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Language and labour markets in South Africa

A Research Report submitted in partial fulfilment of the Degree of Master of Commerce (Development Theory and Policy) in the School of Economic and Business Sciences, University of the Witwatersrand.

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Declaration

I, Ubusiso Kagiso Zwane, declare that

1. The research reported, except where otherwise indicated, is my original research.
2. This report has not been submitted for any degree or examination at any other university.
3. This report does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons.
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Abstract

This report investigates the relationship between language proficiency, formal and informal employment and earnings within the employment types. Using a sample of working age African men in the first wave of the National Income Dynamics Study (NIDS) to determine whether language proficiency is associated with the probability of finding employment, the study finds that English language proficiency does not have a significant association on the probability, but that African home language proficiency has a significant association with the probability of formal employment. While the study finds that African men who are English proficient are likely to earn more than those who are not, this relationship does not hold when analysis is restricted to the formal and informal labour markets. This is likely because of selection effects, that are not controlled for in this study. The contribution of this research is expanding the understanding of the role language plays in labour markets to include how it may affect the kind of employment that one may find.

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1 Introduction

Language is a South African contradiction. Constitutionally, the country is multi-lingual and recognises 11 official languages. Yet English is the dominant language of economic and political life in the country and confers social and economic benefits to those who master it. These benefits remain out of reach for many South Africans who have been prejudiced by the country's struggling education system (Taylor & Coetzee, 2014; van der Berg, 2008). In a country such as South Africa, where the dominant language of economic and political success is not the mother tongue of most people, an important question that arises is how language influences labour market outcomes.

There is a growing body of literature that focuses on the role of language ability and labour market success, with a focus on earnings. The majority of this literature studies immigrants who live in countries where the dominant language of business is not their mother tongue (Chiswick, 1978; Chiswick & Miller, 2003; Dustmann, 1997). The results have consistently shown that for immigrants mastering the dominant language of the host country has a strong and positive association with wages (Chiswick & Miller, 1995; Dustmann & Soest, 2001; Hamilton, 2014; Mcmanus & Angeles, 1983). Similarly, in countries where the dominant language of business is not the mother tongue of most people those who master the dominant language benefit from higher earnings (Casale & Posel, 2011; Chiswick, Patrinos, & Hurst, 2000) .

The South African literature that focuses on the role of English proficiency and labour market outcomes has so far only considered the impact of English proficiency on earnings and employment more generally. However, labour markets in developing countries are seldom homogenous and are characterised by labour market segmentation - barriers that prevent access to higher paying forms of work (Kingdon and Knight, 2004; Heintz and Posel, 2008). In light of this, it is possible that language could present a barrier to entering the more desirable formal (as opposed to the informal) segment of the labour market and enjoying the benefits associated with it, such as higher income, security of tenure, and career progress (Cassim, 1982). Furthermore, it is possible that the benefits of language proficiency differ across labour market segments based on the skills needed to succeed within them.

This study addresses the issues of whether or not language skills, specifically English, is a barrier to entry into formal employment for working-age black South African men[1], secondly, whether there are returns

[1] The literature on this often subject restricts the analysis to males to avoid the problem of the non-random participation of women in the labour market. This convention is followed here.

to English proficiency within labour market segments and whether language and other skills are mutually reinforcing (complementarity of human capital) within labour market segments.

The following chapter presents some context and background and context to the study, focusing on the history of language policy and practices in South Africa and the current state of affairs in this regard. Chapter 3 is a review of the relevant literature exploring the language and labour markets literature as well as the literature on labour market segmentation. Chapter 4 presents the research question, methods and data. Descriptive analysis can be found in chapter 5 before multivariate results are presented in chapter 6. Chapter 7 concludes.

2 Context

2.1 Language and policy and practice before 1994.

Language in South Africa has been closely linked to economic, political and cultural development since the arrival of the first settlers in the 17th century. Its use has changed over time as the demands for communication between settlers and natives in the Cape changed (Alexander, 2000). Initially, the Dutch East India Company used translators to communicate with Khoisan as the interaction between the two groups was limited to elementary trade (Alexander, 2000). As the Company became a colonial force, however, the nature of their economic relationship with the Khoi changed from being a trade relationship to being a labour relationship. This change necessitated that the Khoisan be taught Dutch in order for them to become workers on the farms that had been established along the Liesbeeck River (Alexander, 2000; Heugh, 1999). As more Dutch farms were established, those among the Khoisan who refused to become labour tenants on white farms fled North across the Orange River into present day Namibia and Botswana. The joint emergence of labour tenancy and the northern migration of the Khoisan led to the eradication of Khoisan languages in the Cape, with the exception of small enclaves inhabited by people who refused to become work on white farms (Alexander, 2000). Parallel to this process was the development of Afrikaans as a language, the development of which has been described as the story of communication between white and brown in South Africa (Alexander, 2000). This process was driven by missionary attempts to teach reformed religion to slaves and their children from an early age. By the end of the 17th century, a form of what would become Afrikaans (which was strongly influenced by the native langue of slaves from the East Indies) was the *lingua franca* of the Cape colony (Alexander, 2000).

English, which has now become the dominant language of economic, social and political life in South Africa, enters the South African linguistic landscape in the early 19th century. The Anglicisation policies of successive governors of the Cape drove the use of English in official settings such as schools, courts and parliament (Alexander, 2000). The spread of English in South Africa was further supported by missionaries whose duty it was to extend the influence of the British Empire through "Christianisation" (Alexander, 2000; Rudwick, 2008). In mission schools, a small elite black[2] middle class developed, who often went on to become teachers and preachers, adopting English language and culture and becoming known as 'black Englishmen' (Rudwick, 2008). At this point, the British language policy in schools was primary schooling in native languages for the small group of black children who went to school, while an

[2] African

English-medium education in an Anglocentric curriculum was promoted for the even smaller group of mission elites (Rudwick, 2008). In this way, the English language and English cultural traits gained economic and social value while African languages and African cultural traits were devalued and discouraged. Following the establishment of the Union of South Africa, British language policy became the official policy of the Union and remained so until 1948. Following the election of the National Party in 1948, language policy would accord Afrikaans the high status enjoyed by English while maintaining the British colonial treatment of African languages (Alexander, 2000; Rudwick, 2008).

Apartheid language policy was a cornerstone of a package of mutually reinforcing policies meant to push black people further out to the margins of economic, social and political life in South Africa (Alexander, 2000). This included the policy of ethnic grouping in homelands and urban townships on the basis that Africans who speak different languages must live separately (Alexander, 2000). The ideology of "separate, but equal" gave rise to a policy of implementing mother-tongue education in black schools to a purportedly high standard. The importance of mother-tongue education was at the time gaining traction through influential United Nations Educational, Scientific and Cultural Organisation's (UNESCO) declarations on the matter (Alexander, 2000). UNESCO's position at the time was that it is through the child's mother tongue that they learn to formulate ideas and articulate themselves. Therefore, children will face a double challenge in schooling, where they learn new concepts, if they must also learn to articulate those concepts in a language that is alien to them. It is for this reason that UNESO endorsed mother tounge education being extended to as a late a stage in education as possible. However, in South Africa, this was not supported in any meaningful sense such as funds for training teachers in African languages and developing the technical and academic aspects of African languages (Alexander, 2000; Heugh, 1999). Instead it was used by the Apartheid government to justify the introduction of Bantu Education which was much more far reaching than what language was to be used in the classroom (Alexander, 2000; Heugh, 1999; Rudwick, 2008). In addition to making black people irrelevant to the labour market beyond the provision of cheap labour, it also planted the seeds of persistent dysfunction that the education system continues to grapple with. Under Bantu Education, black students were to be taught in their mother tongue in the early stages and then be taught in English and Afrikaans simultaneously at a later stage. With the government already spending a remarkably low amount of money on black students relative to white, Indian, and Coloured students, English mother-tongue speaking teachers were phased out of black schools leaving teachers who had themselves been educated in an inadequate education system and did not have the necessary knowledge and understanding in English required to teach (Brock-Utne, 2007; Heugh, 2002; Hunter & Hachimi, 2012).

The Soweto uprising of June 1976 represented a significant shift in Apartheid's linguistic landscape and an outright rejection of Afrikaans and African languages as a medium of instruction in schools by students. Following a period of instability in township schools, the Education and Training Act was passed in 1979. The act reduced mother tongue education for African students to the first four years of primary school and gave schools the choice between English or Afrikaans as a medium of instruction thereafter (Posel & Casale, 2011; Rudwick, 2008) .

2.2 Language policy and practice after 1994.

After 1994, the democratic government adopted a progressive Language-in-Education Policy of 1997 (LiEP) (Heugh, 1999; Posel & Casale, 2011). The LiEP is based on the principles of additive bilingualism and promotes the use of the mother-tongue or home language alongside that of another as the language of learning and teaching (LoLT), which for many students is English (Heugh, 1999). The policy states that knowledge of more than one language is a defining characteristic of what it means to be South African (Heugh, 2002). The additive bilingualism approach to education is supposed to allow a learner to gain competence in the second language while maintaining their first language. This is contrasted with subtractive bilingualism which occurs when the second language is learnt at the expense of the first and replaces it entirely (Taylor & Coetzee, 2014). Proponents of additive bilingualism argue that it has cognitive and social benefits over subtractive bilingualism (Probyn, 2006). However, this progressive education policy, which was a welcome break from the past when introduced, has not resulted in the envisioned gains and is hampered by the legacy of Apartheid in various ways.

Among many South Africans, there is a general stigma against the use of African languages in education that limit the demand for teaching in African languages and its uptake where it is offered. In a study of three schools: a suburban state school (former white school), a township state school, and a suburban private primary school, parents in all three schools overwhelmingly expressed support for English as the LoLT. Only 7 percent of the respondents in the township school favoured mother tongue education (Barnes, 2002). Among the reasons given for this preference were that English is important for higher study and it is the language of business. Reference to English's economic benefits indicates that people place an instrumental value on English rather than an intrinsic one (Barnes, 2002). English is seen as a way to achieve individual socio-economic mobility. At the same time, being too good at speaking English may attract social sanction in the form of name calling, such being called an Oreo or a coconut, which implies that one is black on the outside but white on the inside because they have abandoned their roots (Brock-Utne, 2007; Rudwick, 2008).

Despite their good intentions, parents may be compromising their children's academic performance by forcing them to adopt English as the LoLT prematurely (Casale & Posel, 2011; Taylor & Coetzee, 2014). Paradoxically, it appears that the language in education that accompanied Bantu Education was better for the majority of the population. Between 1953 and 1979, mother tongue education was maintained and phased in for 8 years as the primary LoLT (Heugh, 1999). During that time, the matriculation rates of Black students steadily climbed and peaked at 83.7 percent in 1976. After the Soweto Uprising, the government passed the Education and Training Act 1979 which reduced mother tongue education to 4 years of primary school followed by a transition to either English or Afrikaans (Heugh, 1999). This change in the language policy coincided with decreasing matriculation pass rates for black students which had dropped to 44 percent by 1992 (Heugh, 1999). Recent empirical evidence also supports the pedagogical merits of later transitions to English at the LoLT from mother tongue education (Taylor & Coetzee, 2014). Using panel data methods that allow them to control for school fixed effects (thereby removing the confounding effects of selection into schools with different language polices and which has an impact on the number of years that a child is exposed to English), Taylor and Coetzee (2014) find that mother tongue education in grades 1, 2 and 3 improves English proficiency in grades 4, 5 and 6. However, there has been an encouraging increase in the proportion of black children learning in their mother tongue since the introduction of the LiEP policy from 51 percent in 1998 to 76 percent in 2007. However, almost a quarter of young African learners in 2007 were still learning in a language that was not their mother tongue. From Grade 4 onwards, the LoLT among the majority of learners was English (Posel & Zeller, 2010).

The skills levels within the education system also limit the realization of the LiEP's goals rendering the economic and social promise of English out of reach for many South Africans. A significant constraint in this regard is the language ability of teachers in the poorest schools which hurts the transition into English medium education (Heugh, 1999; van der Berg, 2008). This is the result of South Africa's past and how it has influenced the language skills of teacher as well as the uneven distribution of teacher quality across the education system; with some teachers performing above what is expected and others being underperformers (van der Berg, 2008; Van Der Berg & Burger, 2010). Because many teachers are themselves insufficiently fluent in English to use it as the language of teaching, they often resort to code-switching and code-mixing (Brock-Utne & Holmarsdottir, 2004; Probyn, 2006). Code-switching is when there is a switch in language between sentences and code-mixing is when the same change occurs within sentences (Brock-Utne & Holmarsdottir, 2004).Teachers use these linguistic devices as a strategy to overcome their own deficiencies and those of their students in English language proficiency. Students then resort to merely copying down English sentences from the board into their books, making it appear as though they are taught in English to parents and administrators. However, they are still required to take

examinations in English despite not actually being taught in English (Brock-Utne & Holmarsdottir, 2004; Heugh, 1999).

It must be emphasized that language policies are not the only constraint facing South Africa's education system. Indeed, it is possible that well implemented and thought out policies in favour of early transitions to English may not compromise achievement when deployed in the correct context. However, in the schools attended by the poorest children in South Africa, the context is far from correct. Issues such as poverty, poorly resourced schools, teacher absenteeism, and teacher knowledge among others are severe constraints to achieving better educational outcomes in language and other learning areas.

This chapter has traced the language policy and practice through South Africa's history until the present day. The history of the English language in South Africa and the marginalisation of African languages have made languages inextricably linked to getting ahead, but also to the reproduction of social and educational inequalities. The interaction of English with education, aspiration, identity, and social inequality makes it an important dimension of everyday economic life in South Africa and one that warrants special consideration. English's historic role in rationing success, separating the haves from the have-nots and signalling status and skill, could provide one explanation for the persistence of labour market inequalities in South Africa.

3 Literature Review

3.1 Language as human capital

Language is of interest to economics and studies of the labour market because it fits the definition of human capital alongside education, training and work experience (Chiswick & Miller, 2014). Human capital often refers to the skills and characteristics that workers have and which they use to be productive in their work. However, since the term was first introduced in the 1960s by Becker and colleagues (for discussion see Becker (1994), alternative definitions have emerged (Acemoglu & Autor, 2009). A second view is offered by the work of social psychologist, Howard Gardener, who argues that human capital is not unidimensional as there as many types of skills and that people have "multiple intelligences" (Acemoglu & Autor, 2009; Gardner & Hatch, 1989). This view emphasizes how many geniuses through history were very unskilled in other dimensions (Acemoglu & Autor, 2009). Finally, Bowles and Gintis (1975) argue that human capital is the obedience and cultural traits required to work in a capitalist economy rather than skills that one puts to productive use. Finally, the Spence view argues that observable measures of human capital are a signal of ability also as opposed to skills that one puts to productive use (Acemoglu & Autor, 2009; Bowles & Ginitis, 1975).

The vast majority of the empirical literature views language skills in the Beckerian view of human capital. Language skills are embodied within the person; productive in the labour market; and developed through a sacrifice of time (Chiswick & Miller, 2014). Mother tongue skills are usually acquired when children are young and the human mind is efficient in developing skills. At this time, the investment is made by parents and caregivers (Chiswick & Miller, 2014). As with other forms of human capital, there are economic incentives that encourage an individual to acquire language skills. This is especially true for immigrants and other people living in countries where the dominant language of the economy is not their mother tongue such as South Africa (Chiswick & Miller, 2014). Because human capital theory further assumes that individuals are able to foresee their income for every level of skills, the incentives for language acquisition arise, in part, from better employment prospects, including income and social mobility (Cassim, 1982).

As far as wages and employment are concerned, human capital theory argues that low wages and underemployment emerge because individuals do not have marketable skills or they have failed in investment in themselves (Cassim, 1982). Therefore, wage variation derives from the characteristics of an individual. However, this ignores the fact that matters outside of the control of individuals, such as race, social class, sex, and age have a considerable influence on an individual's earnings and overall labour market prospects. This is a significant problem with human capital theory in its most basic

conceptualization. This is particularly acute when treating language as human capital in South Africa since English language ability, especially for black Africans, is heavily influenced by persistence of segregationist policies which influence the ability to gain English language skills. Therefore, earnings inequality and inequality of labour market opportunity cannot be treated simply as reflecting differences in individual capabilities; rather they need to be recognised as reflecting structural features of the society into which an individual is born.

The vast majority of the empirical research conducted on the question of language proficiency and labour market success has been conducted in developed countries with a focus on how language skills affect the labour market success of immigrants in their host country (Chiswick & Miller, 1995, 2014). Within this strand of literature, language is treated as part of the human capital endowment of immigrants who have an economic incentive to gain fluency in the dominant language of the host country because they expect to be rewarded for doing so through accessing better jobs or earning more when they are employed (Dustmann, 1994). The findings within this strand of literature overwhelmingly support the hypothesis that dominant language skills are important for labour market success as determined by earnings. Empirically, this means that there is an earnings premium for immigrants who are fluent in the dominant language of their host country (Chiswick, 1991; Chiswick & Miller, 2003, 2014) The analyses of earnings are generally performed for working-age men to due to the technical challenges in estimating earnings equations for women, who exhibit selection into the labour market based on non-market characteristics (Casale & Posel, 2011; Chiswick, 1978). Returns to language ability are estimated using a Mincerian earnings function where the natural logarithm of earnings is regressed on a set of explanatory variables in addition to those that capture English and other (where applicable) language skills. These variables typically include years of schooling, years of labour market experience and its square in addition to demographic variables such as age and its square, race, gender, and geographic location. For investigating the impact of immigrant language proficiency, additional variables include the duration in the host country, residence in a linguistic enclave, prior exposure to the dominant language in the host country, and age at arrival in the host county (Chiswick, 1978).

In a study of undocumented immigrant men to the United States, Chiswick (1991) finds English reading skills to be a statistically significant determinant of earnings. Earnings rise by 31 percent on average if a male immigrant is able to read well in English, but there is no statistically significant effect of speaking well on earnings. This indicates that language skills enable immigrants to make better use of their other human capital. Furthermore, Chiswick (1991) finds that emigrants from Hispanic countries have poorer reading abilities than those from other parts of the world, highlighting the potential negative effect on language acquisition of living in a linguistic enclave. Dustmann (1994) is interested in the impact of

German proficiency on the earnings of male and female immigrants in West Germany. His is one of few studies to consider the effect on both genders. Contrary to what one might expect, he does not find evidence of selection bias among the women in the sample. Nevertheless, the results on the importance of German proficiency for migrants to Germany confirm what studies about other developed countries find: language is an important determinant of earnings for male and female immigrants (Dustmann, 1994). However, the relative importance of reading and speaking ability differs between genders. The results show that for female workers, speaking proficiency is not sufficient for having an earnings advantage, but that female workers must also be fluent writers of German to reap the benefits of fluency. For male immigrants written fluency in German is more important that spoken fluency as a determinant of earnings. These gender differences may emerge as a result of men and women performing different tasks in the workplace or they may reflect a form of discrimination where women are held to higher standards than men.

Dominant-language fluency is also rewarded in the Australian labour market (Chiswick & Miller, 1995). English language fluency is associated with just over 5 percent higher earnings. There is also evidence of complementarity between language skills and education levels, with a positive effect on earnings for immigrants of 8 percent for those that are fluent in English and 2 percent for those that are not (Chiswick & Miller, 1995). Furthermore, fluency in English dominates the effect of time spent living in Australia as only those who are fluent in English earn a premium from their time spent living in Australia (Chiswick & Miller, 1995).

Using Israeli Census Data, Chiswick (1998) finds that earnings increase with "the intensity of language use" (Chiswick 1998). Hebrew-only speakers have an earnings premium of 3 percent compared to those who report speaking primarily Hebrew but another language too; 12 percent for those whom Hebrew is their second language; and 18 percent compared to those who do not speak Hebrew every day (Chiswick 1998). Furthermore, those who speak English as a first language and Hebrew as their second language earn 2 percent more than Hebrew-only speakers and those who speak Hebrew as their first language and English as their second language earn 11 percent more than Hebrew-only speakers (Chiswick 1998). In addition, the study finds use of Hebrew to be increasing with education level, which points to complementarity in human capital (Chiswick 1998).

Unfortunately, there is very little data on language skills in developing countries, which has left a significant gap in the literature on the role of language in labour market success. This is especially unfortunate since in many developing countries, the dominant language of economic life is often not the mother tongue of many people living there. Examples of countries where this is the case, and where

research on the question exists, include Bolivia and South Africa (Casale & Posel, 2011; Chiswick et al., 2000).

In Bolivia, the dominant language of economic life is Spanish despite the existence of indigenous languages in different regions of the country (Chiswick et al., 2000). Spanish language skills are more important that indigenous language skills as a determinant of earnings. The study groups the sample into 3 mutually exclusive groups: monolingual Spanish speakers, bilingual Spanish and native language speakers, and monolingual native language speakers. Male monolingual Spanish speakers earn 23 percent more than those who are bilingual and speak Spanish and an indigenous language. Furthermore, there is no statistically significant earnings gap between bilingual men and women and monolingual native language speakers (Chiswick et al., 2000). A similar result is found for women with the exception that bilingual women (Spanish and an indigenous language) earn about 25 percent more than women who only speak an indigenous language, but still less than monolingual Spanish speakers. The penalty to bilingualism among men and women in Bolivia could be indicative of poor Spanish ability among those who are bilingual, or labour market discrimination on the basis of ethnicity (Chiswick et al., 2000).

The first attempt at exploring the relationship between language and labour market success for South Africa was by Cornwell and Inder (2008). As one would expect in a country where English is the dominant language of economic life, they find that it is the most rewarded language in the labour market. They find an English language premium of 17.7 percent, that does not differ between racial groups. However, the labour force survey that they use does not distinguish between English mother tongue speakers and those who speak other languages in addition to English (Cornwell & Inder, 2008). Therefore, their finding of a premium to English proficiency among Africans may be because the few Africans who report English as their mother tongue in the survey are a select-subsample of all Africans (such as those who attended the country's best schools) and is therefore not reflective of the role of English proficiency in and of itself (Casale and Posel, 2011).

Using another dataset, that was not available when Cornwell and Inder (2008) were writing, Casale and Posel (2011) are able to investigate the returns to English proficiency among all Africans, regardless of whether they report English as their home language or not. The National Income Dynamics Study (NIDS) asks respondents to rate their writing and reading in their home language as well as in English. Restricting their sample to African men, they find that English proficiency (defined as the self-reported ability to read and write very well in English) attracts an earnings premium of up to 55 percent which increases to about 97 percent when combined with post-secondary educations (Casale & Posel, 2011).

Outside of quantitative research for South Africa on the subject, Deumert and Mabandla (2009) and Hunter and Hachimi (2012) have made important contributions to understanding the role of language in South African labour markets. Deumert and Mabandla (2009) use a mixed-methods approach to investigate the role of language skills in labour market participation, consumption, and entrepreneurial activity within townships around Cape Town. Skills in English and Afrikaans, which are dominant languages in the Western Cape, are important as enablers of labour market participation and support the process of looking for work as well as the use of active job-search methods such as posting notices or using employment agencies (Deumert & Mabandla, 2009). In the case of entrepreneurship, isiXhosa, the most spoken African language in Cape Town, is the most important language for informal trade. However, English is important for traders in their interactions with the formal economy, especially when purchasing inventory (Deument and Mabandla, 2009).

Hunter and Hachimi's work provides fascinating insights into the role of English within the call centre sector (Hunter & Hachimi, 2012). The study highlights language's place at the intersection of class and race and also takes language skills further by investigating the role of accents. The study is also particularly relevant to South Africa's industrial policy aspirations since the Business Process Services sector, which includes call centres, has received special attention in the country's Industrial Policy Action Plan 2017/18 – 2019/20 (Department of Trade and Industry, 2016). Using a qualitative, ethnographic approach, this study finds that people with low levels of fluency in English work in low paying call centres that service poor people in rural areas. In these call centres, calls are usually taken in isiZulu and often appeared to be conducting fraudulent activity. The people who worked in these call centres were educated in township schools. Those with high levels of proficiency and fluency in English worked in call centres that offered higher incomes and serviced a wealthy and urban clientele. The people who worked these call centres were educated in former whites only schools outside of the township. The call centre sector is fairly nascent in South Africa and does not require formal qualifications beyond completing secondary school (Hunter & Hachimi, 2012). Because of this, it highlights how people whose only difference is their English language ability face differing labour market prospects even within a small sector of the economy.

An important consideration in the study of language and the labour market is how one's language skills interact with other forms of human capital that may also be rewarded in the labour market. Complementarity of human capital means that greater language proficiency enhances the effects on earnings of education and labour market experience (Chiswick & Miller, 2003). Several studies within the immigration literature find that education and pre-migration labour market experience are more highly rewarded in the labour market when one is fluent in the dominant language of the host country (Chiswick & Miller, 1995, 2003). Casale and Posel (2011) find that education is more highly rewarded in the South

African labour market when one is proficient in English. Therefore, those who are not proficient in the dominant language of the country where they live have lower earnings because of two effects working simultaneously: the direct effect of lower language proficiency and the indirect effect through lower returns to education and experience (Chiswick & Miller, 2003).

Before individuals are able to earn an income, they must first enter the labour market and then find employment. With regards to labour market participation and employment, language skills are expected to reduce transaction and informational costs of job search and raise the probability of job search in the expectation that it will make finding suitable employment easier. Language skills may also improve the ability of job seekers to negotiate their employment terms; and they may also function as a sorting mechanism. Internationally, few studies have explored this dimension of language proficiency and the existing evidence is mixed. In Finland, labour market participation is unaffected by speaking either one of the official languages, Finnish or Swedish, but being Swedish reduces the likelihood of unemployment (Saarela & Finnäs, 2003). However, in Bolivia, which is a developing country with multiple indigenous languages, individuals are more likely to be employed if they are bilingual or only speak an indigenous language (Chiswick et al., 2000).

There is little existing literature that explores the relationship between language proficiency and the nature of employment type or sector. Pradhan and van Soest (1995) use commonly speaking a language other than Spanish as a proxy for belonging to an ethnic minority in Bolivia. Their study is interested in uncovering the determinants of formal employment, informal unemployment and unemployment in Bolivia. The study finds that ethnic minorities are more likely than others to be in informal employment, but that ethnicity has no effect on the wages of men (Pradhan & Soest, 1995). A weakness of this study is that it does not distinguish between ethnic minorities who are proficient in Spanish and those that are not. As the result, the penalty of speaking a language other Spanish can be interpreted as ethnic discrimination as the authors do, but it may also emerge because ethnic minorities have limited Spanish language skills.

Much of work on the returns to language skills has focused on how the earnings of those with employment varies according to their language skills and ability. There is little research that has investigated whether language skills influence access to, and type of employment. This is an important gap in the literature, especially for developing countries; where labour market conditions are highly variable.

3.2 Labour market segmentation

The earliest contributions to segmented labour theory were made by John Stuart Mill and John Elliot Cairnes in the 19th century (Fine, 1998). For both scholars, the division of labour and the wages and

conditions of work associated with it did not reflect the idea that the difficulties of a job are matched by the wage benefits as proposed by Adam Smith in his seminal work, *The Wealth of Nations* (Fine, 2009). For Smith, wages reflected the advantages and disadvantages of working conditions. Mill (1929) disagreed on the simple observation that the lowest paid workers in a society are those who are employed in the most undesirable jobs and that those workers must accept that wage because they have no other choice (Fine, 2009). For Mill, custom and law were important determinants of wages as well as access to certain jobs by certain classes within society (Fine, 1998). This idea was extended by Cairnes (1967) who argued that certain groups are excluded from competition with one another and that social reproduction fixes the supply of labour of groups to certain forms of labour (Fine, 1998). His thesis was that by the time a child born into a certain class in society reaches adulthood, their career path has already been determined by the class into which they were born and raised (Fine, 1998).

The modern starting point for most thinking about labour market segmentation is dual labour market theory, which follows the ideas of Mill and Cairnes outlined above (Fine, 1998). Dual labour market theory argues that there is a primary and secondary sector of employment. In the primary sector, workers enjoy high wages, good working conditions, better chances of advancement, job security and strong unionization. In the secondary sector, workers must accept low-paying jobs, poor working conditions, unstable employment and weak unionization (Cassim, 1982; Constant & Douglas, 2005; Fine, 2009). In addition to the benefits listed above, workers in the primary sector also benefit from the presence of internal labour markets that emerge as a result of skill-specificity, custom and on-the-job training (Cassim, 1982; Fine, 1998). Firms that have internal labour markets do not have to go outside the firm to fill vacancies, but have customs, rules, and procedures in place to facilitate the upward movement of employees and hence only need to recruit from outside the firm to fill entry-level positions (Cassim, 1982). Internal labour markets benefit employers and employees alike; employers benefit from low employee turnover and increased loyalty and employees benefit from long-run careers in the firm with benefits that increase with tenure and upward promotion (Cassim, 1982).

However, the benefits that accrue to primary sector workers do not apply to the many workers (with poor work histories, bad habits, and low education) who enter secondary sector employment and may never find employment in the primary sector (Cassim, 1982). The structure of secondary sector jobs is such that workers are not able to improve their wages, skills, and status resulting in them moving between low-wage secondary sector employment despite gaining experience that can help them to escape work of this nature (Cassim, 1982). Workers in these two sectors of the labour market do not compete with one another for jobs. Labour market duality of this kind is sustained through the interaction of historical, social and

economic factors that combine to keep secondary sector workers from gaining the traits that primary sector employers desire (Cassim, 1982) .

The formality of employment is an important dimension which often distinguishes 'good' jobs from 'bad' jobs. Although there is debate about the definitions of "formal" and "informal" employment (Heintz and Posel 2008), the distinction typically refers to whether or not an employer is registered for tax purposes and provides benefits (such as a written contract and paid leave) to employees. In theories of labour market segmentation, informal employment would be part of the secondary sector, where informal workers are a disadvantaged class of the labour market who would prefer the higher wages, benefits, protections, and advancement prospects of the formal sector (Cassim, 1982). Another strand of the literature argues that informal employment emerges as a response to labour market inflexibility and the rationing of formal labour market positions (Heintz & Posel, 2008). Rationing emerges because the formal labour market is characterized by market imperfections that keep wages above the market-clearing level (Arias & Khamis, 2007; Cassim, 1982). These imperfections include regulatory interventions and the market power of workers through collective bargaining and unionization. Those who are not employed in the formal sector are left with no choice but to enter the informal sector where wages are assumed to clear and anyone who chooses to enter it is able to (Cassim, 1982). This explanation of informality is similar to the early labour market segmentation literature and the dualism literature because it argues that workers have little choice when it comes to the choice of sector in which they are employed. However, there is a fundamental difference between the views that carries implications for labour market policy. If labour market segmentation emerges because of market imperfections, then informal employment can be eliminated by removing the barriers that prevent wages from clearing in the formal sector. In the absence of these barriers, formal firms will be able to hire workers at the market clearing wage (a wage that is equal to marginal product of labour) and therefore there will be no need for informal employment to absorb those who cannot find employment at a wage that is above the market clearing level. However, if labour market segmentation emerges because of social conditions that are determined before one enters the labour market, the existence of informal employment will be independent of the prevailing wages in the labour market and reducing informal employment will require changing how opportunity is distributed within a society.

In addition to the above views of informality which are based on forms of exclusion from formal employment, there is another strand of literature that sees informal employment as a voluntary choice made by the individual trying to take advantage of their comparative advantage or capture other benefits of informal work (Arias & Khamis, 2007). Comparative advantage arises because individuals choose the jobs that fit their cognitive, social, and mechanical skills. The Roy model (1951) is often employed as the

analytical tool for explaining occupational choice on the basis of comparative advantage and predict that workers will select into the occupation that gives them their highest expected earnings (Arias & Khamis, 2007; French & Taber, 2010). A worker that voluntarily chooses informal employment does so by considering the costs and benefits of operating informally relative to working formally given their interests and skills. For instance, workers may prefer to work informally because they want to take advantage of non-pecuniary benefit or to exploit their entrepreneurial flair.

There is no reason to suggest, especially in the South African context, that these views of informal employment are mutually exclusive. Barriers to formal employment and the associated benefits may be as a result of social, historical, cultural, and economic processes and norms as the 'non-competing markets' view suggests, or they could be because individuals do not have the capacity to enter the formal labour market. Individual 'deficiencies' emerge as a result of social, historical, cultural, and economic processes and norms. It is also possible that there is a select group of informally employed workers who benefit in ways that they would not if they were formally employed. For black Africans in South Africa, English language ability is an example of a personal competency and skill that may influence access to the formal sector. As discussed earlier, however, access to these skills is likely to be significantly determined by issues of class.

Empirically, evidence of earnings differentials between formal and informal sectors could be taken to be evidence of labour market segmentation. Earnings differentials could emerge from factors that are not necessarily related to employment type, but to the characteristics of the individual such as their observed levels of human capital and unobserved characteristics (Heintz & Posel, 2008; Kerr & Teal, 2015). Available evidence shows that unobserved individual differences are important determinants of earnings differences and that earnings premiums become negligible once they are accounted for (Kerr & Teal, 2015). This view of earnings differentials emphasises the productivity of individuals as the primary determinant of their wages in a competitive labour market. Alternatively, earnings differentials could emerge as a result of the institutional features of the labour market which prevent earnings from equalizing in the formal sector resulting in earnings differentials that are often described as within sector segmentation (Kerr & Teal, 2015). Examples of institutional factors of this kind include unionization, collective bargaining arrangements, minimum wage floors, and the public sector (Hofmeyr, 2000; Kerr & Teal, 2015). Earnings differentials alone, cannot be interpreted as evidence of labour market segmentation. To make the case for labour market segmentation, one needs to observe evidence of barriers to labour market mobility which hinder an individual's ability to take advantage of employment opportunities available to others with similar characteristics (Heintz and Posel, 2008).

The South African labour market is characterized by high open unemployment alongside relatively low levels of informal employment (Kingdon & Knight, 2004). This challenges dual labour market theories that characterize informal workers as residual labour that is unable to find formal employment (Heintz & Posel, 2008). After accounting for the observable characteristics of workers as well as institutional features of the labour market, numerous studies have found there is an earnings differential between formal and informal employment (Heintz & Posel, 2008; Hofmeyr, 2000; Kingdon & Knight, 2004). Looking only at segmentation between the informal and formal labour markets, Kingdon and Knight (2004) find segmentation between the formal and informal sectors regardless of whether they control for selection into informal employment or not. Heintz and Posel (2008) allow for segmentation between informal and formal employment as well as within informal employment and find that there is segmentation between formal and informal employment, as predicted by dual labour market theory, as well as within the informal sector as shown by differing predicted earnings across informal employment types (Heintz & Posel, 2008). Heintz and Posel (2008) do not follow the conventional approach of controlling for selection into labour market segments owing to a lack of suitable variables in the dataset they use. Hofmeyer (1999) is interested in finding how unionization, an example of a labour market institution, contributes to segmentation. Overall this study finds segmentation between unionized and non-unionized workers in the formal sector; segmentation between formal and informal employment; and segmentation between the regulated and unregulated parts of the formal sector (Hofmeyr, 2000).

Kerr and Teal (2015) are interested in whether differences in human capital could explain why black self-employed workers in the KwaZulu-Natal province of South Africa, earned wages 6 times lower than black workers employed in private sector firms on average, and why private sector workers had earned half the average hourly wage of black workers in the public sector. Their study reveals that human capital is the main determinant of earnings inequality within the private sector, but that it does not explain the large premium for the public sector (Kerr and Teal, 2015). This is evidence of an institutional barrier to wage equalization. Further afield, in Guatemala, Funkhouser (1997) finds that rewards structures differ across different sectors of the labour market. This suggests that earnings patterns across sectors are determined by labour demand and supply factors and that supply-side barriers may be what limits mobility between formal and informal labour markets (Funkhouser, 1997).

Arias and Khamis (2008) use data from Argentina to determine the relative importance of comparative advantage considerations and segmentation in the labour market. Overall, this study finds that there are no statistically significant earnings differentials between the self-employed and the formally employed, which is evidence that workers make the choice between self-employment and formal salaried employment based on the comparative advantage. Additionally, they find that informal salaried

employment carries a significant earnings penalty regardless of the propensity to enter formal salaried employment. The results presented by Arias and Khamis (2008) support both the exclusion and voluntary views of informal employment. Self-employed workers do so voluntarily and attach value to the non-pecuniary benefits of working in this way, while informal salaried workers are excluded from more desirable jobs in formal salaried employment or self-employment on the basis of their skills.

The nature of the labour markets in developing countries is complex. There are multiple explanations for the emergence of earnings differentials which renders using a single theoretical explanation inadequate. Earnings differentials appear to be driven by the observable characteristics of an individual, labour market institutions, as well as barriers to more lucrative forms of employment, suggesting the presence of labour market segmentation. Importantly, they all serve to highlight how multiple explanations of labour market differentials come together to contribute to the overall picture of earnings differentials with and between the formal and informal sectors of employment.

There is an impressive body of the research that explains the importance of language as a determinant of earnings in the labour market as well the emergence of different labour market segments on the basis of comparative advantage, and institutions among other. However, there has been little work which investigates whether and how language skills influence the type of employment that accessed and the subsequent earnings of the work once they are in that segment of the labour market. This study's contribution is to fill that important knowledge gap for developing countries.

4 Research questions, methods, and data

4.1 Research Questions

This research project attempts to answer three related questions about the role of English language proficiency in the South African labour market:

1. In the context of high unemployment and a small informal sector, does English language proficiency affect selection into the informal and formal labour markets? The proposed hypothesis is that those who are proficient English language speakers are more likely to access formal employment.
2. Are there differing returns to English language proficiency between the formal and informal labour markets? The proposed hypothesis is that English proficiency is an important determinant of earnings in the labour market, but that it is more highly rewarded in formal employment than in informal employment.
3. Is there complementarity between language and other forms of human capital (education) in the formal and informal labour markets? The proposed hypothesis is that English language proficiency allows those who are formally employed to benefit from their education more than those who are informally employed.

Taken together, these questions could provide useful insights into the role of language and human capital as drivers of earnings differentials and barriers to entry in the South African labour market.

4.2 Methodology

The methods employed for investigating the relationship between English proficiency, sector choice, and earnings in the South African labour market are presented below. All equations will be estimated using a sample of African men aged 15 to 65[3]. The first probit equation estimates the probability of employment in the formal sector with a focus on the role of English proficiency. This equation will answer the first research question on whether English proficiency increases the probability of one entering formal employment. The first equation has the following specification:

$$S_i = \gamma_0 + \gamma Z_i + \delta E_i + \mu_i$$

$$\text{where } S = 1 \text{ for formal employment}$$

[3] In South Africa, young people can leave school and enter the labour market at 15 years old. 65 years old was the age of state old age pension eligibility in 2008.

and 0 for informal employment,

Z is a vector of explanatory variables,

and E is binary variable for English proficiency.

The second set of equations use Mincerian earnings functions, which are estimated separately for those in formal and informal employment. These ordinary least squares equations will answer the second research question on whether English proficiency is rewarded in formal as well as informal employment.

$$\ln(W_{formal}) = \beta_0 + \beta X_i + \delta E_i + \varepsilon_i$$

$$\ln(W_{informal}) = \beta_0 + \beta X_i + \delta E_i + \varepsilon_i$$

where the dependent variable is log of hourly wage,

X is vector of explanatory variables

E is a binary variable for English proficiency

Investigating the complementarity between human capital is done by estimating the above earnings function, but with interaction terms between the highest education level attained and English language proficiency as additional explanatory variables.

$$\ln(W_{i(formal)}) = \beta_0 + \beta X_i + \delta E_i + (Edu1_i \times \delta E_i) + (Edu2_i \times \delta E_i) + (Edu3_i \times \delta E_i) + (Edu4_i \times \delta E_i) + \varepsilon_i$$

$$\ln(W_{i(informal)}) = \beta_0 + \beta X_i + \delta E_i + (Edu1_i \times \delta E_i) + (Edu2_i \times \delta E_i) + (Edu3_i \times \delta E_i) + (Edu4_i \times \delta E_i) + \varepsilon_i$$

where Edu1 is only primary schooling, Edu2 is *incomplete* secondary schooling, Edu3 is complete secondary schooling (Grade 12 certificate), and Edu4 is some form of tertiary education. The omitted category for education is no schooling.

The other explanatory variables that will be controlled for are age; urban residence; and marital status following the convention in the language and labour markets literature. Job characteristics such as skills level and industry will not be controlled for. This is because the aim of the study is to investigate the returns to language proficiency inclusive of the benefits that language capital has in gaining access to particular types of employment. However, job characteristics (industry and occupational skill) will be discussed in the descriptive analysis section.

4.3 National Income Dynamics Study (NIDS)

The data for the study come from the National Income Dynamics Study (NIDS). NIDS is a nationally representative, longitudinal dataset managed by the Southern African Labour and Development Research Unit (SALDRU) based in the School of Economics at the University of Cape Town. NIDS is a comprehensive household survey that collects information on individuals' labour market status and activities, their health and well-being, income, skills and educations, and information about the characteristics of the household that they live in. As a longitudinal dataset, NIDS collects data from the same individuals every two years which allows researchers to identify and analyse trends in the social and economic lives of South Africans. For this study, the advantage of using NIDS over other labour market and household surveys available in South Africa is that NIDS collects information on an individual's English language proficiency separately from the mother tongue proficiency. This makes it possible to identify and analyse English proficiency for those who do not report English as their mother lounge or home language. The first wave of NIDS was released in 2008 with subsequent waves being released in 2010, 2012, and 2014.

While NIDS offers the strengths of a panel dataset and can correct for some of the concerns that arise with the use of cross-sectional data, it too has challenges related to measurement error and attrition which could bias regression coefficients (Kerr & Teal, 2015). In this study, I analyse data from the first wave of NIDS rather than the most recent wave. This is largely because wave 1 is nationally representative and does not suffer from the problems of attrition that arise when tracking individuals over time. There is strong evidence confirming the existence of non-random attrition from the NIDS sample over the waves, making it difficult to draw conclusions about the population (Baigrie & Eyal, 2014).

A problem that is specific to the variable of interest in this study, English proficiency, is that the benefits of panel data methods require some variation over time. While it is possible for an adult to gain language skills (which is explored at length in the immigration literature), it is difficult to see how an adult could lose some of their language skills if the language in question is the dominant language of economic, social, and cultural life. Consequently, most time bound variation in this variable is likely to arise as a result of people reporting randomly with each enumeration round. While using a strict definition, discussed below, of English proficiency has been used to mitigate against the effects of misreporting English proficiency (Posel & Casale, 2011), it may not eliminate the problem when time is introduced. Hence cross-sectional analysis is used, the limits of which are discussed later in this chapter.

4.4 Language proficiency

NIDS asks two questions related to English language proficiency, and to home language proficiency. One question asks the respondent to rank how well they read in English (or their home language) on a scale from 1 to 4 with 1 being "very well" and 4 being "not at all". The second question asks the respondent to rank how well they can write in English (or their home language) using the same scale. In line with Posel and Casale (2011), this research constructs strict language proficiency variables, for both English and home language, using the reading and written proficiency variables.

To construct the strict variable, the 4-point scale for reading and written proficiency is collapsed into a binary variable when only respondents who report "very well" are considered to be proficient readers or writers of English and their home language, and the rest are considered not. The binary variables for reading and written proficiency are then used to create an overall proficiency binary variable. In this overall variable, only those who are proficient in reading as well as writing in English are considered proficient in English. In other words, only those who reported "very well" for both reading and written proficiency in the original questions are proficient in English. Those who report any other combinations of reading and written proficiency are not. The same applies for home language. The strict definition is used to account for likely measurement error in how people report their language proficiency. However, it does not eliminate the problem entirely if people overestimated their language ability and ranked it as "very well" in the survey.

According to the strict definition, 1754 African men aged 15 to 65 are proficient in English out of the total sample of adult African men of 4351, while 2788 African men are proficient in their home language. As Table 1 below shows, there is a fairly strong and stable relationship between English (or home language) writing and reading proficiency with most observations reporting the same level of proficiency for how well they read and write in English (identified by the diagonal in bold). However, it is also evident from the tables that there is some mixed reporting of written and reading proficiency. This mixing may be indicative of measurement error in either one of the two dimensions of proficiency.

English Writing Level						
English Reading Level		Very Well	Fair	Not well	Not at all	Total
	Very Well	1754	58	12	1	1825
	Fair	30	1075	55	6	1166
	Not well	1	16	615	42	674
	Not at all	1	5	8	672	686
	Total	1786	1154	690	721	4351
Home Language Writing Level						
Home Language Reading Level		Very Well	Fair	Not well	Not at all	Total
	Very Well	2788	62	11	0	2862
	Fair	44	887	22	2	955
	Not well	14	51	423	18	507
	Not at all	1	9	35	489	535
	Total	2847	1011	493	512	4885

Table 1: The relationship between reading and writing level for African men. Source: Author's own calculation using NIDS (2008). Data are unweighted.

4.5 Informal Employment

It is not possible to identify informal and formal employment in NIDS using the characteristics of enterprises. An enterprise based definition of formality usually means that the enterprise in question is registered with the relevant (tax) authority (Cichello & Rogan, 2017). A person employed in this enterprise would be considered informally employed. However, informal and formal employment in NIDS can be identified using the broad definition of formality, developed by the International Labour Organization and the 17th International Conference of Labour Statistician (ICLS) (Cichello & Rogan, 2017). This definition is concerned with the conditions of an individual's employment and is based on whether an employee receives protections, benefits, and entitlements as part of their employment (Heintz & Posel, 2008). Estimates of informal employment using this definition are often larger than those obtained using the enterprise-based definition because they include those workers who are employed in formal enterprises, albeit without the protection and benefits usually afforded to formal employment. This is an important consideration given the changing nature of the work and the rise of outsourcing. Unfortunately, NIDS does not allow for the comparison between the two definitions of informality to be made.

For the purposes of this study, the informally employed are those who are self-employed in non-VAT registered companies and those who are informally employed. The informally employed are defined as those who do not make contributions to the Unemployment Insurance Fund (UIF), who do not have a

written contact with their employers and do not make contributions to a provident or pension fund. All employment variables are concerned with an individual's primary employment.

4.6 Limitations

With the analytical techniques detailed above, there are concerns about bias that emerges from selection into a particular form of employment based on the expected gains from that employment. Often, studies of labour market segmentation use two-stage correction techniques to overcome this bias. This would require the use of a variable or group of variables that would explain selection into a particular employment type but which would be unrelated to earnings (Heintz & Posel, 2008). Common exclusions used in the first-stage (selection) equation are usually based on household characteristics such as the number of children and elderly people in the household, marriage, household headship, total household size and the number of people (other than the individual) who are employed (Kingdon & Knight, 2004). Using these exclusions results in a statistically significant coefficient on the selection term in the second-stage (outcome) equation, and they, therefore, seem like appropriate exclusions. However, there are good reasons to think that household formation patterns are themselves a function of (or endogenous to) earnings, which may undermine the reliability of using household characteristics as exclusion restrictions in a cross-sectional study (Ebrahim, Woolard, & Leibbrandt, 2013). Furthermore, given norms on the gendered division of household responsibilities in South Africa where women carry out most household tasks, including caring for children and the elderly, it is unlikely that these would enter the employment choices of men. Weak exclusions have the potential to introduce unknown bias to the specification, therefore a selection strategy is not pursued here (Heintz & Posel, 2008).

Another concern relates to omitted variables that also explain the dependent variable and are also related to one or more of the variables that are included in the regression specifications. Leaving out important variables of this nature will result in biased coefficients for the variables that have been controlled for and not just the ones that are correlated with the unobserved error term. With labour market studies, there are concerns about the effect of natural aptitude or ability, as well as other 'unobserved' characteristics. These innate factors are likely to be correlated with language ability as well as with labour market outcomes (employment type and earnings). With regards to employment type, unobserved individual characteristics (including innate ability, self-discipline, motivation, entrepreneurial talent or risk preferences) could increase the probability of finding formal employment through influencing how and where one looks for employment, while in the wage equation, unobserved individual characteristics may attract higher wages. If language proficiency and these individual characteristics are positively correlated, then this means that the returns to language proficiency will be over-estimated.

5 Descriptive Analysis

The following chapter analyses the human capital and labour market characteristics of African men in the sample. The descriptive analysis begins with an analysis of the type of employment (formal or informal) and language, followed by analysis by educational level; by industry; and by occupational skills levels. For each of the tables, the descriptive statistics are presented for the entire cohort in the first column then disaggregated by labour market segment in the second and third columns and by English language proficiency in the fourth and fifth columns. The descriptive statistics for the covariates included in the multivariate analysis are included in the appendix (Table A1). All the data are taken from NIDS Wave 1 (2008) and have been weighted appropriately to represent population level statistics. The sample is limited to African men of working age (aged 15 to 65). Tables A2 to A4 in the appendix, should be read in conjunction with this chapter.

5.1 Employment and Language

Table 2 shows that there is a substantial difference in the hourly average wages of African men who are formally employed compared to those who are informally employed. Additionally, there is a difference in the average hourly earnings of the employed who are proficient in English compared to those who are not. The average hourly wage of those who are formally employed is 17 percent higher than the full cohort average and nearly 2.4 times higher than the average for those who are informally employed. A similar pattern emerges for the differences in average income according to English proficiency. The average hourly wage of those who are English proficient is 59 percent higher than the average hourly wage of the entire sample of African men and over 3 times higher than the average of those who are not English proficient. As discussed in the literature, these differentials alone are not sufficient to conclude that English language proficiency is highly rewarded in the labour market, nor do they prove that it is a determinant of formal or informal employment. Indeed, there may be other factors which jointly affect wages, formality, and English proficiency that give this result. However, the figures provide initial support for a positive association between English proficiency and average labour market outcomes among African men.

Turning to the distribution of English proficiency by labour market segment, it is evident that those who are proficient in English are overrepresented in formal employment and under-represented in informal employment. Among all African men with employment, 46 percent report reading and writing very well in English. However, among those who are formally employed, 52 percent are proficient in English whereas only 27 percent of those who are informally employed are proficient in English. Among the African men who are English proficient, 85 percent are formally employed, while 65 percent of men who

are not English proficient have formal employment. These differences in labour market segment by English proficiency provides initial evidence to support the view that English skills are important for finding formal employment and that it is valued by employers.

It is also worthwhile to note that there appears to be a strong association between being proficient in English and also being proficient in one's African home language. This relationship emerges because of the benefits of additive bilingualism or because home language ability may capture one's innate intelligence, which is a common interpretation of this variable. Nearly 90 percent of African men who are proficient in English are also proficient in their African home languages. Conversely, less than 40 percent of those proficient in their African home language are not proficient in English meaning that over 60 percent lack proficiency in either English or their African home language. This finding is in line with earlier findings of a strong relationship between home language and other language skills (Posel & Zeller, 2016). This relationship could also be because of how NIDS asks questions about language ability. It is unlikely that an African man who has never learnt how to read and write in their home language, would have learnt to do so in English. Hence one would expect poor reading and writing ability in the home language to be related to poor reading and writing ability in English.

	All employed Mean	Formally Employed Mean	Informally Employed Mean	English Proficient Mean	Not English proficient Mean
Hourly Wage	31.639	37.255	15.774	50.416	15.791
	(5.226)	(6.981)**	(2.930)	(11.201)**	(0.963)
Formally employed	0.739			0.846	0.648
	(0.018)			(0.024)**	(0.026)
English proficient	0.458	0.524	0.270		
	(0.021)	(0.024)**	(0.039)		
African language proficient	0.622	0.697	0.408	0.890	0.395
	(0.021)	(0.023)**	(0.040)	(0.025)**	(0.027)
N (unweighted)	1,241	624	617	502	739

*Table 2 Employment and language characteristics of employed African men between the ages of 15 and 65. Source: Author's own calculations using NIDS (2008). Notes: Standard errors are in parentheses. * indicates statistical significance at the five percent level and ** indicates statistical significance at the one percent level. The data have been weighted to represent population level estimates.*

5.2 By education level

As can be expected, education and English language proficiency among employed African men also appear to be related to one another (Table 3). High school graduates and African men with post-secondary education are overrepresented among those who are English proficient relative to the sample as a whole. A similar pattern emerges for the disaggregation by formal and informal employment: those who have

completed secondary school and those who have attained a post-secondary school qualification are significantly more likely to be in formal employment compared to informal employment. Analogously, compared to their share of the employed African male sample, those with no schooling, primary school, or incomplete high school are overrepresented among those who are not English proficient, and among those in informal employment. These results are unsurprising since most African males acquire English language skills at school and not at home (Posel & Zeller, 2016). Therefore, one would expect a person with less schooling to also be less skilled in English.

	All Employed	Formally Employed	Informally Employed	English Proficient	Not English proficient
No schooling	0.063	0.043	0.117	0.002	0.114
	(0.009)	(0.011)**	(0.018)	(-0.002)	(0.016)
Primary schooling	0.219	0.187	0.311	0.049	0.362
	(0.018)	(0.019)**	(0.040)	(0.016)**	(0.027)
High school	0.352	0.333	0.404	0.305	0.391
	(0.020)	(0.022)**	(0.040)	(0.028)**	(0.027)
Matric	0.204	0.229	0.135	0.356	0.076
	(0.017)	(0.021)**	(0.026)	(0.030)**	(0.015)
Post matric	0.162	0.208	0.033	0.287	0.057
	0.063	0.043	0.117	0.002	0.114
Total	1	1	1	1	1
N (unweighted)	1,241	830	411	502	739

*Table 3: Distribution of employed African men between the ages of 15 and 65 by education level, labour market segment, and English proficiency. Source: Author's own calculations suing NIDS (2008). Notes: Standard errors are in parentheses * indicates statistical significance at the five percent level and ** at the one percent level. The data have been weighted to reflect population level estimates.*

5.3 By skills level

Table 4 focuses on the distribution of employed African men by labour market segment, English proficiency and the skills level required for the job that one does. Once more, these results are intuitive. Among those who are formally employed, 16.3 percent are employed in elementary employment where as 36.7 percent of those who are informally employed are employed in elementary occupations. Furthermore, of those who are proficient in English 11.9 percent are employed in elementary occupations while 29.8 percent of those who are not proficient in English are employed in elementary occupations. The opposite is true for highly skilled occupations. Among the formally employed, those in highly skilled occupations are overrepresented, with nearly 21 percent of formally employed workers being employed in skilled occupations (compared to less than 16 percent of all employed African men). African men are also significantly more likely to be employed in highly skilled occupations if they are proficient (rather than not proficient) in English. This distribution of employed men suggests a positive relationship between

English proficiency and skills and that English language ability may be an important skill that is rewarded in the labour market as part of a worker's overall human capital endowment.

	All Employed	Formally Employed	Informally Employed	English Proficient	Not English proficient
Elementary	0.216	0.163	0.367	0.119	0.298
	(0.017)	(0.018)**	(0.038)	(0.021)**	(0.025)
Semi-skilled	0.628	0.632	0.619	0.604	0.649
	(0.020)	(0.024)**	(0.038)	(0.031)**	(0.026)
Highly-skilled	0.155	0.205	0.014	0.276	0.053
	(0.016)	(0.020)**	(0.006)	(0.029)**	(0.011)
Total	1	1	1	1	1
N (unweighted)	1,241	830	411	502	739

*Table 4: Distribution of employed African men between the ages of 15 and 65 by occupational skills level, labour market segment, and English proficiency. Source: Author's own calculations using NIDS (2008). Notes: Standard errors are in parentheses. * indicates statistical significance at the five percent level and ** at the one percent level The data have been weighted to reflect population level estimates.*

5.4 By industry

An important consideration in the question of language and labour markets is the interaction between language skills and the industry of employment. This is explored in Table 5 below. At the aggregate level, entry into some industries may require stronger language skills than others, though within industries there may be variation in the English language requirements by occupation type and level. The table shows that among African men who are proficient in English, the modal industry of employment is the community, social and personal services industry, which is perhaps expected given the interpersonal nature of work within this industry. 61 percent of African men employed in this sector are proficient in English. In contrast, African men who are not English proficient are significantly more likely to be employed in agriculture (and in the construction industry, although differences between the samples are not significant)[4]. Most people working in these industries are not proficient in English (only 6% for agriculture, and 31% for construction are proficient) and when employment is decomposed by labour market segment, most African men employed in the agricultural section are informally employed (58 percent) while most of those working in the construction industry are formally employed (57 percent).

The mining industry represents a small anomaly in this regard; while only 39 percent of African men employed in the mining industry are not proficient in English, 96 percent of those who are employed in

[4] Other industries where less than 50 percent of African men are English proficient are transport (49 percent), mining (39 percent), and manufacturing (37 percent).

the sector are formally employed[5]. This may be because of the institutional characteristics of the industry which almost guarantee that someone employed in the sector will be employed formally regardless of their specific occupation or language skills. However, in the electricity, gas and water industry, most African men are formally employed (78 percent) and most (77 percent) are likely to be proficient in English. Once more, this pattern may be explained by the differences in the institutional norms and rules governing the industry which make formal employment more likely, but the nature of the jobs within these industries where African men are employed do not require one to have strong English skills.

	All	Formally Employed	Informally Employed	English Proficient	Not English proficient
Private household	0.046	0.025	0.107	0.027	0.062
	(0.010)	(0.010)*	(0.024)	-0.015	(0.013)
Agriculture	0.104	0.056	0.239	0.014	0.18
	(0.012)	(0.011)**	(0.034)	(0.004)**	(0.021)
Mining	0.093	0.121	0.014	0.087	0.099
	(0.012)	(0.016)**	(0.005)	(0.018)**	(0.016)
Manufacturing	0.168	0.19	0.104	0.147	0.185
	(0.015)	(0.019)**	(0.020)	(0.023)**	(0.021)
Electricity, gas and water	0.012	0.013	0.010	0.020	0.005
	(0.004)	(0.004)**	-0.01	(0.008)*	(0.002)
Construction	0.084	0.068	0.129	0.070	0.095
	(0.011)	(0.012)**	(0.026)	(0.016)**	(0.015)
Retail	0.129	0.122	0.151	0.173	0.092
	(0.013)	(0.014)**	(0.032)	(0.022)**	(0.016)
Transport	0.054	0.049	0.068	0.058	0.05
	(0.009)	(0.011)**	(0.018)	(0.014)**	(0.012)
Finance	0.087	0.09	0.08	0.108	0.069
	(0.013)	(0.014)**	(0.031)	(0.021)**	(0.017)
Community, social and personal services	0.223	0.267	0.099	0.295	0.162
	(0.018)	(0.022)**	(0.025)	(0.029)**	(0.022)
Total	1	1	1	1	1
N	1,241	830	411	502	739

*Table 5: Distribution of employed African men between the ages of 15 and 65 by industry, labour market segment, and English proficiency. Source: Author's own calculations using NIDS(2008). Notes: Standard errors are in parentheses. * indicates statistical significance at the five percent level and ** at the one percent level The data have been weighted to reflect population level estimates.*

[5] Other industries where more than 50 percent are African men are formally employed include community, social and personal services (89 percent); manufacturing (81 percent); electricity, gas, and water (78 percent); finance (77 percent); retail (70 percent); transport (66 percent); and construction (57 percent)

The overall picture that emerges from these descriptive statistics is consistent with the hypotheses presented in section 3: both formal employment and English proficiency are positively associated with above average labour market performance based on the dimensions explored above. Nevertheless, bivariate descriptive statistics do not show what predicts formal or informal employment, nor do they predict the wages within each employment. The next chapter uses multivariate analysis to better understand what is driving these differences and to isolate the effect of English language proficiency.

6 Multivariate Analysis

6.1 Probits – Predicting employment type among working-age African men

The estimates of the probability of employment are presented in Table 6 below. The binary dependent variable, representing the segment of the labour market, equals 1 when employment is formal (and 0 when employment is informal). The first column contains the coefficients for the demographic and education variables without any of the language proficiency variables. The coefficients are all significant and have the expected signs.

The probability of formal employment increases significantly with age. It is likely that age is capturing the labour market experience of men where men with more experience may be more likely to secure and retain formal employment (Wamuthenya, 2010). There is also some suggestion that the relationship between age and formal employment is non-linear. However, the coefficient on age squared is not statistically significant.

African men are 13 percent more likely to be formally employed if they live in an urban area. This reflects the spatial distribution of economic opportunity across South Africa where the concentration of formal employment opportunities is in large cities with rural areas offering very little in the way of formal employment prospects (Christiaensen, De Weerdt, Ingelaere, & Kanbur, 2018). That said, it may also be driven by people who are better equipped for formal employment selecting into urban areas (Christiaensen et al., 2018).

Educational attainment is significantly related to the probability of formal employment compared to not having an education at all. The probability of formal employment increases with educational attainment. African men who have completed secondary school are significantly more likely to be formally employed than those who did not attend school. Those who have completed a post-secondary school qualification are also significantly more likely, than those who did not attend school, to be formally employed. The effect of having a post-secondary qualification on the probability of formal employment is the strongest for this group at 50 percent. The positive and increasing relationship between the probability of formal employment and education level shows the importance of human capital as one driver of labour market segmentation in South Africa. It also lends credence to the idea that there may be sorting into formal employment based on the expected returns to the observable and unobservable characteristics of an individual (Constant & Douglas, 2005; Wamuthenya, 2010).

The second column of estimates presents the demographic and education variables with the addition of the English proficiency variable. As hypothesized, the English proficiency coefficient is positive and statistically significant: African men who are proficient in English are nearly 10 percent more likely to be formally (rather than informally) employed than those who are not. This relationship may emerge because English proficiency improves the ability of labour market participants to find formal employment. Employers may also value English proficiency in and of itself because of the nature of formal jobs or because employers use it as a proxy for productivity in employment. With the exception of the education variables, adding English proficiency to the specification has virtually no effect on the other controls. The effect that adding English proficiency to the estimation has on the education variables is strongest for those who have completed either secondary or post-secondary education. The marginal effect declines by nearly 4 percentage points for post-secondary education and nearly 7 percentage points for complete secondary education. Primary school (complete and incomplete) and incomplete secondary school change very slightly. The decline in the effect of higher levels of education is not surprising if English language proficiency increases with education.

The last two columns of Table 6 include African home language proficiency to the estimations. Without controlling for English proficiency, being proficient in their African home language has a positive and statistically significant effect on the probability of being formally employed for African men. The similarity in the magnitude of the coefficients for English proficiency and African home language proficiency is likely because there is a strong correlation between these language skills (Casale and Posel 2011). The inclusion of African home language proficiency considerably lowers the relationship between education and the probability of formal employment, again suggesting that language skills and educational attainment are highly correlated.

Adding both English language proficiency and African language proficiency to the estimation renders the effect of English language proficiency on the probability of formal employment statistically insignificant. The effect of African home language proficiency on the probability of formal employment is reduced slightly, though the effect remains statistically significant at the 5 percent significance level. The importance of African home language proficiency over English language proficiency for the probability of formal employment is surprising. In a context where English language skills are valued and English is the dominant language of business, one would expect that these language skills are also a pathway to formal employment, which is typically more gainful than informal employment. It may be the case that general literacy is what matters for formal employment rather than proficiency in English specifically. For example, a sizeable share of African men is formally employed in jobs (such as mining) where English proficiency is not a requirement. However,

further research would be needed to explore the relationship between English and African language skills and industry of employment.

Formal employment	1	Marginal Effect (1)	2	Marginal Effect (2)	3	Marginal Effect (3)	4	Marginal Effect (4)
Age	0.059	0,020	0.058	0,019	0.058	0,019	0.058	0,019
	(2.63)**	(0,000)**	(2.57)*	(0.0073)*	(2.56)*	(0.007)*	(2.54)*	(0.028)**
Age squared	-0.001	-0,001	-0.001	-0,001	-0.001	-0,001	-0.001	-0,001
	(1.99)*	(0,000)*	(-1.90)	(0.000)	(-1.90)	(0.000)	(-1.87)	(0.000)
Urban	0.383	0,126	0.355	0,116	0.363	0,119	0.35	0,114
	(4.31)**	(0,0287)**	(3.96)**	(0.02884)**	(4.05)**	(0.028)**	(3.89)**	(0.029)**
Married	0.157	0,052	0.157	0,051	0.158	0,052	0.157	0,051
	(-1.72)	(0.030)	(-1.71)	(0.030)	(-1.73)	(0.029)	(-1.72)	(0.029)
Primary school (complete and incomplete)	0.307	0,100	0.292	0,096	0.222	0,073	0.229	0,075
	(2.24)*	(0.045)	(2.13)*	(0.04484)*	(-1.59)	(0.046)	(-1.64)	(0.0455)
Incomplete secondary school	0.729	0,2	0.633	0,208	0.535	0,175	0.513	0,167
	(5.29)**	(0.0442)**	(4.49)**	(0.0453)**	(3.65)**	(0.047)**	(3.49)**	(0.0473)**
Complete secondary school	1.132	0,4	0.925	0,303	0.877	0,287	0.799	0,261
	(7.22)**	(0.0489)**	(5.48)**	(0.0536)**	(5.20)**	(0.054)**	(4.60)**	(0.05543)**
Post-secondary school qualification	1.647	0,5	1.409	0,462	1.396	0,456	1.297	0,423
	(8.74)**	(0.05715)**	(6.97)**	(0.06301)**	(7.06)**	(0.061)**	(6.31)**	(0.064)**
English proficient			0.300	0,098			0.184	0,060
			(3.21)**	(0.030)**			-1.82	(0.033)
African home language proficient					0.341	0,112	0.277	0,090
					(4.06)**	(0.027)**	(3.05)**	(0.029)**
Constant	-2.043		-2.007		-2.091		-2.062	
	(4.30)**		(4.22)**		(4.38)**		(4.33)**	
N	1,392		1,392		1,392		1,392	

*Table 6: Formal employment probits for African men from the ages of 15 to 65. Source: Author's own calculations using NIDS (2008). Notes: Robust standard errors in parentheses. * indicates statistical significance at the five percent level and ** at the one percent level. All equations include controls for South Africa's 9 provinces. Omitted categories are rural residence, not married, no school, not English proficient, no African home language proficient.*

6.2 Ordinary Least Squares – Returns to English language proficiency among employed working-age African men

The following section deals with the returns to English language proficiency for working-age African men using Mincerian-type earnings equations. Column 1 of Table 7 presents the earnings equations without controlling for either of the language variables. The coefficients are all statistically significant and have the expected signs. There is a quadratic relationship between age and earnings showing that earnings increase non-linearly with age. The positive relationship between earnings and age may indicate rewards to labour market experience. There is also a strong premium to working in an urban area. The urban earnings premium could be driven by cities raising worker productivity through the effects of agglomeration and competition or simply because cities attracts more productive workers (Christiaensen et al., 2018). African men who live in an urban area can earn 21 percent more than those who live in a rural area. There is also a marriage premium for African men of 37 percent[6]. This result is likely to be driven by a positive selection of higher-earning African men into marriage (Casale & Posel, 2010). As one would expect given the limited supply of educated African workers, there is an increasing relationship between education and earnings, with the earnings premium being highest for those who have post-secondary education followed by those who have completed high school. African men who have completed secondary school earn 106 percent more than those without any education. Those who have a post-secondary school education earn 318 percent more than those with no education. These non-linear returns to education have been well documented in South Africa (see for example Casale and Posel (2010)).

Column 2 of Table 7 includes all the controls from the column 1 with the inclusion of a control for English proficiency. The coefficient on English proficiency is positive and statistically significant at the 5 percent significance level and the estimated earnings premium associated with English proficiency is 18 percent. This result is consistent with the literature and indicates that African men who are also proficient at English are at an advantage in the labour market in terms of earnings. The inclusion of a control for English language proficiency has virtually no effect on the other controls except for the coefficients for completed secondary schooling and post-secondary schooling. Once English proficiency is controlled for, the earnings differential between those who have no schooling

[6] The percentage change in earnings from the coefficient on a dummy variable uses the conversion: $100.\{\exp(\gamma) - 1\}$ (Halvorsen and Palmquist, 1980).

and those who have post-secondary schooling is significantly reduced as does, the earnings differential for those who have completed secondary school. The reduction in the effect of education that comes when controlling for English language proficiency suggests that part of the effect that education has on earnings is in fact driven by English proficiency signalling some additional information about one's education and aptitude (Casale & Posel, 2011).

In column 3, English language proficiency is replaced by African language proficiency in the earnings function. The African language proficiency coefficient is positive, but not statistically significant. Unlike with the probability of formal employment, being able to read and write well in one's mother tongue[7] has no independent effect on earnings. In column 4 both English and African home language proficiency are included as controls in the earnings function. In this function, African home language proficiency remain statistically insignificant, while the coefficient for English proficiency remains statistically significant with little difference in magnitude compared to the coefficient in column 2 which does not include a control for African home language proficiency. Controlling for African home language proficiency has a smaller effect on the education coefficients than the effect of controlling for English proficiency. This supports the idea, stated earlier, that English language proficiency is valued in the labour market at least partly because it signals something about the quality of education (Casale and Posel 2011).

The results of the earnings functions appear to contradict those found for the probability of labour market segment in the preceding subsection. It may seem counterintuitive that English language proficiency positively predicts earnings but not the probability of formal employment, while African home language proficiency is positively related to formal employment but not earnings. The reasons for these differences could be found within the labour market segments. It is possible that returns to English proficiency are driven by the rewards within the segments. Therefore, while general literacy or linguistic ability may help one enter the formal labour market segment, earnings differentiation within segments could be driven by English proficiency particularly if employers consider it to be an element of human capital and comparative advantage worth rewarding.

[7] African men who report English or Afrikaans as their home language are by default excluded from this analysis as the sample is limited to African men who speak an African language as their home language.

Ln(hourly earnings))	1	2	3	4
Age	0.063	0.062	0.063	0.062
	(3.93)**	(3.88)**	(3.92)**	(3.88)**
Age squared	-0.001	-0.001	-0.001	-0.001
	(3.32)**	(3.25)**	(3.30)**	(3.25)**
Urban	0.193	0.178	0.188	0.178
	(3.07)**	(2.81)**	(2.99)**	(2.81)**
Married	0.32	0.319	0.321	0.319
	(5.09)**	(5.08)**	(5.10)**	(5.08)**
Primary school (complete and incomplete)	-0.05	-0.058	-0.068	-0.062
	-0.58	-0.67	-0.78	-0.7
Incomplete secondary school	0.293	0.24	0.252	0.233
	(3.38)**	(2.70)**	(2.70)**	(2.50)*
Complete secondary school	0.725	0.612	0.672	0.605
	(7.06)**	(5.41)**	(5.91)**	(5.12)**
Post-secondary school qualification	1.431	1.302	1.379	1.295
	(13.06)**	(10.84)**	(11.64)**	(10.50)**
English proficient		0.162		0.155
		(2.48)*		(2.20)*
African home language proficient			0.071	0.016
			-1.22	-0.26
Constant	0.351	0.375	0.346	0.372
	(0.338)	(0.339)	(0.338)	(0.339)
R-squared	0.27	0.28	0.27	0.28
N	1,392	1,392	1,392	1,392

*Table 7: Earnings estimates for employed African men from the ages of 15 to 65. Source: Author's own calculations using NIDS (2008). Notes: Robust standard errors in parentheses. * indicates statistical significance at the five percent level and ** at the one percent level. All equations include controls for South Africa's 9 provinces. Omitted categories are rural residence, not married, no school, not English proficient, no African home language proficient.*

6.3 Ordinary Least Squares – Disaggregated analysis by labour market segment

The following subsection investigates whether the earnings premium associated with English proficiency differs according to segment (or sector) of employment. Focusing on the returns to English within the two employment types can help explain why there is an earnings differential between formal and informal employment. The analysis may also shed light on why African home language proficiency is a positive predictor of formal employment while English proficiency positively predicts earnings.

If the effect of African home language proficiency is *only* to help with finding formal employment, then one would not expect African home language proficiency to be strongly correlated with upward mobility or higher earnings once someone has found this employment. If the effect of English or African home language proficiency is also to improve productivity, then these language skills will have an effect on earnings for both formal and informal employment in addition to having a role in finding formal employment.

6.4 Returns to English language proficiency for African men by labour market segment

Table 8 presents the same earnings functions as Table 7 above, but only for African men who are formally employed. All the coefficients in column 1 have the expected signs and are statistically significant. However, there are some differences in the size of the coefficients compared to the pooled regressions presented in Table 7. Living in an urban area increases the incomes of formally employed African men. This is slightly higher than the effect for the entire sample and may reflect a complementarity between formal employment and urban residence. Marriage, again, has a positive relationship with earnings albeit marginally less than it was for the total sample. Education also behaves as it did in the estimates for the full cohort of employed African men with the returns to education increasing with educational attainment.

Unlike the other variables, the language proficiency variables do not behave in the same way as they did in the earnings functions estimated for the pooled sample of employed African men. In column 2, the coefficient on English language proficiency is positive but not significant, and similarly the positive coefficient on African language proficiency (column 3) is not significant. When African and English language proficiency are jointly controlled for in the column 4, neither

have a statistically significant effect on earnings. This is an indication that while language proficiency is important for finding formal employment, but that once employment has been found there is very little earnings variation by English or African language proficiency. However, it may still be important for the informally employed. This would require further investigation in future. It is possible that the relationship between language skills and earnings by segment of employment is biased by selection into that segment, which is not controlled for in these estimations.

Table 9 reports the results for African men who are informally employed. The fact that the informally employed suffer a earnings penalty as a result of labour market segmentation is widely acknowledged (see for example, Heintz and Posel 2008). However, it is important also to consider what determines the returns to informal labour and how those correlates relate to the correlates of labour market segmentation.

Column 1 shows that the correlates of informal employment earnings generally do not differ from those of formal employment earnings. However, there is no independent reward to urban residence for the informally employed. This is a surprising result for it suggests that there is no benefit to being informally employed and living in an urban area relative to living in a rural area. The relationship between education and informal employment earnings is similar to that for formal employment and for the pooled analysis. The coefficient on education is largest for those who have completed high school and for those who have a post-secondary school qualification. Numerically, the reward is slightly higher than the premium for the formally employed, which could indicate the existence of a stratified informal labour market that includes highly educated individuals with significantly above average incomes (Arias & Khamis, 2007).

English language proficiency in column 2 is not statistically significant, but its inclusion reduces the coefficients on education. Including English proficiency in the earnings equation renders the coefficient on complete secondary schooling statistically insignificant. The premium associated with having a post-secondary school qualification falls by 28 percentage points from 289 to 261 percent. This lends some credence to the idea that English ability signals something about education, but in absence of statistical significance, this cannot be concluded with certainty. African home language proficient is also not significantly correlated with earnings among the informally employed. Overall, these earnings equations do not perform very well and suggest that selection into formal or informal employment may be biasing the results.

Ln(hourly earnings)	*1*	*2*	*3*	*4*
Age	0.066	0.066	0.066	0.066
	(3.05)**	(3.06)**	(3.05)**	(3.07)**
Age squared	-0.001	-0.001	-0.001	-0.001
	(2.54)*	(2.53)*	(2.54)*	(2.54)*
Urban	0.223	0.211	0.222	0.212
	(3.03)**	(2.86)**	(3.01)**	(2.88)**
Married	0.313	0.31	0.313	0.308
	(4.16)**	(4.12)**	(4.16)**	(4.11)**
Primary school (complete and incomplete)	-0.002	-0.014	-0.008	-0.003
	-0.02	-0.11	-0.07	-0.02
Incomplete secondary school	0.274	0.228	0.263	0.246
	(2.19)*	-1.75	-1.91	-1.77
Complete secondary school	0.721	0.632	0.708	0.649
	(5.19)**	(4.24)**	(4.62)**	(4.14)**
Post-secondary school qualification	1.308	1.206	1.295	1.221
	(9.37)**	(7.96)**	(8.58)**	(7.81)**
English proficient		0.128		0.141
		-1.82		-1.86
African home language proficient			0.017	-0.035
			-0.23	-0.43
Constant	0.348			
	(-0.75)			
R-squared	0.3	0.3	0.3	0.3
N	832	832	832	832

*Table 8: Earnings estimates for formally employed African men from the ages of 15 to 65. Source: Author's own calculations using NIDS (2008). Notes: Robust standard errors in parentheses. * indicates statistical significance at the five percent level and ** at the one percent level. All equations include controls for South Africa's 9 provinces. Omitted categories are rural residence, not married, no school, not English proficient, no African home language proficient.*

Ln(hourly earnings)	1	2	3	4
Age	0.05	0.049	0.05	0.049
	(2.16)*	(2.12)*	(2.16)*	(2.11)*
Age squared	-0.001	-0.001	-0.001	-0.001
	(1.98)*	-1.94	(1.98)*	-1.93
Urban	0.024	0.018	0.023	0.018
	-0.21	-0.16	-0.21	-0.16
Married	0.233	0.235	0.232	0.234
	(2.18)*	(2.20)*	(2.16)*	(2.19)*
Primary school (complete and incomplete)	-0.096	-0.099	-0.105	-0.101
	-0.86	-0.88	-0.91	-0.88
Incomplete secondary school	0.21	0.181	0.188	0.176
	-1.73	-1.48	-1.49	-1.39
Complete secondary school	0.462	0.389	0.427	0.383
	(2.77)**	-1.93	(2.24)*	-1.83
Post-secondary school qualification	1.36	1.285	1.326	1.279
	(4.60)**	(4.15)**	(4.32)**	(4.06)**
English proficient		0.103		0.097
		-0.75		-0.66
African home language proficient			0.045	0.013
			-0.45	-0.13
Constant	0.76			
	(-1.54)			
R-squared	0.12	0.12	0.12	0.12
N	560	560	560	560

*Table 9: Earnings estimates for informally employed African men between the ages of 15 and 65. Source: Author's own calculations using NIDS (2008). Notes: Robust standard errors in parentheses. * indicates statistical significance at the five percent level and ** at the one percent level. All equations include controls for South Africa's 9 provinces. Omitted categories are rural residence, not married, no school, not English proficient, no African home language proficient.*

6.5 Complementarity of human capital

Many studies on the role of language in the labour market find that there is complementarity between language skills and education. This means that compared to those with lower language skills, the relationship between education and earnings is larger for those who have language skills in the main language of business (Casale & Posel, 2011; Chiswick & Miller, 2003). As discussed earlier in the literature review, this is the case for immigrants as well as for people living in countries where the dominant language differs from their home language (Casale & Posel, 2011; Chiswick & Miller, 2003). Table 10 presents estimates of complementarity for the entire cohort of African men. As the earning functions do not perform well by segment, possibly because of selection, analysis of complementarity by labour market segment is not undertaken here. Including the interaction terms between English proficiency and education level to the earnings functions causes the return to higher levels of education to fall. This suggests that the full benefits to higher levels of education are realised when they are coupled with English language skills. African men who are English proficient and have a post-secondary school qualification can earn significantly more (339 percent) than those who have a post-secondary school qualification, but are not English proficient. This supports the hypothesis of complementarity in human capital (Casale & Posel, 2011; Chiswick & Miller, 2003).

This section uses multivariate analysis to explore the relationships between English and African home language proficiency; labour market segment; and earnings. A key result that emerges from the analysis is that African home language proficiency is an important correlate to formal employment. As discussed, this counterintuitive result is probably driven by the importance of overall literacy and linguistic ability for formal employment. As hypothesized, English proficiency is an important correlate for the overall wages of African men and there is complementarity of human capital between education and English language ability. However, the earnings equations do not perform well for each labour market segment. These results probably suffer from bias emerging from selection into each labour market, which has not been corrected for (Heintz & Posel, 2008). Due to the limitations of cross-sectional analysis techniques, the results presented in this section should be read as suggestive of a relationship between language skills and labour market outcomes.

Ln(hourly earnings)	1
English proficient	-0.305
	-0.97
Age	0.061
	(3.81)**
Age squared	-0.001
	(3.18)**
Urban	0.185
	(2.91)**
Married	0.32
	(5.07)**
Primary school (complete and incomplete)	-0.084
	-0.95
Incomplete secondary school	0.251
	(2.72)**
Complete secondary school	0.689
	(4.37)**
Post-secondary school qualification	0.987
	(5.49)**
English proficient X Primary	0.698
	(1.98)*
English proficient X High School	0.417
	-1.28
English proficient X Complete secondary	0.356
	-1.02
English proficient X Post-secondary school qualification	0.817
	(2.26)*
Constant	0.408
	-1.2
R-squared	0.28
N	1,392

*Table 10: Earnings estimates for African men between the ages of 15 and 65 with interaction terms for English proficiency and education. Source: Author's own calculations using NIDS (2008). Robust standard errors in parentheses * indicates statistical significance at the five percent level and ** at the one percent level. All equations include controls for South Africa's 9 provinces*

7 Conclusion

This study used the NIDS dataset to explore a previously unexplored dimension to the question of language and labour markets; the extent to which language proficiency affects the type of employment that one finds. While the main findings of the study must be viewed with the limitations of cross-sectional analysis in mind, they do accentuate the complexities around language and labour market success in South Africa. The study contributes to the literature by considering formal employment as the labour market outcome in addition to earnings and has, therefore, broadened the understanding of how language skills affect labour markets.

For working-age African men, proficiency in their African home language is important for entry into the formal segment of the labour market. In a country where the language of business is English, this is a surprising result and may point to the overall importance of literacy skills for formal employment as opposed to the importance of African language skills in particular. This finding highlights another gap in the literature on language and labour markets worth addressing; how language skills influence access to different kinds of jobs within different sectors. While the study finds that African men who are English proficient enjoy earnings that are higher than those who are not, there is no evidence to support the importance of English for the earnings of African men within the formal or informal segments. Once again, further research into this matter is required as the results in the preceding chapter may be biased by the effects of selection. Nevertheless, the findings support that language skills are important for labour market success in South Africa.

The South African education system remains fraught with issues that seriously threaten the ability of young people to master language and literacy skills that are crucial for success in other subjects of study as well. As discussed in chapter 2 many of these problems affect the poorest children. Literacy and language skills form the basis of learning and without mastering them children are likely to fall behind in their education and, in the worst cases, drop out of school altogether. If this is not corrected for urgently, then South Africa risks producing scores of young people who have limited labour market prospects and who must settle for insecure, low-quality, low-income work which could perpetuate vicious cycles of poverty.

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Appendices

	English proficient	Formally employed
Age	34.661	38.942
	(0.525)**	(0.509)**
Urban	0.770	0.657
	(0.020)**	(0.022)**
Married	0.375	0.430
	(0.028)**	(0.024)**
No school	0.002	0.106
	(0.002)	(0.013)**
Primary schooling (incomplete or completer)	0.051	0.359
	(0.014)**	(0.023)**
Incomplete secondary school	0.342	0.395
	(0.027)**	(0.023)**
Complete secondary school	0.334	0.095
	(0.027)**	(0.015)**
Post-secondary school qualification	0.271	0.045
	(0.026)**	(0.012)**
N	605	973

*Table A 1: Distribution of covariates by English proficiency and Formal employment of employed African men between the ages of 15 and 65. Source: Author's own calculations using NIDS (2008). Notes: Standard errors are in parentheses. * indicates statistical significance at the five percent level and ** at the one percent level The data have been weighted to reflect population level estimates.*

	Private Households	Agriculture	Mining	Manufacturing	Electricity, gas, and water	Construction	Retail	Transport	Finance	Community, social and personal service
English proficient	0.250	0.061	0.387	0.374	0.778	0.310	0.583	0.486	0.522	0.613
	(0.103)*	(0.018)**	(0.061)**	(0.045)**	(0.110)**	(0.060)**	(0.053)**	(0.085)**	(0.076)**	(0.043)**
Formally employed	0.458	0.421	0.961	0.809	0.784	0.572	0.705	0.658	0.777	0.889
	(0.103)**	(0.059)**	(0.013)**	(0.034)**	(0.181)**	(0.063)**	(0.053)**	(0.076)**	(0.075)**	(0.027)**
N	69	252	125	234	16	119	173	63	88	260

*Table A 2: Table of means by industry of employed African men between the ages of 15 and 65. Source: Author's own calculations using NIDS (2008). Notes: Standard errors are in parentheses. * indicates statistical significance at the five percent level and ** at the one percent level The data have been weighted to reflect population level estimates.*

	No schooling	Primary schooling	Incomplete secondary school	Complete secondary school	Post-secondary school qualification
Formally employed	0.477	0.534	0.616	0.752	0.907
	(0.066)**	(0.038)**	(0.029)**	(0.034)**	(0.028)**
English Proficient	0.015	0.096	0.392	0.723	0.811
	(0.011)	(0.026)**	(0.029)**	(0.039)**	(0.046)**
N	163	387	578	280	174

*Table A 3: Table of means by education level of employed African men between the ages of 15 and 65. Source: Author's own calculations using NIDS (2008). Notes: Standard errors are in parentheses * indicates statistical significance at the five percent level and ** at the one percent level The data have been weighted to reflect population level estimates.*

	Elementary	Semi-skilled	Highly-skilled
English proficiency	0.240	0.406	0.793
	(0.038)**	(0.024)**	(0.039)**
Formal employment	0.561	0.740	0.978
	(0.041)**	(0.022)**	(0.009)**
N	391	817	186

*Table A 4:Table of means by education level of employed African men between the ages of 15 and 65. Source: Author's own calculations using NIDS (2008). Notes: Standard errors are in parentheses * indicates statistical significance at the five percent level and ** at the one percent level The data have been weighted to reflect population level estimates.*