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# THE RELATIONSHIP BETWEEN OCCUPATION STATUS AND SUBJECTIVE WELL-BEING IN SOUTH AFRICA

**by**

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of

Masters in Commerce

in

Development Economics

at the

College of Business and Economics

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Supervisor: Dr M Biyase

**2021**

**DECLARATION**

I certify that the *minor dissertation/dissertation/thesis* submitted by me for the degree *Master's of Commerce (Development Economics)* at the University of Johannesburg is my independent work and has not been submitted by me for a degree at another university.

SHEILA MARTINS DE CARVALHO

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## ABSTRACT

Using data from the 2008, 2010, 2012, 2014 and 2017 waves of the National income Dynamics Study (NIDS), this dissertation investigates the link between occupation (skilled, medium skilled and low skilled) and subjective well-being (SWB) in South Africa. Although some studies (such as Hundley, 2001) have investigated factors that influence work satisfaction, the effects of occupation status on SWB has received less attention in South Africa. Thus, the aim of this dissertation is to explore how belonging to a specific occupation impacts the SWB of people in South Africa and the factors underlying it. The results suggest a positive relationship between occupation and SWB and reveal some differences in SWB between occupations. Specifically, compared with unskilled labour, those belonging to the medium- and highly-skilled categories are considerably happier, which is consistent with existing findings. The estimates are robust to the inclusion of emotional health variables (such as depression and loneliness), suggesting that occupation is important in explaining SWB in South Africa.



**Key variables:** *SWB, NIDS, occupation, depression and loneliness*



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## LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| BHPS | British Household Panel Survey |
| ESS | European Social Survey |
| EVS | European Values Study |
| GDP | Gross Domestic Product |
| GSOEP | German Socio-Economic Panel |
| GSS | General Social Survey |
| GSS | US General Social Survey |
| HILDA | Household, Income and Labour Dynamics in Australia |
| HOMALS | Homogeneity analysis by means of alternating least squares |
| MCA | Multiple Correspondence Analysis |
| ML | Maximum Likelihood |
| NELS | National Educational Longitudinal Study |
| NIDS | National Income Dynamic Study |
| OLS | Ordinary Least Squares |
| SALDRU | South African Labour and Development Research Unit |
| SWB | Subjective Well-Being |
| WVS | World Values Survey |

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# CHAPTER 1: INTRODUCTION, RESEARCH PROBLEM, OBJECTIVES AND CHAPTER OVERVIEW

## 1.1 INTRODUCTION AND RESEARCH PROBLEM

Subjective well-being refers to how individuals go through and assess their lives, as well as the particular activities and areas in their lives A vast amount of new literature in economics, beginning in the 1990s and after, has focused significantly on subjective well-being (SWB) (Stone and Mackie, 2013). A majority of this literature has reported on the determinants of SWB. A consistent theme that has arisen from these studies is how relative income impacts an individual's SWB (Posel and Casale, 2011). Furthermore, literature relating to SWB has also explored and compared the different theories of SWB, notably the top-down and bottom-up models. Many of these papers built on the work of Diener (1984), who was the first to critique the bottom-up approach. He suggested that SWB could be determined more by an individual's personality traits, rather than their situational circumstance (Blaauw and Pretorius, 2013). The significance of this information lies in its possible contribution to monitoring the social, economic, and health of populations, and assisting in making informed policy decisions.

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South Africa is a country with extraordinarily high levels of poverty, inequality and unemployment (commonly referred to as a triple challenge). Close to 49.2% (just under half) of the adults in the population live under the upper-bound poverty line. Provincial statistics show that the Western Cape (33.2%) and Gauteng (29.33%) have the lowest percentage of adults living in poverty. The highest level of poverty still sits with Limpopo (67.5%), KwaZulu-Natal (60.7%) and the North West (59.6%) (Statistics South Africa, 2019). The cause of the triple challenge is explained by skills shortages, which, in turn, relates to one's particular occupation. In this paper, the term "skills" (low, medium and high skilled) is used interchangeably with "occupation". Skills continue to play an important part in the South African economy

This issue of skills shortage has featured prominently in the South African Policy documents such as Accelerated and Shared Growth Initiative–South Africa (AsgiSA) document. According to this initiative "For both the public infrastructure and the private

investment programmes, the single greatest impediment is shortage of skills – including professional skills such as engineers and scientists; managers such as financial, personnel and project managers; and skilled technical employees such as artisans and IT technicians. The shortfall is due to the policies of the apartheid era and the slowness of our education and skills development institutions to catch up with the current acceleration of economic growth." (Asgisa: 9, nd).

Low-skilled individuals may differ from high-skilled regarding the kind of work they do, where they work, level of education plus their satisfaction levels. Some occupations make people happier than others, and this can be attributed to several reasons, which will be examined in this study. Blaauw and Pretorius (2013:636) note that the abovementioned provinces (Western Cape, Gauteng, Limpopo, KwaZulu-Natal and the North West) are likely to be "principally unhappy, dissatisfied, and pessimistic". This point (though important) is usually mentioned in passing in the discussions of poverty and related literature. They point out that the SWB experience of those at the bottom tail of the distribution in the South African labour market remains underexplored. International studies in the related field (with the exception of Hessels, Arampatzi, van der Zwan & Burger, 2018) have focused on labour market indicators and life satisfaction (e.g., Hundley, 2001). Inadequate investigations on the effect that occupation status might have on the SWB in this field is rather unfortunate, given the importance of occupation in our experiencing SWB. To the best of our knowledge, no studies have investigated the effect of occupation status on the SWB in South Africa.

Building on the work of Hessels et al. (2018) and related South African studies, this dissertation attempts to bridge the gap in this literature by exploring the effect of occupation status on SWB in South Africa.

## 1.2 OBJECTIVES OF THIS STUDY

The link between occupation status and SWB remains underexplored, and this study will improve upon existing studies by providing a broader perspective on this relationship. In accordance with the research problem highlighted in the previous section, the precise objectives of this study are as follows:

i. To explore the link between occupation (e.g., managers, clerical workers, trade workers, etc.) and SWB.
ii. To establish the impact of occupation on SWB when we disaggregate by each skill type (high, medium, and low skilled).

## 1.3 RESEARCH QUESTIONS

i. What is the impact of occupation (belonging to a specific occupation) on SWB for an entire sample (sample size 19,126 observations)?
ii. Does the relationship between occupation and SWB vary by occupational status?
iii. Does the relationship between occupation and SWB vary when emotional health variables (depression and loneliness) are included as determinants in the regression?

The objectives will be fulfilled, and the research questions answered though the least square dummy variable (LSDV) method and the data obtained from the National Income Dynamics Study (NIDS). This data and methodology will be elaborated upon in forthcoming chapters.

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## 1.4 CHAPTER OVERVIEW

Having defined the research problem and the objectives of this study, this section offers an overview of the subsequent chapters of this study. Chapter 2 will give some insight into past literature. Chapter 3 will paint a picture of the research methods used to achieve the objectives of this study. Chapter 4 will consist of the empirical results. The descriptive statistics will first be analysed, followed by a discussion of the results of the entire sample and then results after disaggregating for each skill type. Chapter 5 discusses the study's limitations and recommendations for future research.

# CHAPTER 2: LITERATURE REVIEW

## 2.1 INTRODUCTION

SWB is a growing topic in economic literature. This chapter explores the theory behind SWB (cause or effect), as well as the existing literature on this topic. The theoretical literature is important for this study because it gives a background on the two theories upon which SWB hinges, even if they are not always explicitly mentioned. To the best of our knowledge, there are no theories relating explicitly to occupational status and SWB. Furthermore, the empirical literature is important to determine what has been done, what is missing, and how we can fill the gap.

## 2.2 THEORETICAL CONSIDERATIONS

### *2.2.1 Bottom-up Versus Top-Down Theory*

Is happiness the cause or the effect of gratifications? In other words, does life satisfaction cause more happiness in an individual's social life, or is happiness an effect of life's satisfactions? Two theoretical perspectives—the "top-down" and "bottom-up" theories Diener (1984)—have been used to answer these questions. While these approaches have been predominantly viewed as competing theories, they are not dissimilar. The bottom-up perspective is a theory that a person's overall life satisfaction is dependent on an individual's satisfactions in various areas of life. These areas include relationships, friendships, employment and health. According to this theory, the more an individual's needs are satisfied, the greater the happiness with one's life. Supporters of this theory include Andrews and Withey (1976). The top-down theory, on the other hand, suggests that happiness is derived from a dispositional perspective. This includes an individual's attitude, personality traits and habits (Loewe, Bagherzadeh, Araya-Castillo, Thieme & Batista-Foguet, 2014). In other words, happiness is based on an individual's ability to interpret and look at life experiences in a negative or a positive light.

Which theory could be put into practice to help increase one's happiness? This comes down to self-evaluation and being aware of which factors contribute to our happiness and unhappiness. If life satisfaction is a result of personal perceptions, then top-down

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would be the theory that explains SWB. However, the bottom-up theory would explain SWB if one were unhappy in a job or marriage, for example.

### *2.2.2 Bottom-up and Top-Down in the Literature*

SWB has been examined in depth in several studies. These papers often look at the determinants of SWB. A few take these determinants and discuss the results in the context of bottom-up and top-down models. The papers that do not explicitly mention these theories nonetheless contain findings that relate to one or both theories. In this section, some of the literature that studies how each theory relates to or impacts SWB will be discussed. The most problematic aspect of literature that analyses SWB is the uncertainty around whether a variable is the cause or the consequence of SWB. A majority of the literature has described variables as causes of SWB (bottom-up), but these variables are possibly the result of SWB or sometimes both the cause and the consequence. Many researchers have assumed that variables such as social support, goals, expectations and life events are the causes of SWB. However, critics have highlighted that these could just be the consequences of SWB. In some instances, this is known as the top-down versus bottom-up controversy.

Brief, Butcher, George and Link (1993) studied the top-down and bottom-up theories in relation to SWB and health. They discussed the controversies of these theories around health. They found that with the top-down theory, an individual's personality, moods, anxiety and stress impact a person's perception of life and illness. However, in the bottom-up theory, they found that certain life experiences can cause illness. In their paper they also analysed how a person's life experiences and circumstances impacted how they interpreted their lives, and how that interpretation influenced SWB. Their findings suggest that there are two contradicting psychological theories of SWB: objective life events (e.g., objective health) and global personality dimensions (e.g., neuroticism). They summarised that objective life events advocate for the bottom-up theory and personality dimensions advocate for the top-down theory.

Voicu (2015) examined the relationship between overall life satisfaction and domain satisfactions (education, standard of living, job, etc.). He made use of four models that included top-down and bottom-up. The findings suggest that overall life satisfaction is

more strongly associated to personality traits, which should determine domain satisfactions but in fact contrasts with the bottom-up model. Furthermore, he found that the bottom-up theory is insufficient to describe the levels of overall life satisfaction and domain satisfactions. Nakazato, Schimmack and Oishi (2011) examined the impact of moving on SWB. They tested four theories: aspiration spiral theory, hedonic treadmill theory, top-down theory and the housing costs theory. Their findings are consistent with the last two in contrast to the first. They found that the relationship between house satisfaction and life satisfaction revealed the effects of steady dispositions rather than the effects of living conditions (top-down). They also found evidence for the bottom-up theory. The results show that some individuals' life satisfaction increased when they moved because of greater housing satisfaction. Given the increase in housing satisfaction, the bottom-up effect should have somewhat increased life satisfaction. The results, however, showed a decrease in life satisfaction. However, they were able to attribute this to the housing costs theory, which suggest that other costs are the cause for a lack of increase in life satisfaction.

## 2.3 EMPIRICAL CONSIDERATIONS

Until recently, empirical investigations of SWB/happiness were dominated by the fields of psychology and sociology. Since then, SWB/happiness literature has captured the attention of economists (Frey & Stutzer, 2003). There is a well-documented relationship between SWB and absolute income (Diener, 1984; Easterlin, 1974); relative income (Posal & Casale, 2011); wealth (Headey & Wooden, 2004); age and SWB (Botha & Booysen, 2013; Fagley and Adler, 2012); ethnicity (Davis & Wu, 2014); marital status (Filiz, 2014; Lee, Vlaev, King, Mayer, Darzi and Dolan, 2013); education (Witter, Okun, Stock & Haring, 1984); obesity (Katsaiti, 2012; Stutzer, 2007); social capital effects and SWB (Helliwell & Putnam, 2004); capabilities (Veenhoven, 2010) and other determinants. This evidence is generally robust across many studies and in line with theoretical expectations for many of the investigated SWB predictors (Oswald, 1997).

### *2.3.1 Absolute Income and SWB*

Among several potential SWB determinants, absolute income is accounted for in many studies. A common finding among these studies is that absolute income can have a

positive effect on SWB. Di Tella, Haisken-De New and MacCulloch (2010) use individual panel data for people residing in Germany from 1984 to 2000. In their study they take into account the numerous lags of income as well as status, and make comparisons with the long-run effects. They conclude that happiness changes over time as individuals begin to adapt to their change in income. Despite adapting to income, individuals do not strongly adapt to status changes over time.

Sacks, Stevenson and Wolfers (2013) looked at growth in income and SWB over time. The goal was to expand on Easterlin's (1974) paper in which he emphasised that an increase in income (GDP) cannot improve the happiness of individuals in that country over time. However, their paper strongly rejects the outcome of Easterlin (1974). They found, in fact, that countries that have experienced better levels of economic growth have actually experienced a greater rise in SWB over time.

However, this finding is not universal in the SWB literature. Some studies suggest that income increases at a decreasing rate—diminishing return—implying that income plays an important role for the SWB of the low-income group (Copestake and Camfield, 2010, Easterlin, 2004; Howell et al., 2006). Thus, the view taken by these scholars is that while increases in absolute income can help in the way of meeting the minimum needs of poor communities, as the communities become richer, other income measures (such as relative income) play an important role in explaining SWB.

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### *2.3.2 Relative Income and SWB*

Although no widespread consensus exists on the effect that relative income might have on SWB, there is some agreement that relative income correlates positively to SWB. Using fixed effects and clustered fixed effects, Posal and Casale, (2011) examined the relative standing and SWB in South Africa. Making use of panel data from the National Income Dynamics Study (NIDS), they found that an individual's relative standing in their village and/or suburb has a greater effect on well-being than their relative standing compared to the rest of South Africa. Posal and Casale, (2011) also found that comparing oneself with others has a significant impact on life satisfaction. Those who believe to be a part of the middle and richest third of income earners have greater levels of SWB than those who would say they fall within the

poorest third of income earners. They also disaggregated the model to determine how belonging to different ethnic groups impacts SWB due to South Africa's political past. They found that Black people believe themselves to be in a lower class and report having far lower levels of SWB compared to Whites.

Leibbrandt and Shifa (n.d.) used panel data from the Ethiopia Rural Household Survey (ERHS) and appropriate methods (ordinary least squares regression and ordered probit regression) to investigate the relationship between SWB, relative status and material aspirations. Results showed that those who reported a lower SWB were individuals who believed that they were one of the poorest households in their village and/or suburb and who also felt they were worse off at that point than they were in the past. They also found that material goals and aspirations is an important determinant of SWB.

A similar study by Kingdon and Knight (2007) used data from the South African Labour and Development Research Unit (SALDRU). They employed OLS and an ordered probit, which gave similar results with no change in signs or significance. They concluded that the comparison of the income in a particular household in question and the income of other households all had an impact on SWB of the individuals included in the study. They determined that the household income compared to that of others has a larger impact than the actual income of a particular household. Another study by Luttmer (2005) aimed to identify if the income of others impacts an individual's happiness. This study used panel data from the National Survey of Families and Households (NSFH) and made use of OLS and pooled OLS. They concluded that there is a negative impact of neighbours' incomes on SWB.

McBride (2001) used cross-sectional data from the General Social Survey (GSS) and also used an ordered probit to examine the impact of income on SWB. This study used a proxy for relative income and found that as income increases, SWB increases as well (positive relationship). However, when relative income increases, then SWB decreases (negative relationship).

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### *2.3.3 Wealth and SWB*

Headey and Wooden (2004) used cross-sectional data from the Household, Income and Labour Dynamics in Australia (HILDA) and also made use of OLS regression and ordered probit to determine the factors that influence SWB. They found that the correlation between wealth and well-being is higher than the correlation between income and well-being. They then combined the income and wealth effects and controlled for variables such as marital status, gender, employment, age and educational attainment. They found that wealth is more important than income when it comes to better well-being.

Biswas-Diener and Diener (2002) looked at whether having more money makes people happier. They performed a more descriptive study and made use of cross-sectional data. They find that having a higher income or living in a wealthier environment may be beneficial if an individual is very poor. On the other hand, they concluded that having a strong desire for money would more than likely hamper the chances of a high SWB. There is no significant improvement in SWB in the long term when wealth improves for those who form part of the middle or upper class. Diener and Biswas-Diener (2002) also find a contradicting outcome, whereby an increase in money or wealth can negatively impact SWB. They found that an increase in income leads to higher divorce rates, increases stress levels, little joy linked to smaller activities and lower well-being globally. As a result, they emphasised that having more money has both pros and cons.

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### *2.3.4 Employment and SWB*

In the United Kingdom, Taylor, Bradley and Nguyen (2003) explored how job autonomy impacts job satisfaction. An important finding of this study was that job satisfaction indeed has a significant impact on overall subjective well-being. This paper made use of data from the National Educational Longitudinal Study (NELS, 2000), a cross-sectional survey. The focus of this study was to explore job satisfaction and, more importantly, how the level of freedom surrounding those jobs impacted job satisfaction. The authors investigated how much job autonomy is related to job satisfaction in relation to job security, how challenging a job is, fringe benefits, pay and the prospects of promotion. As a result of this, another significant finding is that the

level of job satisfaction increases when an employee has increased control over how a job is done. Lastly, there is no prominent difference in job satisfaction when there is job autonomy and when there is not. Especially, in the case for satisfaction with possibilities of promotion, how challenging or important the job is, as well as pay, were major contributors.

Pischke (2011) used three data sources: the US General Social Survey (GSS), the European Social Survey (ESS) and the German Socio-Economic Panel (GSOEP). He made use of an ordered probit, fixed effects, OLS and 2SLS to identify the correlation between income and satisfaction. Pischke (2011) used industry income as a proxy for family income and also included household income. This study found that the relationship between industry and life satisfaction are causal and not determined through reverse causality or any omitted influences. The paper highlights how people working in an outlying industry in the US—welfare and religious services—are paid quite poorly but are very happy. Once again, the reasons for this were not explored in the paper but it is important to reiterate that income alone does not independently impact SWB. This is crucial for the objective of this study.

### *2.3.5 Social Capital Affects Well-Being*

Castriota (2006) analysed the impact of absolute income on SWB by level of education. He made use of World Bank's World Value Survey and ran a multinomial ordered logit. His findings suggest that having a lower level of education means a lower level of job satisfaction. A low level of job satisfaction has a large negative impact on an individual's SWB. Another important outcome is that education has a direct and indirect impact on SWB. It impacts SWB directly when it comes to self-esteem and knowledge, and indirectly through job quality, salary and health factors. He concluded that in most of the literature relating to education, skill level or occupation have a positive impact on SWB even after controlling for income factors.

Fisher (2010) took on a more qualitative study around happiness and work. As was the case with Taylor, Bradley and Nguyen (2003), she found that happiness at work has an impact on the overall happiness or SWB of a person. Happiness at an organisational level is one of the causes of happiness or improved levels of SWB.

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Individuals who work for organisations that strive for equality, fairness, potential for growth, trust, job security and credibility tend to be happier than those who work with a risk of losing their job (high employee turnover), less training and low performance work practices. Fisher (2010) proceeded to look at what makes individual happier in their specific organisation. Apart from income, she mentions that people tend to be happier when they feel they have a "calling" for a particular job and when there is a strong connection between what one does and the value it adds. Other factors in the work environment are working on a strong positive image and managing the flow of relationship with others. Lastly, Fisher (2010) touched on the consequences of short-lived happiness. This relates to occupations that require high skill levels and more responsibility, stress levels and anxiety relating to the job.

### *2.3.6 Capabilities and Happiness*

An elaborate study by Veenhoven (2010) considered capabilities and happiness. The term capabilities can entail a number of meanings. These include health and education, which are relevant for this study. The findings suggest that there is a positive correlation between health and happiness. The effect is larger with mental health than with physical health. The correlation between positive mental health and happiness is the strongest. The recovery time for a mental health problem such as depression is generally far longer than the recovery time of someone who has been physically injured. Physical health adapts more quickly to recovery and happiness. The opposite is true for emotional health and happiness. Therefore, a negative state of emotional health impacts SWB negatively (strong negative correlation) and a positive state of emotional health impacts SWB positively (strong positive correlation).

Helliwell and Putnam (2004) examined how education, family, friends, trust and health affects well-being. They made use of the World Values Survey (WVS), the European Values Study (EVS) and the Social Capital Benchmark Survey in the US and ran an ordered probit model making use of cross-sectional data. They found that having an education, friends and family not only increased SWB directly but also improved health, which in turn increased SWB.

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### *2.3.7 Ethnicity and SWB*

Neff (2007) used data collected from SALDRU between the period of September and December 1993 and made use of multiple correspondence analysis (MCA) and the HOMALS technique to analyse the data. He focused on an exploratory analysis of ethnic groups and SWB in South Africa and found that there was not a clear relationship between SWB and African ethnic groups. However, he concluded that English-speaking White South Africans have a lower level of SWB compared to the Afrikaans-speaking Whites. He attributed this to the loss of protection when apartheid came to an end: Afrikaans-speaking Whites were protected by laws such as the sunset rule, which allowed them to keep their jobs during the change from apartheid to democracy.

Møller and Saris (2001) used cross-sectional data and made use of the maximum likelihood (ML) technique for estimation. They found that White people mostly had a higher SWB but a negative outlook for the future, whereas Black people mostly had a lower SWB but a positive outlook for the future. An interesting finding is the difference in SWB of ethnic groups between provinces. In the Western Cape, people are extremely happy and enthusiastic, but in the Eastern Cape people are predominantly unhappy and dissatisfied. They concluded that optimism and well-being coincided in this instance, when one compared the levels of poverty and unemployment among the provinces.

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### *2.3.8 Age and SWB*

Diener (2009) compared the findings of past literature and highlighted that most of the studies concluded that as age increases, SWB will decrease. He also discusses the other side of the coin, where SWB increases with age. He mentions that many studies controlled for income and wealth and as a result concluded that when an individual ages, they may be wealthier, for example. However, Diener (2009) suggests that SWB neither increases nor decreases with age. He attributes this to the goals set by individuals over the years. As one ages, one adjusts one's goals to one's present situation and therefore life satisfaction remains constant over time.

Frijters and Beaton (2012) studied the relationship between happiness and age. They used data from German Socioeconomic Panel (GSOEP), the British Household Panel Survey (BHPS) and the Household Income Labour Dynamics Australia (HILDA). They made use of cross-sectional and panel techniques to study the "U-shape" relationship between age and happiness that economic literature has uncovered. In all three data sets, the U-shape became clearer when they controlled for other socio-economic variables. Their main finding was that the U-shape disappeared when they decided to use fixed effects, which they attribute to reverse causality (variables that increase happiness). These include variables such as employment and income.

### *2.3.9 Marital Status and SWB*

Haring-Hidore, Stock, Okun and Witter (1985) used meta-analysis to study the impact of marriage on SWB. Their findings suggest a small overall relationship between SWB and marital status. There is a weak positive relationship that exists between the two. This means that marital status is only marginally connected to an individual's SWB. They also highlight that an individual who has a greater level of life satisfaction is more likely be married. Furthermore, having a partner is a significant source of social support and therefore related to a higher SWB. However, the benefit that marriage has on SWB is dependent on how much satisfaction results from the marriage. If a spouses are dissatisfied with their partners, they are less likely to provide social support to each other.

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Shields and Wooden (2003) used data from Household, Income and Labour Dynamics in Australia (HILDA) and made use of an ordered probit model in their study. They report that the benefits of marriage on SWB stem from the advantage of companionship rather than a commitment. They found that married people and those just living with their partner both had higher SWB. Those who were married experienced greater levels of SWB but only slightly more than those who were not. They also examined how being married or cohabitating impacted SWB over time. They found that SWB declines for both over time but more so for males than their female counterparts. They also analysed the relationship between SWB and previous marriages and found again that this differs between men and women. Women in their next marriage or successive marriages are no happier than in their first marriage. The

SWB for males increases with each successive marriage, especially if the previous marriage ended because of divorce or separation.

The literature examined above highlights how many times the determinants of SWB have been analysed and how they all stem from the foundation of the bottom-up and top-down theories of SWB. This illuminates the gap in this field and serves as a guide to what has not yet been explored. As mentioned at the start of this chapter, there is a gap in theoretical as well as empirical literature when it comes to the relationship between occupation and SWB. The author plans, through this study, to contribute to the literature by considering not only the determinants of SWB but how occupation impacts SWB, and thus bridging the knowledge gap. The next chapter will show how the results were obtained.

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# CHAPTER 3: METHODOLOGY

This chapter contains an explanation of the source of the data, a description of the variables used in the study and the methodology used to determine the results in the next chapter.

## 3.1 DATA

The data used in the present study are from the 2008, 2010, 2012, 2014 and 2017 waves of NIDS conducted by the Southern African Labour and Development Research Unit (SALDRU). The study includes all five waves to date (2008 to 2017) and captures a vast amount of information such as health and education, social capital and economic activity (Brophy, Branson, Daniels, Leibbrandt, Mlatsheni & Woolard, 2018). NIDS data offers a unique opportunity for analysing the impact of occupation (skilled, medium skilled and low skilled) on SWB. First, in all the waves of the NIDS data, a subjective well-being question exists (how SWB is measured): “Using a scale of 1 to 10, where 1 means ‘very dissatisfied’ and 10 means ‘very satisfied’, how do you feel about your life as a whole right now?”

Second, our variable of interest—the occupation (skilled, medium skilled and low skilled)—is also captured in all the NIDS waves. We employ the Stats SA classification system to divide different skills: Skill Type 1 (“high skilled”) consists of managers, professionals, technicians and associate professionals. Skill Type 2 (“medium skilled”) consists of clerical support workers; service and sale workers; skilled agricultural, forestry and fish, craft and related trade workers; plant and machine operators and assembly. Skill Type 3 (“low skilled”) consists of elementary occupations.

NIDS is also unique in that it provides additional measures of well-being such as emotional health variables, which are not normally included in other official national surveys in South Africa. The present study makes use of individual reported emotional health variables (“1 = depressed”/“not depressed” and/or 0 =“lonely”/“not lonely”) for robustness checks.

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As noted above, the NIDS data also contains other variables useful for analysis, such as income, years of education (continuous variable), provincial dummies, race dummies, age, gender dummies, marital status dummies, religion dummies and emotional health variables such as depression and loneliness. Table 1 describes the variables of this study.

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**Table 1: Variable description**

| Variable Name | Description |
|---|---|
| Subjective Well-Being | Satisfaction Level 1 = 1 (Very dissatisfied) |
| | Satisfaction Level 2 = 2 |
| | Satisfaction Level 3 = 3 |
| | Satisfaction Level 4 = 4 |
| | Satisfaction Level 5 = 5 |
| | Satisfaction Level 6 = 6 |
| | Satisfaction Level 7 = 7 |
| | Satisfaction Level 8 = 8 |
| | Satisfaction Level 9 = 9 |
| | Satisfaction Level 10 = 10 (Very satisfied) |
| Marital Status | Married = 1 |
| | Unmarried = 0 |
| Religion | No religion = 1 |
| | Some religious affiliation = 0 |
| Geographical | Urban = 1 |
| | Rural = 0 |
| Provinces | Eastern Cape (1/0) |
| | Northern Cape (1/0) |
| | Free State (1/0) |
| | Kwa-Zulu Natal (1/0) |
| | North West (1/0) |
| | Gauteng (1/0) |
| | Mpumalanga (1/0) |
| | Limpopo (1/0) |
| Age | In years |
| Agesq | In years |
| Gender | Female = 1 |
| | Male = 0 |
| Race | Coloured = 1 or 0 otherwise |
| | Asian/Indian = 1 or 0 otherwise |
| | White = 1 or 0 otherwise |
| Education | Continuous Variable |
| Occupation | High Skill = Skill Level 1 |
| | Medium Skill = Skill Level 2 |
| | Low Skill = Skill Level 3 |
| Depression | Depressed = 1 |
| | Not Depressed = 0 |
| Loneliness | Lonely = 1 |
| | Not Lonely = 0 |

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### 3.2 EMPIRICAL STRATEGY

Studies investigating the causes or determinants of SWB have been empirically undertaken through an ordered Probit model (see, e.g., Biyase, Fisher & Pretorius, 2020; Posel & Casale, 2011; Kingdon & Knight, 2007; Leibrandt & Shifa, n.d.; McBride, 2001). The model is usually specified as follows:

$$y_{it}^{*} = \sum X_{it}\beta + \varepsilon_{it} \tag{1.1}$$

where $y_{it}^{*}$ is the unobserved 10-point latent variable that suggests the ordinal SWB of individuals $i$ at $t$ and $xit$ is a vector of the determinants of SWB. $\beta$ is the vector of parameter that are unknown. The error term $\varepsilon it$ has the following nature:

$$\varepsilon_{it} = v_i + \eta_{it} \tag{1.2}$$

$vi$ represents the unobserved, time-invariant individual-specific heterogeneity, and $\eta it$ is the white-noise error term. In our NIDS data $y_{it}$ (a discrete term) ranges from 1 to 10. These ordered 10 options can be formally displayed as follows:

$$\text{yit} = \begin{cases} 1 \text{ if } y_{it}^{*} < \varphi 1 \\ 2 \text{ if } \varphi 1 \leq y_{it}^{*} < \varphi 2 \\ 3 \text{ if } \varphi 2 \leq y_{it}^{*} < \varphi 3 \\ 4 \text{ if } \varphi 3 \leq y_{it}^{*} < \varphi 4 \\ 5 \text{ if } \varphi 4 \leq y_{it}^{*} < \varphi 5 \\ 6 \text{ if } \varphi 5 \leq y_{it}^{*} < \varphi 6 \\ 7 \text{ if } \varphi 6 \leq y_{it}^{*} < \varphi 7 \\ 8 \text{ if } \varphi 7 \leq y_{it}^{*} < \varphi 8 \\ 9 \text{ if } \varphi 8 \leq y_{it}^{*} < \varphi 9 \\ 10 \text{ if } y_{it}^{*} \geq \varphi 9 \end{cases} \tag{1.3}$$

where $\varphi 1 < \varphi 2$

While most studies (including the abovementioned studies) consider SWB to be ordinal and employ ordered logit, others treat it as cardinal and estimate it using OLS

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or panel data models (such as fixed effects). The results derived from the two methods appear to be very similar—there is no material difference is magnitude and direction (Headey & Wooden, 2004; Kingdon & Knight, 2007; Leibbrandt & Shifa, n.d; Pischke, 2011). Hence, this minor dissertation will adopt the latter method (fixed effect—LSDV) since it is easy to interpret and reduces the threat of omitted variable bias. Specifically, we investigate effect of occupation on SWB fixed effects using the least-square dummy variable (LSDV) method. Formally, this can be expressed as follows:

$$\mathrm{SWB}it = \alpha + \beta Xit + uit \tag{1.4}$$

where $\mathrm{SWB}it$ is the dependent variable denoting the SWB scores of an individual $i$ at time $t$ (as reported on a 10-item scale), $\alpha$ denotes the specific effect (random or fixed), $\beta$ represent a vector of parameters to be estimated, $X$ contains all the covariates (such as income, years of education, provincial dummies, race, age, gender, marital status, religion and emotional health variables such as depression and loneliness) that are deemed to be important determinants of SWB in the existing literature, and $u$ is the error term.

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By inserting the above variables into the model (1.4), it was possible to run the regression and collect results. Before moving onto the next chapter, it is important to remember that the variable of interest is occupation. The next chapter will shed light on the outcome of our model.

# CHAPTER 4: RESULTS

In this chapter, some significant aspects of the descriptive statistics are first analysed and explained. Thereafter, the empirical results are presented, at which point the impact of occupation on SWB will be explained and the model disaggregated by each skill type. The disaggregation of the model will assist in determining how the estimates in the model differ when skill type is controlled for in isolation.

## 4.1 DESCRIPTIVE STATISTICS

This section provides the descriptive analysis. Figure 1 shows the distributions of SWB for different occupational categories (low skilled, medium skilled and highly skilled). The shapes for the three occupational groups look very similar to each other—there are no noticeable differences between them. Interestingly, there appear to be very few workers reporting a SWB level of 3 or less. The mean levels of satisfaction of are slightly different, ranging from 5 to 6. The low skilled group has a mean level 5.3, the medium skill group a mean of 5.6, and 6.3 for highly skilled workers. The shapes of the distribution make economic sense and are consistent with our expectation that individuals who are employed in highly skilled occupations are on average more satisfied with their lives (compared to other groups) because of better working conditions, greater remuneration and greater benefits.

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**Figure 1: SWB by occupational categories**

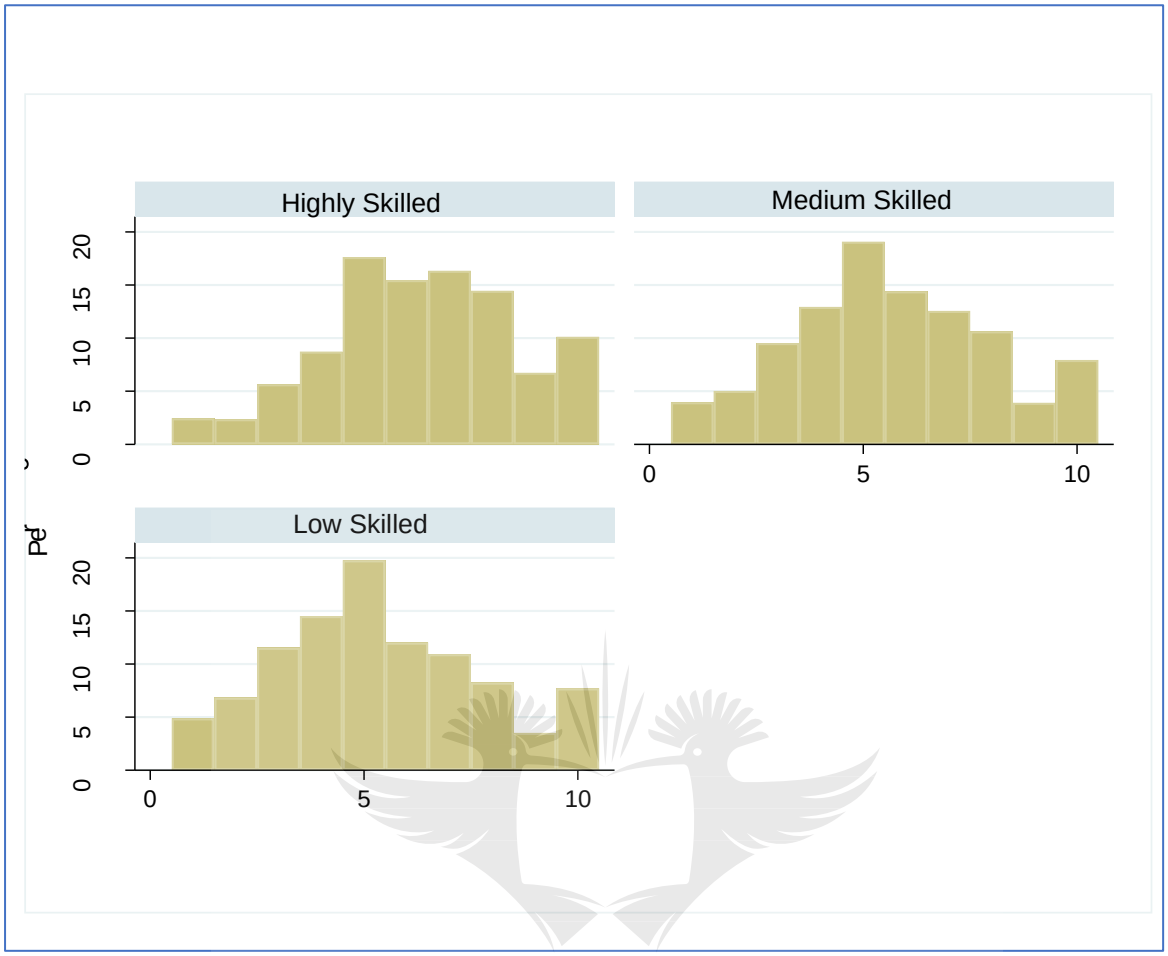


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Table 2 displays the summary statistics of the variables used in the analysis. It displays selected variables that are commonly used in SWB literature and related to the occupational categories used in this study: race dummies (White, Asian, Coloured), age (in years), marital status, log income, gender (male or female), location (rural or urban), and education (in years). The table shows that highly skilled workers are relatively older compared to respondents belonging to the low and medium skilled groups (mean ages 39.7, 35.7 and 38.7, respectively) and more often married. As expected, highly skilled workers command higher income compared to their medium and low skilled counterparts (average log income 9.4, 8.7 and 8.3 per month, respectively). Unsurprisingly, low skilled workers are less educated than medium skilled, themselves less educated than highly skilled workers.

***Table 2: Summary statistics***

| | | | High Skilled | | Medium Skilled | | Low Skilled | |
|---|---|---|---|---|---|---|---|---|
| Variable | Mean | Std. Dev. | Mean | Std. Dev | Mean | Std. Dev | Mean | Std. Dev |
| **Level of Satisfaction** | 5.26 | 2.42 | 6.32 | 2.21 | 5.64 | 2.32 | 5.34 | 2.38 |
| **Log of income** | 8.30 | 0.10 | 9.50 | 0.90 | 8.77 | 0.85 | 8.33 | 0.78 |
| **Age** | 26.87 | 20.21 | 39.69 | 10.97 | 35.68 | 10.80 | 38.75 | 11.66 |
| **Race** | | | | | | | | |
| Coloured | 0.14 | 0.34 | 0.17 | 0.38 | 0.18 | 0.38 | 0.24 | 0.43 |
| Asian/Indian | 0.01 | 0.11 | 0.03 | 0.18 | 0.01 | 0.12 | 0.00 | 0.06 |
| White | 0.04 | 0.18 | 0.15 | 0.35 | 0.04 | 0.20 | 0.00 | 0.06 |
| **Gender** | | | | | | | | |
| Female | 0.55 | 0.50 | 0.60 | 0.49 | 0.38 | 0.49 | 0.61 | 0.49 |
| Education | 11.50 | 7.84 | 16.55 | 4.42 | 12.38 | 4.60 | 10.75 | 5.78 |
| **Provinces** | | | | | | | | |
| Eastern Cape | 0.12 | 0.32 | 0.09 | 0.29 | 0.08 | 0.27 | 0.09 | 0.28 |
| Northern Cape | 0.07 | 0.26 | 0.08 | 0.27 | 0.08 | 0.28 | 0.09 | 0.28 |
| Free State | 0.06 | 0.23 | 0.06 | 0.23 | 0.06 | 0.24 | 0.07 | 0.25 |
| Kwa-Zulu Natal | 0.30 | 0.46 | 0.19 | 0.39 | 0.21 | 0.41 | 0.25 | 0.43 |
| North West | 0.07 | 0.25 | 0.06 | 0.24 | 0.06 | 0.25 | 0.05 | 0.23 |
| Gauteng | 0.11 | 0.31 | 0.21 | 0.41 | 0.20 | 0.40 | 0.12 | 0.33 |
| Mpumalanga | 0.07 | 0.26 | 0.08 | 0.27 | 0.09 | 0.28 | 0.07 | 0.26 |
| Limpopo | 0.09 | 0.29 | 0.07 | 0.26 | 0.05 | 0.23 | 0.06 | 0.23 |
| **Skill Type** | | | | | | | | |
| High Skilled | 0.21 | 0.41 | | | | | | |
| Medium Skilled | 0.45 | 0.50 | | | | | | |
| **Married** | 0.25 | 0.43 | 0.47 | 0.50 | 0.31 | 0.46 | 0.26 | 0.44 |
| **Religion** | 0.09 | 0.29 | 0.04 | 0.20 | 0.10 | 0.29 | 0.09 | 0.28 |
| **Location** | 0.49 | 0.50 | 0.74 | 0.44 | 0.70 | 0.46 | 0.55 | 0.50 |

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## 4.2 EMPIRICAL RESULTS

### *4.2.1 Baseline Estimates*

This section presents the LSDV estimates of the occupational status—SWB relationship. Column 1 of Table 3 regresses SWB on occupational status and relevant control variables as a baseline exploration. Subsequent columns of Table 3 (Columns 2, 3 and 4) disaggregate the data by occupational status to examine whether the relationship between occupational status and SWB vary by occupational status. Tables A4 and A5 undertake some robustness analysis based on alternative estimations. Perhaps unsurprisingly, the variable of interest (occupation) is positively associated with SWB. Specifically, compared to unskilled labour, those belonging to

the medium skilled and highly skilled categories are considerably happier, consistent with the descriptive analysis and existing findings. The results of the present study are in sharp contrast to work of Hessels, Arampatzi, van der Zwan and Burger (2018), who found that self-employed workers were relatively happier compared to paid workers, regardless of the skills or type of labour. The estimated coefficients of the control variables are broadly in line with the researcher's intuition and existing findings. Most of them present positive and significant associations with SWB. Consistent with the previous studies (Shields & Price, 2005; Van Praag & Ferrer-i-Carbonell, 2004; Winkelmann & Winkelmann, 1998), it was found that age has a U-shaped effect on SWB.

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***Table 3: Estimates of the relationship between ocupation status and SWB***

| | Full Sample | | Skill Type 1 | | Skill Type 2 | | Skill Type 3 | |
|---|---|---|---|---|---|---|---|---|
| | Coef. | Std. Error | Coef. | Std. Error | Coef. | Std. Error | Coef. | Std. Error |
| Log of Income | 0.4211093*** | 0.018894 | 0.3636634*** | 0.042108 | 0.4217923*** | 0.028328 | 0.4096115*** | 0.033681 |
| AGE | | | | | | | | |
| Age | -0.0335554*** | 0.00867 | -0.0700299*** | 0.019112 | -0.0200392 | 0.013467 | -0.0322671** | 0.014497 |
| Agesq | 0.0003677*** | 0.000106 | 0.0008617*** | 0.000228 | 0.0001939 | 0.000169 | 0.0003294* | 0.000176 |
| RACE | | | | | | | | |
| Coloured | 0.7920668*** | 0.05244 | 0.6413542*** | 0.112986 | 0.718638*** | 0.07751 | 0.9763981*** | 0.094205 |
| Asian/Indian | 0.5867439*** | 0.124085 | 0.5031664*** | 0.177381 | 0.4875522*** | 0.187952 | 1.064229*** | 0.423304 |
| White | 0.8780176*** | 0.072714 | 0.7382198*** | 0.102605 | 0.9037955*** | 0.114837 | 2.071881*** | 0.400726 |
| GENDER | | | | | | | | |
| Female = 1 | 0.03297 | 0.030657 | -0.0484869 | 0.06336 | 0.0086487 | 0.046152 | 0.1118679** | 0.055154 |
| EDUCATION | | | | | | | | |
| Education | 0.0064042** | 0.002973 | 0.0198578*** | 0.00765 | 0.0142295*** | 0.004973 | -0.000913 | 0.004471 |
| PROVINCES | | | | | | | | |
| Eastern Cape | -0.5324262*** | 0.066456 | -0.6833755*** | 0.135292 | -0.4129814*** | 0.100876 | -0.5383369*** | 0.117382 |
| Northern Cape | 0.0720122 | 0.061347 | -0.1009026 | 0.131513 | 0.2271876** | 0.093138 | 0.0210993 | 0.104406 |
| Free State | 0.2221018*** | 0.076656 | 0.00495569 | 0.163116 | 0.3742804*** | 0.115993 | 0.1710715 | 0.13183 |
| Kwa-Zulu Natal | -0.5117597*** | 0.061012 | -0.4952435*** | 0.12816 | -0.3905749*** | 0.091252 | -0.5748839*** | 0.108998 |
| North West | 0.1778795** | 0.078543 | -0.0164167 | 0.162461 | 0.3988292*** | 0.115398 | 0.06761 | 0.143658 |
| Gauteng | -0.344691*** | 0.060137 | -0.2097978* | 0.119739 | -0.3790824*** | 0.086895 | -0.3097427*** | 0.117592 |
| Mpumalanga | -0.4408847*** | 0.071447 | -0.4385871*** | 0.147419 | -0.3775439*** | 0.104409 | -0.4502504*** | 0.131724 |
| Limpopo | -0.430191*** | 0.080165 | -0.49219*** | 0.155085 | -0.3000968** | 0.122959 | -0.5045188*** | 0.145619 |
| OCCUPATIONS | | | | | | | | |
| Skill Type = 1 Highly Skilled | 0.3338131*** | 0.047469 | | | | | | |
| Skill Type = 2 Medium Skilled | 0.1213773*** | 0.035523 | | | | | | |
| MARITAL STATUS | | | | | | | | |
| Marital Status (Married=1) | 0.2401389*** | 0.035518 | 0.2120405*** | 0.06966 | 0.2628927*** | 0.054463 | 0.2553264*** | 0.063682 |
| RELIGION | | | | | | | | |
| No Religious Affiliation=1 | -0.4203221*** | 0.054716 | -0.4968798*** | 0.154627 | -0.2982509*** | 0.075711 | -0.5341504*** | 0.093778 |
| GEOGRAPHICAL LOCATION | | | | | | | | |
| Location (Urban=1) | -0.0561806 | 0.036004 | -0.0713112 | 0.079929 | 0.0385794 | 0.056489 | -0.0289151 | 0.059251 |

***= 1% level of significance **=5% level of significance *=10% level of significance

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The coefficients of logged income are positively related to SWB, in line with the findings of many existing studies (e.g., Kingdon & Knight, 2007; Leibbrandt & Shifa, n.d.; Luttmer, 2005 McBride, 2001; Posel & Casale, 2011). As discussed in the literature review, many scholars have also documented the effect that "relative income" has on SWB. The common finding among these studies is that relative income

is negatively related to SWB. The education coefficient has a hypothesised signs level of significant—that is, it has a positive effect on SWB. This finding makes economic sense as those who are more educated tend to have higher skill levels, are more likely to get a job and, as a result, earn more than those who are not educated. However, it has been observed in the literature (see Posel & Casale, 2011) that the effect of education on SWB is relatively small and not strongly significant, implying that the "benefits of higher education" might be partially netted by other related variables such as income. As expected, married individuals seem to be happier than unmarried—separated, widowed, divorced, single or never-married individuals. Similar to previous studies, evidence was found to suggest that living in the urban areas is associated with lower levels of SWB than those who live in rural areas (although insignificant). In addition, not being part of any religious affiliation significantly decreases SWB in comparison to those who belong to a religion. This finding is consistent with existing literature (e.g., Posal & Casale., 2011) who found that religion plays a positive role in SWB. Race dummies also entered the model with expected signs and level of significance: Coloured, Asian/Indian and White people are happier than Africans (Posal et al., 2011)

### *4.2.2 LSDV Estimates for Skill Type*

Having examined the relationship between occupation status and SWB, this section proceeds to compare SWB in different occupations. Specifically, the question to address here is whether or not the effect of occupation on SWB varies by skill type. For example, it is conceivable that individuals belonging to Skill Type 1 are considerably less likely to be satisfied with their lives compared to those in Skill Types 2 and 3 because of their employment conditions, status and other issues of that sort? This question is addressed by disaggregating the entire sample into different occupations categorised as Skill Type 1, Skill Type 2 and Skill Type 3. Estimated coefficients for different skill types are produced. Columns 2, 3 and 4 of Table A4 display the estimates for different occupations separately.

The estimated coefficients of the control variables seem to enter the model as expected and in line with the full sample estimates. Across all skill types, income is positively and significantly associated with SWB. White, Indian and Coloured people

are more likely to be satisfied with their lives compared to Black people across all skill types. Married individuals tend to happier than unmarried individuals across all skill types. Across the sub-samples, age retained the shape observed in the full sample. Again, individuals associated with some religion appeared to be more satisfied with their lives than their nonreligious counterparts. There are some conspicuous differences in the estimates. For example, while income remains positive and significant among all skill levels (Sack et al., 2013), the magnitude is not the same across the skill types. The magnitude is relatively larger for the Skill Types 2 and 3 compared to Skill Type 1. This might be because the living conditions, physical environments and infrastructure all add value to standard of living and therefore make a significant difference in the lives of people of these skill types. It is important to note that in the full sample, Skill Type 1 and 2 has no impact on the SWB of females, compared to their male counterparts. However, in Skill Type 3, being female is significant and SWB increases in comparison to males. This is because more females are employed in elementary occupations (such as domestic work), which is what makes up the occupation type in Skill Level 3. While the full sample suggests the importance of education on SWB, this effect vanishes in the sub-samples (except for Skill Type 2). It is not immediately obvious as to why the effect of education vanishes in Skill Types 1 and 3.

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### *4.2.3 Robustness Checks: LSDV Estimates Including Emotional Health Variables (Depression and Loneliness)*

Tables A4 and A5 show the estimates of the full sample as well as the disaggregated results via skill type when depression (Table A4) and loneliness (Table A5) are included. The results are robust after adding these variables to the specification. The estimates show that depression and loneliness both have a significant negative impact on SWB. This is consistent with previous literature that has analysed the impact of mental health on SWB. Posal & Casale. (2011) included depression in their study and found that it has a negative impact on SWB. Reaching a similar conclusion, Castriota (2006) found that SWB is indirectly impacted by health factors. Furthermore, the impact of all core variables remains unchanged. Education has a positive and significant effect on SWB. Married individuals remain happier than unmarried individuals. Living in urban areas decreases SWB, compared with those living in rural

areas. Having some sort of religious affiliation improves SWB when compared to those with no religious affiliation. Coloured, Indians/Asians and Whites are happier than Africans. Age continues to have a significant and negative impact on SWB. Females are happier in comparison to their male counterparts. Last, but certainly not least, highly skilled and medium-skilled individuals are happier than low-skilled individuals.

The results are consistent with existing literature on this topic, and estimates do not differ in sign or magnitude. Despite the commonalities with existing literature, the results are also consistent with what we expect from economic theory. These results will be summarised in the next chapter.

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## CHAPTER 5: CONCLUSION

This paper studied the impact of occupation on subjective well-being using data from the National Income Dynamics Study (NIDS), which is a household survey conducted by the Southern African Labour and Development Research Unit (SALDRU). NIDS data offer a unique opportunity for analysing the impact of occupation (highly skilled, medium skilled and low skilled) on SWB. The present study's main contributions to this evolving literature on the relationship between occupation and SWB is to examine how belonging to a specific occupation (skill level) impacts the SWB of people in South Africa. The connection between occupation and SWB remains underexplored, and this study bridges the gap by providing a broader perspective on the relationship between the two. This was done by studying the link between occupation and SWB on a wider scale and then by disaggregating this impact according to skill types.

The study findings suggest that the occupation variable is positively related to SWB. Compared to unskilled labour, those who are classified as medium skilled and skilled labour are significantly happier, consistent with the study's descriptive findings and existing literature. Disaggregating the data by skill also offered some interesting insights. It was found that the estimated coefficients of the control variables seem to enter the model as expected and in line with the full sample estimates. For example, across all skill types, income is positively and significantly associated with SWB. White, Indian and Coloured people are more likely to be satisfied with their lives compared to Black people across all skill types. Married individuals tend to be happier than unmarried individuals across all skill types.

There are some obvious differences in the estimates. For example, while income remains positive and significant among all skill levels, the magnitude is not the same across the skill types. The magnitude is relatively larger for Skill Types 2 and 3 than for Skill Type 1. This might be because the living conditions, physical environments and infrastructure all add value to the standard of living, and therefore make a significant difference in the lives of people of these skill types. It is important to note that gender had no impact on SWB when the full sample, Skill Types 1 and 2 were

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considered. However, in Skill Type 3, being female is significant, and SWB increases in comparison to males.

There are a few limitations to this study. The first relates to the existing theoretical and empirical literature. Existing studies rely predominantly on the top-up and bottom-down theories, as well as the determinants that impact SWB. To the best of the researcher's knowledge, there are no papers that explicitly analyse the impact of occupation on SWB. This has consequently been identified as a massive gap in the literature. Second, in this paper, the issue of endogeneity is not addressed. Broadly speaking, endogeneity is an instance when one or more of the explanatory variables is correlated with the error term. Despite not addressing this explicitly, it was ensured that the results are still reliable and consistent by running robustness checks. In addition, it was ensured that the estimates in this study are consistent with existing literature and make economic sense.

There is great room to expand research in this field, especially in economics. Despite immense growth in this topic, the majority of the literature discussed focuses primarily on the impact of relative standing and income on SWB. The effect of occupation on SWB was therefore the focus of this study, though it was also decided to introduce emotional health variables that cannot be omitted. These variables have a significant impact on SWB on their own, as well as when each skill type is accounted for. Additional health variables, such as physical health, may be included and studied. Future research could pay more attention to race/ethnicity and SWB in South Africa. Despite 26 years of democracy, SA is still characterised and challenged by past injustices and is a massive topic for policy in the country.

Three policy implications are apparent from this study. First, is that occupation significantly impacts SWB. This can be used as an instrument to guide government and other influential bodies to work on improving skills in the country. This could be done through various education frameworks and policies. Second, emotional health variables impact SWB. Perhaps more focus can be given to healthcare facilities, with particular attention to emotional and mental health. Last is the effect of happiness on the population. The United Nations has expended significant effort towards sustainable development goals. As a country, South Africa can use these as a guideline. If these goals can be achieved around the world, surely SWB will improve.

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## APPENDIX

**Table A4:** ***Estimates of the relationship between ocupation status and SWB***

| | Full Sample | | Skill Type 1 | | Skill Type 2 | | Skill Type 3 | |
|---|---|---|---|---|---|---|---|---|
| **SWB** | **Coef.** | **Std. Error** | **Coef.** | **Std. Error** | **Coef.** | **Std. Error** | **Coef.** | **Std. Error** |
| INCOME | | | | | | | | |
| Log of Income | 0.4054928*** | 0.018805 | 0.3488518*** | 0.041886 | 0.4092529*** | 0.028158 | 0.3914772*** | 0.033584 |
| AGE | | | | | | | | |
| Age | -0.0304401*** | 0.00862 | -0.0657028*** | 0.019 | -0.018969 | 0.013377 | -0.0281606** | 0.014435 |
| Agesq | 0.0003422*** | 0.000106 | 0.0008173*** | 0.000226 | 0.0001957 | 0.000168 | 0.0002923* | 0.000176 |
| RACE | | | | | | | | |
| Coloured | 0.7527455*** | 0.05218 | 0.6260842*** | 0.112297 | 0.6706033*** | 0.077097 | 0.9350593*** | 0.093875 |
| Asian/Indian | 0.5597141*** | 0.123355 | 0.4613287*** | 0.176351 | 0.4785996*** | 0.186695 | 1.039922*** | 0.421292 |
| White | 0.819389*** | 0.072365 | 0.6779588*** | 0.102244 | 0.851419*** | 0.114153 | 1.982636*** | 0.398944 |
| GENDER | | | | | | | | |
| Female = 1 | 0.0557392* | 0.030504 | -0.0275234 | 0.063019 | 0.0275277 | 0.04587 | 0.1379943*** | 0.054973 |
| EDUCATION | | | | | | | | |
| Education | 0.0055721* | 0.002956 | 0.0185605** | 0.007604 | 0.0130259*** | 0.004941 | -0.001352 | 0.00445 |
| PROVINCES | | | | | | | | |
| Eastern Cape | -0.5281773*** | 0.066061 | -0.6604511*** | 0.134478 | -0.412797*** | 0.1002 | -0.542801*** | 0.116823 |
| Northern Cape | 0.0531617 | 0.060992 | -0.1084815 | 0.130695 | 0.1984652** | 0.092546 | 0.0040946 | 0.103926 |
| Free State | 0.2388049*** | 0.076205 | 0.0823159 | 0.16215 | 0.3719551*** | 0.115216 | 0.195105 | 0.131229 |
| Kwa-Zulu Natal | -0.4944579*** | 0.060657 | -0.4598481*** | 0.127437 | -0.3884225*** | 0.090641 | -0.5562235*** | 0.108499 |
| North West | 0.1825202** | 0.078075 | 0.0131661 | 0.161489 | 0.3853761*** | 0.114631 | 0.0747409 | 0.142975 |
| Gauteng | -0.3357975*** | 0.05978 | -0.1667845 | 0.119113 | -0.3881999*** | 0.086317 | -0.3028983*** | 0.117033 |
| Mpumalanga | -0.4558618*** | 0.071027 | -0.4396071*** | 0.146498 | -0.3976786*** | 0.103724 | -0.4723715*** | 0.13112 |
| Limpopo | -0.4656845*** | 0.079715 | -0.4946993*** | 0.154117 | -0.3414884*** | 0.122186 | -0.5580249*** | 0.145053 |
| OCCUPATIONS | | | | | | | | |
| Skill Type = 1 Highly Skilled | 0.3257376*** | 0.047188 | | | | | | |
| Skill Type = 2 Medium Skilled | 0.1137407*** | 0.035314 | | | | | | |
| MARITAL STATUS | | | | | | | | |
| Marital Status (Married=1) | 0.2262889*** | 0.035316 | 0.2034998*** | 0.069233 | 0.2364031*** | 0.054144 | 0.2521372*** | 0.063379 |
| RELIGION | | | | | | | | |
| No Religious Affiliation=1 | -0.4082703*** | 0.054394 | -0.4789929*** | 0.153678 | -0.2856488*** | 0.075212 | -0.5240204*** | 0.093338 |
| GEOGRAPHICAL LOCATION | | | | | | | | |
| Location (Urban=1) | -0.0586427 | 0.035789 | -0.0769573 | 0.079433 | -0.0439483 | 0.056113 | -0.0282047 | 0.058968 |
| Emotional Health | | | | | | | | |
| Depression | -0.4973252*** | 0.029674 | -0.4975321*** | 0.062414 | -0.5298514*** | 0.04442 | -0.4512299*** | 0.051726 |

****= 1% level of significance **=5% level of significance *=10% level of significance*

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**Table A5: Estimates of the relationship between ocupation status and SWB**

| | Full Sample | | Skill Type 1 | | Skill Type 2 | | Skill Type 3 | |
|---|---|---|---|---|---|---|---|---|
| **SWB** | **Coef.** | **Std. Error** | **Coef.** | **Std. Error** | **Coef.** | **Std. Error** | **Coef.** | **Std. Error** |
| INCOME | | | | | | | | |
| Log of Income | 0.4028081*** | 0.0188713 | 0.3461705*** | 0.0420206 | 0.406874*** | 0.0282809 | 0.3859354*** | 0.0336862 |
| AGE | | | | | | | | |
| Age | -0.0320537*** | 0.0086373 | -0.0650501*** | 0.0190485 | -0.0197081 | 0.0134194 | -0.0312673** | 0.0144411 |
| Agesq | 0.0003587*** | 0.0001059 | 0.0008117*** | 0.0002269 | 0.0001987 | 0.0001684 | 0.0003268* | 0.0001757 |
| RACE | | | | | | | | |
| Coloured | 0.7612583*** | 0.0522898 | 0.6129165*** | 0.1126051 | 0.6825539*** | 0.0773503 | 0.9519459*** | 0.0938936 |
| Asian/Indian | 0.5714884*** | 0.1236153 | 0.4814305*** | 0.1766806 | 0.4840551*** | 0.1872917 | 1.03251*** | 0.4216913 |
| White | 0.8464319*** | 0.0724742 | 0.7098745*** | 0.1022744 | 0.8667414*** | 0.1145138 | 2.035131*** | 0.3992086 |
| GENDER | | | | | | | | |
| Female = 1 | 0.0445472 | 0.0305519 | -0.0282346 | 0.0631754 | 0.0175472 | 0.046001 | 0.1211315** | 0.0549545 |
| EDUCATION | | | | | | | | |
| Education | 0.0067696** | 0.0029621 | 0.0208897*** | 0.0076203 | 0.0140772*** | 0.0049556 | -0.0006018 | 0.0044538 |
| PROVINCES | | | | | | | | |
| Eastern Cape | -0.5343818*** | 0.0662024 | -0.6639408*** | 0.1347668 | -0.4242275*** | 0.1005294 | -0.5419434*** | 0.1169308 |
| Northern Cape | 0.0535533 | 0.0611282 | -0.1058637 | 0.1309725 | 0.1996285** | 0.0928655 | 0.0071777 | 0.104019 |
| Free State | 0.245293*** | 0.076382 | 0.0801889 | 0.1625118 | 0.3856992*** | 0.1155923 | 0.2048997 | 0.1313923 |
| Kwa-Zulu Natal | -0.509551*** | 0.0607787 | -0.4845512*** | 0.1276419 | -0.3995326*** | 0.0909367 | -0.5635395*** | 0.1085875 |
| North West | 0.1868317** | 0.0782452 | 0.0121842 | 0.1618506 | 0.3985624*** | 0.1149927 | 0.0773332 | 0.1431099 |
| Gauteng | -0.3279316*** | 0.0599195 | -0.1785715 | 0.1193416 | -0.3752566*** | 0.0865909 | -0.2827556** | 0.1171839 |
| Mpumalanga | -0.4528783*** | 0.0711794 | -0.4446023*** | 0.1468133 | -0.3898498*** | 0.1040516 | -0.4661552*** | 0.1312321 |
| Limpopo | -0.4451399*** | 0.0798657 | -0.4883942*** | 0.1544461 | -0.3255461*** | 0.1225623 | -0.5166398*** | 0.1450654 |
| OCCUPATIONS | | | | | | | | |
| Skill Type = 1 Highly Skilled | 0.3319109*** | 0.0472873 | | | | | | |
| Skill Type = 2 Medium Skilled | 0.1188819*** | 0.0353873 | | | | | | |
| MARITAL STATUS | | | | | | | | |
| Marital Status (Married=1) | 0.2041804*** | 0.035484 | 0.1699026** | 0.0696749 | 0.2271564*** | 0.0544283 | 0.2222126*** | 0.0635765 |
| RELIGION | | | | | | | | |
| No Religious Affiliation=1 | -0.4153596** | 0.0545075 | -0.4833189*** | 0.1540035 | -0.2970551*** | 0.0754454 | -0.5268529*** | 0.0934212 |
| GEOGRAPHICAL LOCATION | | | | | | | | |
| Location (Urban=1) | -0.0596886* | 0.035867 | -0.0776173 | 0.0796055 | -0.0380357 | 0.0562905 | -0.0348454 | 0.0590274 |
| Emotional Health | | | | | | | | |
| Loneliness | -0.4149716*** | 0.0309409 | -0.4305061*** | 0.0662784 | -0.4013585*** | 0.0463945 | -0.4174911*** | 0.0532163 |

***= 1% level of significance **=5% level of significance *=10% level of significance

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