry and Fisheries	Clerical Support Workers	2.26	0.60	2.36	0.00	0.00	0.00	0.00	0.56	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(.)	(.)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)

Industry	SASCO	1994		1999		2004		2009		2014		2019	
		F	M	F	M	F	M	F	M	F	M	F	M
Mining and Quarrying		57.29	7.00	39.85	0.00	0.00	0.00	0.00	4.66	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)
Manufacturing		19.82	9.03	11.35	0.00	0.00	0.00	0.00	5.97	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)
Utilities		69.38	10.18	35.87	0.00	0.00	0.00	0.00	6.02	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)
Construction		37.24	1.99	23.61	0.00	0.00	0.00	0.00	1.49	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)
Trade		31.80	8.89	22.26	0.00	0.00	0.00	0.00	8.08	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)
Transport,		72.84	14.98	54.89	0.00	0.00	0.00	0.00	8.43	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)
Finance		70.28	22.20	50.27	0.00	0.00	0.00	0.00	9.13	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)
Services		19.05	11.60	15.29	0.00	0.00	0.00	0.00	9.99	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)
Domestic Services		6.32	5.62	0.15	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(.)	(.)	(.)	(.)	(0.00)	(.)	(.)	(.)	(.)
Agriculture, Hunting, Forestry and Fisheries	Service and Sales Workers and Armed Forces	0.00	0.87	2.81	1.23	0.88	0.97	0.73	1.47	1.15	1.04	0.00	1.79
		(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)
Mining and Quarrying		0.00	4.36	9.56	3.39	8.13	2.33	5.93	3.59	2.51	1.53	0.00	2.32
		(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)
Manufacturing		0.00	3.26	3.34	2.28	6.02	2.38	5.88	1.94	6.30	1.70	0.00	2.02
		(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)
Utilities		0.00	3.39	7.97	7.82	1.44	1.56	4.77	3.51	2.29	4.45	0.00	1.64

Industry	SASCO	1994		1999		2004		2009		2014		2019	
		F	M	F	M	F	M	F	M	F	M	F	M
		(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)
Construction		0.00	0.56	3.22	0.82	0.65	0.25	1.36	0.83	0.37	0.46	0.00	0.30
		(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)
Trade		0.00	27.19	**37.74**	**28.75**	**32.41**	**27.11**	**31.93**	**26.53**	**33.71**	**29.18**	0.00	**30.19**
		(.)	(0.00)	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	(.)	**(0.00)**
Transport,		0.00	3.61	5.43	4.17	4.56	3.02	6.09	2.43	6.50	2.99	0.00	1.71
		(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)
Finance		0.00	7.78	4.96	**31.76**	11.15	**37.70**	14.41	**35.01**	15.12	**33.29**	0.00	**39.42**
		(.)	(0.00)	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(.)	**(0.00)**
Services		0.00	20.75	15.03	22.50	17.52	24.81	20.59	20.50	23.19	25.22	0.00	23.73
		(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)
Domestic Services		0.00	15.39	1.45	1.63	0.37	0.24	2.16	0.79	2.07	0.93	0.00	1.03
		(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(.)	(0.00)
Agriculture, Hunting, Forestry and Fisheries	Skilled Agricultural, Forestry and Fishery Workers	0	0.00	0	0.00	0	0.00	0	10.98	0	0.00	0	0.00
			(.)		(.)		(.)		(0.00)		(.)		(.)
Mining and Quarrying		0	0.00	0	0.00	0	0.00	0	0.86	0	0.00	0	0.00
			(.)		(.)		(.)		(0.00)		(.)		(.)
Manufacturing		0	0.00	0	0.00	0	0.00	0	0.52	0	0.00	0	0.00
			(.)		(.)		(.)		(0.00)		(.)		(.)
Utilities		0	0.00	0	0.00	0	0.00	0	1.25	0	0.00	0	0.00
			(.)		(.)		(.)		(0.00)		(.)		(.)
Construction		0	0.00	0	0.00	0	0.00	0	0.25	0	0.00	0	0.00
			(.)		(.)		(.)		(0.00)		(.)		(.)
Trade		0	0.00	0	0.00	0	0.00	0	0.10	0	0.00	0	0.00

Industry	SASCO	1994		1999		2004		2009		2014		2019	
		F	M	F	M	F	M	F	M	F	M	F	M
			(.)		(.)		(.)		(0.00)		(.)		(.)
Transport,		0	0.00	0	0.00	0	0.00	0	0.06	0	0.00	0	0.00
			(.)		(.)		(.)		(0.00)		(.)		(.)
Finance		0	0.00	0	0.00	0	0.00	0	0.20	0	0.00	0	0.00
			(.)		(.)		(.)		(0.00)		(.)		(.)
Services		0	0.00	0	0.00	0	0.00	0	0.47	0	0.00	0	0.00
			(.)		(.)		(.)		(0.00)		(.)		(.)
Domestic Services		0	0.00	0	0.00	0	0.00	0	0.24	0	0.00	0	0.00
			(.)		(.)		(.)		(0.00)		(.)		(.)
Agriculture, Hunting, Forestry and Fisheries		0.38	2.13	0.00	2.80	0.00	0.00	1.94	3.80	0.00	1.41	0.00	2.56
		(0.00)	(0.00)	(.)	(0.00)	(.)	(.)	(0.00)	(0.00)	(.)	(0.00)	(.)	(0.00)
Mining and Quarrying		10.03	53.25	0.00	41.21	0.00	0.00	**20.28**	**43.51**	0.00	**37.35**	0.00	**30.57**
		(0.00)	(0.00)	(.)	(0.00)	(.)	(.)	**(0.00)**	**(0.00)**	(.)	**(0.00)**	(.)	**(0.00)**
Manufacturing		23.52	28.11	0.00	28.23	0.00	0.00	**23.74**	**34.49**	0.00	**29.90**	0.00	**33.88**
		(0.00)	(0.00)	(.)	(0.00)	(.)	(.)	**(0.00)**	**(0.00)**	(.)	**(0.00)**	(.)	**(0.00)**
Utilities		4.48	45.61	0.00	40.51	0.00	0.00	**7.15**	**31.87**	0.00	**30.48**	0.00	**30.16**
	Craft and Related Trade Workers	(0.00)	(0.00)	(.)	(0.00)	(.)	(.)	**(0.00)**	**(0.00)**	(.)	**(0.00)**	(.)	**(0.00)**
Construction		15.76	65.97	0.00	77.70	0.00	0.00	**18.65**	**64.88**	0.00	**67.02**	0.00	**69.32**
		(0.00)	(0.00)	(.)	(0.00)	(.)	(.)	(0.00)	**(0.00)**	(.)	**(0.00)**	(.)	**(0.00)**
Trade		3.44	21.60	0.00	21.73	0.00	0.00	3.27	19.05	0.00	20.27	0.00	19.99
		(0.00)	(0.00)	(.)	(0.00)	(.)	(.)	(0.00)	(0.00)	(.)	(0.00)	(.)	(0.00)
Transport,		1.63	14.43	0.00	11.62	0.00	0.00	0.53	6.03	0.00	4.37	0.00	4.21
		(0.00)	(0.00)	(.)	(0.00)	(.)	(.)	(0.00)	(0.00)	(.)	(0.00)	(.)	(0.00)
Finance		0.21	8.39	0.00	5.75	0.00	0.00	1.01	4.98	0.00	6.41	0.00	6.65

Industry	SASCO	1994		1999		2004		2009		2014		2019	
		F	M	F	M	F	M	F	M	F	M	F	M
		(0.00)	(0.00)	(.)	(0.00)	(.)	(.)	(0.00)	(0.00)	(.)	(0.00)	(.)	(0.00)
Services		0.46	6.15	0.00	6.22	0.00	0.00	0.88	5.16	0.00	2.21	0.00	1.38
		(0.00)	(0.00)	(.)	(0.00)	(.)	(.)	(0.00)	(0.00)	(.)	(0.00)	(.)	(0.00)
Domestic Services		0.54	12.13	0.00	6.54	0.00	0.00	0.03	1.15	0.00	0.23	0.00	0.17
		(0.00)	(0.00)	(.)	(0.00)	(.)	(.)	(0.00)	(0.00)	(.)	(0.00)	(.)	(0.00)
Agriculture, Hunting, Forestry and Fisheries	Plant and Machine Operators, and Assemblers	0.60	12.49	0.00	21.24	0.00	15.58	1.03	13.08	0.00	14.07	0.00	0.00
		(0.00)	(0.00)	(.)	(0.00)	(.)	(0.00)	(0.00)	(0.00)	(.)	(0.00)	(.)	(.)
Mining and Quarrying		2.86	**15.84**	0.00	**43.67**	0.00	**45.31**	18.72	**31.36**	0.00	**31.50**	0.00	0.00
		(0.00)	**(0.00)**	(.)	**(0.00)**	(.)	**(0.00)**	(0.00)	**(0.00)**	(.)	**(0.00)**	(.)	(.)
Manufacturing		36.06	**34.33**	0.00	**33.51**	0.00	**30.47**	25.01	**29.61**	0.00	**31.36**	0.00	0.00
		(0.00)	**(0.00)**	(.)	**(0.00)**	(.)	**(0.00)**	(0.00)	**(0.00)**	(.)	**(0.00)**	(.)	(.)
Utilities		4.48	16.96	0.00	12.79	0.00	17.12	7.15	24.84	0.00	24.15	0.00	0.00
		(0.00)	(0.00)	(.)	(0.00)	(.)	(.)	(0.00)	(0.00)	(.)	(0.00)	(.)	(.)
Construction		5.01	6.53	0.00	4.55	0.00	4.00	1.11	4.65	0.00	4.10	0.00	0.00
		(0.00)	(0.00)	(.)	(0.00)	(.)	(0.00)	(0.00)	(0.00)	(.)	(0.00)	(.)	(.)
Trade		1.00	7.51	0.00	6.97	0.00	6.60	0.53	8.06	0.00	6.03	0.00	0.00
		(0.00)	(0.00)	(.)	(0.00)	(.)	(.)	(0.00)	(0.00)	(.)	(0.00)	(.)	(.)
Transport,		4.07	36.38	0.00	47.39	0.00	50.31	5.87	52.91	0.00	53.01	0.00	0.00
		(0.00)	(0.00)	(.)	(0.00)	(.)	(0.00)	(0.00)	(0.00)	(.)	(0.00)	(.)	(.)
Finance		0.62	2.56	0.00	4.18	0.00	2.63	0.49	4.01	0.00	4.20	0.00	0.00
		(0.00)	(0.00)	(.)	(0.00)	(.)	(0.00)	(0.00)	(0.00)	(.)	(0.00)	(.)	(.)
Services		0.30	4.69	0.00	6.28	0.00	4.56	0.41	4.16	0.00	4.48	0.00	0.00
		(0.00)	(0.00)	(.)	(0.00)	(.)	(0.00)	(0.00)	(0.00)	(.)	(0.00)	(.)	(.)
Domestic Services		0.17	6.81	0.00	3.97	0.00	0.12	0.04	0.30	0.00	0.23	0.00	0.00
		(0.00)	(0.00)	(.)	(0.00)	(.)	(0.00)	(0.00)	(0.00)	(.)	(0.00)	(.)	(.)

Industry	SASCO	1994		1999		2004		2009		2014		2019	
		F	M	F	M	F	M	F	M	F	M	F	M
Agriculture, Hunting, Forestry and Fisheries	Elementary Workers	0.00	**73,73**	**76**	**57,5**	**70,53**	**64,2**	**90,28**	**73,24**	**91,06**	**74,64**	**97,95**	**77,49**
		(.)	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**
Mining and Quarrying		0.00	16.41	17.54	10.43	23.37	16.36	17.79	13.65	21.57	22.13	27.27	25.94
		(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Manufacturing		0.00	12.07	22.26	19.03	23.45	19.35	22.60	15.99	23.46	18.04	24.71	16.76
		(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Utilities		0.00	12.82	27.90	18.48	21.66	11.67	16.69	11.04	20.65	15.00	3.58	5.48
		(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Construction		0.00	20.21	**31.12**	19.40	**42.66**	23.83	**50.87**	23.86	**56.02**	21.89	**58.07**	21.33
		(.)	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)
Trade		0.00	14.51	**36.92**	24.47	**43.78**	27.18	**40.29**	27.72	**34.62**	25.83	**37.33**	29.15
		(.)	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)
Transport,		0.00	10.04	14.48	10.49	19.59	14.10	28.51	15.16	20.43	13.24	11.17	11.65
		(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Finance		0.00	4.60	16.85	6.90	19.00	10.61	21.41	12.72	21.52	12.76	27.68	12.48
		(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Services		0.00	13.57	14.81	13.11	13.85	18.78	12.72	17.77	18.96	21.95	17.73	23.77
		(.)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Domestic Services		0.00	41.43	0.70	3.50	0.85	**88.38**	1.43	**91.69**	0.85	**89.46**	1.12	**91.07**
		(.)	(0.00)	(0.00)	(0.00)	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**	(0.00)	**(0.00)**
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