Transitions into informal employment: An analysis of South African panel data: 2008-2012

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Abstract

South Africa's labour market is characterised by high unemployment but relatively low levels of informal employment, making it distinct from other developing countries. The existing literature appears to show evidence of high mobility rates of labour across labour market states. The coexistence of high labour mobility rates, yet high unemployment and weak informal employment in South Africa's labour market is therefore puzzling. Considerable research has been done to explain this phenomenon and has suggested that barriers to informal entrepreneurship form the key reason why informal employment is relatively low in South Africa compared to other developing countries. Worker transitions have however not been a focal question in the literature. Using data from the National Income Dynamics Study (NIDS 2008-2012), this study sought to examine the characteristics of workers who move into informal employment, attaching importance to those who become self-employed. Transition matrices are constructed showing the proportion of workers who stayed or moved into different labour market states between 2008 and 2012, and linking the movements to 2008 personal characteristics. Churning between labour market states was found to be relatively high, albeit formal wage employment exhibiting immobility. Transitions out of informal employment were high, reflecting its survivalist nature. Conversely, those from unemployment into informal employment, particularly self-employment were low. Using the probit regression model, transitions to informal employment were found to be more associated with workers who are generally marginalised from formal employment opportunities. The results suggest that the South African labour market is to a larger extent not reflective of the Dualist narrative of ease of movement of workers from unemployment into informal employment and barriers into informal entrepreneurship are high. To date, policies which have sought to encourage informal entrepreneurship have not been a success. A central challenge to policymakers is to create an enabling environment for the unemployed to start their own informal businesses. This has the potential of reducing unemployment and poverty rates in the country

1. Introduction

South Africa's non-agricultural informal sector is small, relative to other countries with similar levels of per capita income, according to data from the ILO (International Labour Organisation, 2012)[1]. About 20 percent of jobs were in the non-agricultural informal sector as of Q3 2016 (Statistics SA, 2016).[2] Calculations from the country's Quarterly Labour Force Survey (QLFS) report show that the sector has not grown substantially over the last couple of years.[3] High and persistent rates of open unemployment also characterise South Africa's labour market, using both the strict and broad definitions.[4] High unemployment rates have implications for the degree and nature of labour mobility. We would expect low levels of voluntary exits from work and limited transitions to different types of work to characterise such a market since it would presumably not allow for easy mobility. Moreover, there would be presence of institutions that 'protect' jobs such as trade unions and strong social networks that penalise workers who try to gain at others expense, thus reducing instances of mobility. However, several studies on South Africa's labour market present a different picture.

Several studies indicate significant rates of mobility of workers across employment statuses and types of employment in South Africa (Verick, 2011; Essers, 2013; Leung *et al*., 2014; Cichello *et al*., 2014). In particular, some studies show instances of high mobility in and out of informal employment to characterise the South African labour market (Altman, 2008, Banerjee *et.a*l, 2008; Bargain and Kwenda, 2010; Valodia and Devey, 2010). Nonetheless, employment in South Africa's informal sector is still smaller compared to other developing countries. Regardless of the observed high mobility rates

[1] Shown in appendices

[2] This figure excludes employment hired by private households.

[3] For Q3, 2010, own calculations from the QLFS report show that non-agricultural informal sector's contribution to total employment (excluding private households) was 16.7% (Statistics SA, 2010).

[4] South Africa's informal sector (excluding private households) contributed about 20 percent to total non-agricultural employment for Q3, 2016 (Statistics SA, 2016: 6).

into informal employment, informal employment has not been able to account for the surplus labour in South Africa as expected by Dualist theories of labour market segmentation.

Considerable research has been done which has sought to explain the puzzle of South Africa's high unemployment and small informal employment. Other studies relate the small informal employment size to under-capturing as a result of the definitional issues surrounding the term (Devey et al., 2003; Muller, 2003; Essop and Yu, 2008). Several studies identify significant barriers disabling workers transitioning from unemployment into informal entrepreneurship. These include: lack of start-up capital, insufficient government support through training and infrastructure provision; and a history of exclusion of black people from many categories of business under Apartheid (Chandra et al., 2001; Cichello, 2005; Ranchhod, 2006; Altman, 2008; Davies and Thurlow, 2010; Philip, 2011). Although there is considerable research on the relationship between South Africa's informal employment and unemployment, the apparent paradox has not been explained. More generally, the question of mobility between states is underexplored. This raises an important question: Amidst barriers to entry, which types of workers have a higher probability of moving from unemployment into informal employment.

This paper seeks to answer this question by shifting the interest from the conditions of the informal labour market and consider the effects of worker-level barriers to informal employment. This is done by looking at the individual characteristics of workers who moved from unemployment to informal employment between 2008 and 2012, albeit with a particular interest on those who became self-employed in the informal sector. Informal self-employment for a developing country like South Africa is important for many reasons. Besides alleviating unemployment and improving the lives of impoverished households through entrepreneurship, it has long been argued that small enterprises are essential to economic growth (Schumpeter, 1934). Informal self-employment also plays a role in unlocking entrepreneurial potential (Guha-Khasnobis and Kanbur, 2006). In South Africa, the development and promotion of small businesses have been part of the country's national strategy since democracy (DTI, 1995)[5]. Small, medium and micro enterprises have also been projected to be the 'main employment creators' in the government's National Development Plan (NPC, 2012: 119).

Identifying the characteristics of workers who make the transition from, for example, unemployment to informal self-employment will provide important information on whether and how the barriers to entry into this state may prevent it from becoming an avenue for employment creation and income generation amidst high levels of open unemployment and poverty in the country. Identifying the characteristics of individuals who make these transitions will help to suggest whether poverty-oriented or inequality-oriented policy analyses of unemployment and wages have engaged sufficiently with the importance of informal employment growth. Examining the characteristics that increase the likelihood of informal self-employment may prove valuable for designing and implementing policies that target and enable those workers who fail to make this transition.

Informal employment transitions, as important as they are in the South African context, have not received sufficient attention. Existing studies have analysed transitions to different employment statuses and not to specific categories of employment (See Cichello *et al*., 2005; Banerjee *et al*., 2008; Verick, 2011; Essers, 2013; Leung *et al*., 2014; Cichello *et al*., 2014). Studies of the former are not unimportant, however, the latter give us more information on the labour market dynamics in South Africa. The current study therefore fills the current gap in South African literature. Studies that use longitudinal information on workers to understand more about the nature of South Africa's unemployment and informal employment have been recommended by other authors (See Kingdon and Knight, 2004; Valodia and Devey, 2010; Fourie and Leibbrandt, 2012).

[5] The White paper mentions among other things, the need for government to create an enabling legal framework, facilitate information and advice, boost procurement from small firms and improve access to finance and affordable physical infrastructure in its agenda to boost small businesses (DTI, 1995)

Informal sector enterprises consist of units that are unincorporated, produce goods and services for sale or barter, and satisfy a number of criteria such as non-registration, small, have unregistered employees and/or do not maintain a complete set of accounts (Hussmanns, 2004). Persons employed in these enterprises used to be the only workers classified under informal employment. However, recommendations of the 17th International Conference of Labour Statisticians (ICLS) endorsed a move from this enterprise-based approach of employment in the informal sector, to include jobs outside the informal sector which are 'informal' in their nature, that is, those without social protection. Informal employment therefore refers to employment without social protection through work both inside and outside the informal sector (Vanek *et al*., 2014). According to the ILO (2013), self-employment in the informal sector comprises of employers, own-account operators, and unpaid family workers in unregistered firms. Along this same enterprise-registration criteria, studies and surveys on informal sector/employment have defined and measured self-employment in the informal sector in terms of firms who are unregistered to pay for income tax or value added tax (Heintz and Posel 2008; Statistics SA, 2013). A more detailed description of definitions and measurements of the informal sector and informal employment will be given in later sections of the paper.

The paper is organised as follows: Section 2 will give the theoretical and empirical context for the research. In the section, the dualistic theories of labour market segmentation, the significant mobility rates in South Africa's labour market and the impediments to entry into informal employment will be discussed. Furthermore, the section will provide theory and empirical evidence on transitions into informal self-employment transitions. Section 3 describes the data, variable definitions, sample and the study's methodology. Section 4 provides the descriptive statistics while section 5 discusses results for the probit analysis. Section 6 concludes and gives recommendations.

2. Context

2.1 Dualist informal sector

Dualist theories have been used to explain issues such as economic development, unemployment and the informal sector (See Lewis, 1954; Harris and Todaro, 1970). Dualists argue that informal activities result from workers' exclusion from modern economic opportunities due to imbalances between the growth rates of the population and of modern industrial employment (Chen, 2012). Its emphasis is on the traditional and survivalist nature of informal activities. The dualist theory of labour market segmentation postulates the economy as consisting of two different segments, namely, the 'modern' and 'traditional' sectors of which different wages are paid to comparable workers (Fields, 2004). Regulatory interventions such as minimum wage legislations, the market power of workers, or other imperfections in the formal wage labour market, cause wage rigidity in the formal sector, keeping them above market-clearing levels and also protecting workers from being laid off (Bosanquet and Doeringer, 1973; Harrison and Sum, 1979). Labour demand in the modern/formal sector is insufficient to employ all who would like to work in that sector at the prevailing wage (Fields, 2006). For this reason, Dualists argue that there is limited mobility between the formal and informal sectors.

The Dualists view the informal sector as a 'residual sponge' which absorbs that part of the growing labour force that cannot be employed in the more productive and remunerative urban sector (Ruffer and Knight, 2007). According to the theory, with the rise of industrialization, surplus labour would eventually disappear as the formal sector employs cheaper labour from the informal labour markets (Sherifat, 2011). They also subscribe to the notion that informal units have few or no linkages to the formal economy but rather operate as a distinct and separate sector of the economy and that the informal workforce- assumed to be largely self-employed- comprises the less advantaged sector of a dualistic or segmented labour market (Chen, 2012).

The South African labour market fits into the Dualist narrative to some extent, yet some of the assumptions of the theory do not fully explain the structure of South African employment. In line with Dualism, employment in South Africa has been described to be characterised by 'insiders and outsiders', the former being formal sector employees and the latter being informal sector employees who fall outside the labour regulation systems such as trade unions, collective bargaining and protection against dismissals (Bhorat *et al*., 2001; UNDP, 2003; Kingdon and Knight, 2007; Heintz and Posel, 2008). However, in contrast to the Dualistic view on development and employment, the formal sector in South Africa has failed to absorb the growing labour force that resulted from the lifting of former Apartheid restrictions on movement (Kingdon and Knight, 2007). In addition, South Africa's informal sector has also failed to absorb a significant proportion of workers who are not able to get jobs in the formal sector as expected from a Dualistic view of the labour market. Therefore even though the Dualistic view is appropriate in interpreting how the informal sector in South Africa disguises open unemployment that results from lack of formal sector labour demand, it lacks in explaining why the sector has not been a haven for a majority of the unemployed workforce.

There are several reasons why the sector has not been able to absorb much of the unemployed labour. The lack of labour demand that exists in the formal sector may be a similar problem faced by workers who want to work in the informal sector. Different challenges may however be faced by those who want to be entrepreneurs. Studies find evidence of significant barriers to entry into informal entrepreneurship in South Africa. These barriers include: crime prevalence in potential business start-up areas, social redistributive claims within impoverished communities that reduce the incentive to start businesses, credit access difficulties, lack of government support in entrepreneurial training and infrastructure provision; and a reservation wage inflated by social transfers that discourages entrepreneurship. Moreover, restrictive by-laws on business location transferred from the Apartheid era, a history of exclusion of black people from many categories of business under Apartheid and the resultant underdevelopment of entrepreneurial skills have been mentioned as potential barriers to informal entrepreneurship. Other authors advance on suggesting impediments to entry into informal self-employment in South Africa such as linkages between the formal and informal sector that are regressive to the latter sector, and the structure of the economy that limits the scope for viable small enterprise in poor local economies and in rural areas as formal sector producers dominate the economy and consumption baskets across income (See Chandra *et al*., 2001; Kingdon and Knight, 2004; Cichello *et al*., 2005; Ranchhod 2006; Heintz and Posel, 2008;Valodia, 2010; Davies and Thurlow, 2010; Philip, 2011; Du Toit, 2013; Valodia, 2013).Therefore, in contrast to the Dualism theory, South Africa's informal sector is not a free-entry sector.

Also in contrast to the dualistic view that posits for limited mobility of workers between the formal and informal sectors, evidence of significant labour mobility between the two sectors has been established in South African studies.[6] There are a few possible explanations on why workers may have been seen to be shifting between sectors at rapid rates in South Africa's labour market. Firstly, it might be spurious mobility. Fryer, (2013) mentions that the shifting of definitions between surveys in South Africa leads to empirical uncertainty.[7] Therefore studies (mentioned in the introduction) that have used South Africa's QLFS in measuring mobility between the formal/informal sectors may have been subject to ambiguous employment cases for workers. In such instances, studies may overstate levels of mobility between the two sectors whilst in reality, the worker has not changed type of employment. However, this claim can only be true for studies that use the QLFS before 2008 and after 2008 (when the QLFS changed its survey questionnaire). Secondly, it might be genuine churning between the sectors as a result of the sporadic and survivalist nature of informal work. Employment in the informal sector has been viewed as a passageway to the formal sector and as a temporary state where workers 'queue' for

[6] See Bargain and Kwenda (2010) and Valodia and Devey (2010). Studies in other developing countries also show instances of significant rates of mobility between the formal/informal divide (for example, Bosch and Maloney, 2010)

[7] Yu (2010) mentions how Statistics SA changed its definitions and questionnaire regarding employment in the informal sector with the introduction of the QLFS in 2008 that replaced the LFS.

formal sector jobs which pay more and are protected. Therefore, when personal characteristics change (for example, attaining better education), labour demand increases by formal employers for these once disadvantaged workers and they can transition to the formal sector. On the other hand, when personal characteristics change for formally employed workers (for example, increase in age), they might resort to informal work as a source of income after retirement. However, worker characteristics are usually stable over a short period of time, a possible dilution to this argument. Thirdly, workers may have been seen to be supposedly churning between sectors because of measurement error. Individuals may reply differently in different periods (or proxy respondents may get it wrong) if the informality definition used is based on questions such as "social security coverage of workers" or if respondents do not really view this as work. So depending on the proving of the interviewer, one may or may not pick up informality or may classify the person differently.The theoretical shortcomings of the Dualistic perspective on South Africa's labour market have led a number of authors to believe that the Structuralist theory is a better explanation for South Africa's informal sector.

2.2 Structuralist informal sector

The Structuralist theory is concerned with the structure of formal-informal relationships as part of a unified economic system. Rather than the existence of two distinct economies where one is seen as a reflection of economic development, while the other as a symptom of economic failure, Structuralists emphasise the linkages which exist between the two economies. Structuralists recognise that linkages exist between the informal activities and the formal sector (Tokman, 1978; Castells and Portes, 1989). South African literature, which explores these linkages, confirming the Structuralist aspect of the economy, has emerged (Naidoo et al., 2004; Skinner, 2005; Valodia and Devey, 2010). There is evidence of product linkages in South Africa. For example, Skinner's study of informal enterprises in Durban provides some useful indicators of forward and backward linkages in the informal economy. Informal enterprises sourced raw materials from medium to large enterprises, a portion of these likely to be in the informal economy (for example, traditional medicines being supplied to informal enterprises by formal shops and foreigners). Some of these informal enterprises also sold some of their goods to formal and foreign businesses (Skinner, 2005). We can also mention about the taxi industry, which is mostly unregulated and has close linkages with the formal vehicle companies, petrol and insurance industries.

Labour churning between formal and informal sectors is also a form of a linkage that exists between the two sectors. This happens when 'informal' workers are employed in formal/registered enterprises or probably more unlikely cases where 'formal' workers are employed in informal/unregistered enterprises. Intra-household linkages also exist whereby there is a transfer of human and financial capital by the formally employed to self-employment activities since it is the households that have some form of regular income that are mostly involved in self-employment initiatives. This was found by Lebani and Valodia (2005) using the KwaZulu-Natal Income Dynamics Survey.

Structuralists also recognise the heterogeneity that exists in the informal sector itself, containing an 'upper-tier' and 'lower-tier' segment. South Africa's labour market is no exception to these divisions that exist within the informal sector. There is unemployment and a 'tiering' of jobs from most to least desirable. Many informal self-employment jobs are the least desirable and in any case, they are subject to extreme competition.

What is common about the Dualist/Structuralist debate above is that each theory focuses on a part of the informal economy and not the whole. For example, Dualists focus on those workers who are engaged in traditional and survival activities, while Structuralists focus on petty traders and producers as well as sub-contracted workers. There is a merit to each one of the theories due to the heterogeneity of the sector. The schools highlight different elements of the informal sector, yet they are not mutually

exclusive (WIEGO, 2015). Fryer (2014: 15) argues that there is no reason why the informal sector should not also contain a 'residual' traditional element and a 'functional' element.

2.3 Factors influencing transitions from unemployment into informal self-employment

Different perspectives exist on the influence of gender on self-employment entry. Several mechanisms at work enable males or females to have a higher propensity to enter self-employment from being unemployed. Considering the argument that mentions a greater likelihood for males, a well-established fact points out that women are more financially risk averse than men (Verheul and Thurik, 2001; Borghans et al., 2008; Croson and Gneezy, 2009; Dohmen et al., 2011). Thus, women are less prone to move to self-employment when it demands a significant amount of financial capital to be invested. A second rationale is related to social capital. Men's social networks are diversified and include more powerful and work-centred contacts (Koellinger et al., 2013). Family responsibilities and lower status jobs which are associated with females, reduce time to invest in networking and getting powerful work-related contacts respectively. Given the importance of social capital in self-employment, this represents an additional factor which reduces the propensity of women entering self-employment (Moog and Backes-Gellner, 2009). The lack of strong social networks also poses as a barrier to entry for women who would want to enter self-employment. Self-employment in many cases is an activity, which require large workload and flexibility of hours. This makes it more difficult for women to be self-employed, especially those with young children. This is also a factor which can make more men than women to enter self-employment (Joona and Wadensjö, 2008). Gender biases that exist in terms of access to credit necessary to start-up businesses may reduce the propensity for women to enter self-employment because women lack the collateral that formal institutions require (Heinz and Pickbourn, 2012: 189).

Alternative theories that suggest greater likelihood of self-employment entry for women mention the flexibility of working hours that characterises self-employment. According to Georgellis and Wall (2005) self-employment could be a substitute for a part-time job. As women on average take on a larger part of household work, their propensity to enter self-employment may be greater than men as they can combine household responsibilities with a job that has flexible working hours. Joona and Wadensjö (2008) mention that the alternatives as a wage earner may influence the propensity to become self-employed. A labour market that gives more wage-job opportunities to men increases the likelihood of self-employment for women. The opposite is also true. Even within informal employment, where the Structuralist theory is evident, men are more likely to be employed in 'better' upper-tier informal jobs, while women end up resorting to lower-tier worse off self-employment activities. Along empirical lines, Tanzel and Ozdemir (2014) find that Egyptian females were less likely than males to move from formal employment to self-employment, however, with regards to transition from unemployment to self-employment, gender differences were insignificant. In the Peru labour market, being a male increased chances of self-employment entry (Chong et al., 2008). Evidence from Turkey, however finds that the likelihood of self-employment entry was higher for women than men (Tansel and Kan, 2012).

Theoretical literature has underscored several arguments on the influence of age in the probability of entering self-employment: a positive influence of age and a negative relationship. Considering the first argument, older individuals are more likely to be self-employed compared to younger individuals because they would have on average, a larger amount of key resources that support their transition to self-employment, namely financial, social and human capital (Calvo and Wellisz, 1980; Praag and Ophem, 1995; Giandrea et al., 2008). Secondly, older people may have a stronger desire for more flexible employment situations as their limited health status may preclude the possibility of a full-time job (Karoly and Zissimopoulos, 2004). A third line of reasoning is that self-employment is a job alternative for individuals who want to avoid mandatory retirement, postponing the age at which they leave the labour market (Giandrea et al., 2008; Kerr and Armstrong-Stassen 2011; van Solinge, 2014). A significant part of older individuals may move to some form of employment between their main

career and the final labour force withdrawal. Cahill et al.,(2006) terms this "bridge employment." Older workers may also be having more mature children who can help with their business, making them have a comparative advantage in self-employment. All these reasons make older workers more likely to enter self-employment compared to younger workers.

On the other hand, arguments that identify a negative influence of age on self-employment entry mention high-risk aversion levels of older people and lower physical and mental availability to cope with the demands of self-employment activities, as reasons why older workers face a lesser probability of entering self-employment. Moreover, less time to recover from the initial investment made at entry into self-employment may reduce the incentive for older individuals to enter self-employment (Hintermaier and Steinberger, 2005). Moreover, according to the human capital theory, since the earnings of salaried workers increase with age and experience, older people may have less incentive to enter self-employment as salaried employment 'has more to offer'. There is a large literature that also documents particularly poor formal sector outcomes for young workers, thereby increasing their probability of self-employment entry as an alternative means of income before they get formal jobs (Nickell and Nunziata, 2000; Addison, 2001; Pagés and Montenegro, 2007).

Evidence from Brazil, Mexico and Argentina suggests that the probability of entering self-employment from unemployment is less for young workers (aged 16-24) compared to middle-aged workers (24-40). Evidence by Tansel and Ozdemir (2014) for the Egyptian labour market further supports the positive influence of age on self-employment entry as they find that age group 45 to 64 group is significantly more likely than age group 15 to 24 to move from unemployment to self-employment.

The influence of education on self-employment is also far from conclusive from both a theoretical and empirical point of view. Lack of access to better education can be a constraint to entering self-employment while better education can also enable workers in making the self-employment decision. In one strand of the theoretical sphere, better educated workers have a higher propensity to enter self-employment as they are on average more able to identify self-employment opportunities and might have greater managerial abilities which are critical in self-employment success (Lucas Jr., 1978; Calvo and Wellisz, 1980). A different strand argues that individuals with better educational levels have better job opportunities in the formal sector therefore are less probable to enter into self-employment compared to their lesser-educated counterparts (Van Der Sluis et al., 2008; Brown et al., 2011). This suggests that although education expands an individual's knowledge base and increases exposure to new opportunities, education also increases the opportunity cost of being self-employed (Tamvada, 2010). Returns to salaried employment also increase faster than returns to entrepreneurship as per capita income grows with the result that individuals have 'more to lose' by engaging in entrepreneurship (Lucas Jr., 1978). Moreover, the stigma associated with working informally may be higher for better educated workers, thereby reducing their propensity to move to this type of employment (Bernabè and Stampini, 2009).

The empirical results reflect the theoretical ambiguity. Perry et al., (2010) find that better-educated workers in Brazil, Mexico and Argentina had a lower probability of moving into informal self-employment from unemployment. Tansel and Kan (2012) find that being more educated reduced the probability of entering self-employment in the Turkish labour market. Tansel and Ozdemir (2014) find that better educated Egyptian workers were less likely than their more educated counterparts to move from unemployment into self-employment.

In terms of location, as rural areas are characterised by weaker wage employment opportunities than urban areas, we can hypothesise that the propensity to enter self-employment is greater in these areas than in urban ones since other employment options are scarce. Moreover, competition from larger and

more established businesses is less harsh in rural areas, therefore this may be a strong incentive to enter self-employment in rural areas, and increasing rural workers' self-employment participation rates.

On the other hand, usually cities are provided with better and more modern infrastructure; cities have better supply of physical, financial and human capital, and connected services, and cities have a more modern industrial structure in the sense that their shares of growing industry are higher (Eliasson and Westlund, 2013). In addition, urban areas offer more business opportunities as well as better access to credit facilities. All these factors, which are vital to successfully operate informal enterprises, may increase the propensity for urban dwellers to enter self-employment compared to workers situated in rural locations. From an empirical perspective, Tansel and Ozdemir (2014) find that Egyptian workers who resided in urban areas were less likely to transition into self-employment from unemployment.

People's ethnic and/or racial ancestry may expose them to a variety of cultural and psychological factors that affect their risk-taking and management skills. Moreover, ancestry may be correlated with the constraints they face as well (Hout and Rosen, 2000). Self-employment also has an important intergenerational component that can further be linked to race and and/or ancestry. Parents may pass on self-employment to their off-spring, but if members of some group have historically been excluded from self-employment, or chosen to exclude themselves, then the intergenerational chain from self-employed father or mother, to self-employed offspring never starts. Several mechanisms may also transmit the propensity to be self-employed across ethnic/racial lines. For example, self-employed parents may endow their children with human capital (managerial skills, knowledge, values, and attitudes) that is necessary to running a business and performing well as an entrepreneur (Lentz and Laband, 1990). Moreover, financial capital and social networks necessary for entrepreneurship can also be transferred through intergenerational lines. Financial capital from parents may act as a safety net in case of adverse business conditions and can minimize start-up capital constraints. Parents may also provide role models and adopt child rearing practises that increase children's disposition towards self-employment and facilitate entrance into it (Kerckhoff, 1976). All these factors may increase the likelihood of the specific ethnicity/race (which has been historically advantaged) and its offspring to become self-employed. Empirical literature on the effects of ancestry/race on transitions to self-employment in developing countries seems to be lacking and the current study may help to fill this gap.

Marital status influences labour market outcomes. In terms of self-employment, several arguments can be examined. The wealth of the potential entrepreneur increases if an individual is married to a partner who is also working. This fact not only directly increases the probability of transition to self-employment but also assures that if financial difficulties arise in the business, that wealth will allow the activity to last longer (Simoes et al., 2013: 7). Second, spouses are a critical source of emotional support which may become crucial given the strong demands of self-employment (Bosma et al., 2004). The spouse may also support in the business, being a worker that most probably pursues the best interest of the business (Borjas, 1986). Moreover, the spouse may work as an unpaid worker, thereby reducing the projected costs of running the enterprise and incentivising entry into it.

On the other hand, married people with children may be less willing to take the risks associated with entrepreneurship, reducing incidence of self-employment entry as business failure is associated with a larger negative externality. From an empirical perspective, we still cannot draw solid conclusions. Tanzel and Kan (2012) find no relationship between marital status and transitions to informal self-employment in the Turkish labour market. Tansel and Ozdemir (2014) also find no significant relationship between marital status and transitions to informal self-employment from all other labour states in the Egyptian labour market.

From the above discussion, theoretical literature on the determinants of transitions from unemployment into informal self-employment (except, ancestry and/or race) is mixed on whether one factor increases or decreases propensity of entering entrepreneurship. Moreover, to a certain degree,

these factors are correlated with each other. For example, we may assume that being married increases the probability of being self-employed. At the same time, while marriage can be a factor, we can hypothesise that most married individuals are generally older; therefore, age becomes another influence. The influence of marital status may also differ across gender lines.

While the above characteristics are important determinants of transitions from unemployment into informal self-employment, It is unarguably true that there are many other factors at play which influence movements into self-employment in the informal sector. In addition to unobservable traits (for example, managerial abilities and/or motivation) that impact a workers decision to be informally self-employed, workers often make labour market state decisions based on utility maximisation, where they decide which labour market state to enter or stay in based on perceived utility/income. Focusing only on the observable worker characteristics and ignoring the impact of the 'unobservables' as well as the process of utility maximisation, would potentially cause a bias in estimating and making sense of transition results.

3. Data and Methodology

3.1 Data and Categorisation of Labour Market States

There are several household surveys in South Africa including the Project for Statistics on Living Standards and Development (PSLSD), the October Household Survey (OHS), the General Household Survey (GHS), the Income and Expenditure Survey (IES), the Labour Force Survey (LFS), the Quarterly Labour Force Survey (QLFS) and the National Income Dynamics Study (NIDS). The last two surveys have, however been the most widely used in analysing labour market transitions because they are the only ones which follow the same group of people or individuals over time (Leung *et al*., 2009; Verick, 2010; Cichello *et al*., 2012 and Essers, 2013).

The QLFS is a household-based sample survey conducted by Statistics South Africa which collects data, every quarter, on the labour market activities of individuals who are at least 15 years old and reside in the country. The QLFS is the principal vehicle for disseminating labour market information on a quarterly basis (Statistics SA, 2008: v). Its sample size is roughly 30 000 dwellings, separated into 7 500 dwellings per rotation group (Statistics SA, 2008: xiv). However, the sampling unit is the dwelling rather than the household. Therefore, if one household moves out of a particular dwelling and another moves in, it is the new household that will be enumerated in the next quarter (Statistics SA, 2008: xiv). Using the QLFS as a longitudinal dataset for individuals is, therefore, problematic as dwelling identifiers are generally maintained across quarters but individual identifiers are not necessarily so.

The National Income Dynamics Study (NIDS) is South Africa's first nationally representative household panel survey. It tracks a sample of about 28,000 individuals in 7,300 households across the country over time (NIDS, 2015). Unlike the QLFS, a key feature of the survey is its ability to follow people as they move out of their original households. NIDS combines household-level, as well as individual-level interviews. The former are administered to the oldest woman in the household, while the latter are addressed at individual household members. The questionnaires contain several sections, among others, labour market participation, household income, demographics and education. There are separate questionnaires for adults (aged 15 or older) and children (directed to the mother or caregiver). A full description of the NIDS data and access to questionnaires used during the interviews is available.[8]

The NIDS data set contains richer information compared to other household surveys in South Africa, for example, labour market participation and demographic information of an individual. It is therefore, an essential instrument in explaining labour market transitions. Such movements can then be linked to

[8] http://www.nids.uct.ac.za/.

several other individual and household-level characteristics. The longitudinal character of NIDS makes the current labour analysis a natural complement to studies done on South Africa's labour market using matched cross-sections of the LFS or QLFS (Banerjee *et al*., 2008; Leung *et al*., 2009; Verick, 2010; Cichello *et al*., 2012). Wave 1, 2, 3 and 4 took place in 2008, 2010, 2012 and 2014/15 respectively. This study makes use of a merged dataset containing the most recent versions 5.3 and 1.3 for waves 1 and 3, respectively. Wave 3 for NIDS was the most preferred to use because of the data irregularities which were associated with the preceding wave which are comprehensively discussed by Cichello *et al*., (2012: 67-68).

For the specific aim and methodology of this study, the panel sample extracted covers the labour force defined by those between the ages 15 to 64 years who responded to employment status questions in both 2008 and 2012. That corresponds to 10 682 individuals. Further identification is then made for six labour market states for the workers, namely: unemployed, not economically active (NEA), formal wage employed, formal self-employed, informal wage employed, and informal self-employed. The last two states fall under the umbrella term "informal employment." By disaggregating the labour force into multiple subcategories, we are able to scrutinize the different patterns of labour mobility defined as worker transitions between distinct labour market states. Unemployment is based on the broad definition which includes individuals who are not working, but actively searching for a job, as well as discouraged workers (those who would have liked to work but are not actively seeking for a job).[9] The NEA category of workers entails people who are not employed and do not want to find employment for example students, homemakers and the retired. Formal wage employment entails workers who are entitled to legal and social benefits. Formal self-employment is made up of workers whose enterprises are registered for VAT and/or income tax.

There is growing consensus in both international and local literature on how informal employment should be defined and/or measured due to the increasing attention that this concept has received over the last couple of years. Informal enterprises have been distinguished in terms of their size (i.e. number of employees) and in some approaches, by their registration status. Informal jobs have been referred to as those which are not subject to labour legislation, income taxation, social protection or entitlements to certain employment benefits such as sick leave (ILO, 2013). Due to the existence of some jobs in the formal sector which are characterised by conditions that are typical of 'informal work,' employment-based definitions have been developed which combine the concept of informal enterprises and informal jobs together to measure informal employment (Hussmans, 2004) thereby making measurement of 'informality' more representative of informal workers in the economy. Under the new definitions recommended by the 17th ICLS, employees are those individuals holding informal jobs, regardless of sector in which the enterprise is operating in, or as paid domestic workers (ILO, 2013). Informal employment therefore comprises the total number of jobs, whether carried out in formal sector enterprises, informal sector enterprises, or households, during a given reference period (Hussmans, 2004: 26).

The table below shows the recommendations on how employment in the informal sector and informal employment should be measured.

[9] Statistics SA uses the strict unemployment definition in its QLFS publications as recommended by ILO (1982). However, a study by Posel *et al*., (2013) using NIDS wave 1 and wave 2 finds substantive evidence that the non-searching unemployed form a legitimate and integral part of the labour force and should be included in unemployment measures. An earlier study by Kingdon and Knight (2004) also asserts that the broad unemployment rate is the best measure in South Africa. In addition, since as we will see later on that there are some discouraged individuals who transitioned to employment, it will be conceptually sensible to add these into the unemployed group.

Table 1: Classification of informal employment and informal sector employment

	Informal Jobs	Formal Jobs
Informal Sector Enterprises	A	B
Other Units of Production	C	D

ILO (2013)
A + C = Persons in Informal Employment; A + B = Persons Employed in the Informal Sector; C = Informal Employment outside the Informal Sector; B = Formal Employment in the Informal Sector

In South African literature, several authors suggest different criteria to measure informal employment (for example, Devey *et al*., 2006; Heinz and Posel, 2008; Yu, 2012). Until 2007, Statistics SA adopted the enterprise approach to measure informal employment as only those working in the informal sector (Statistics SA, 2006). With the introduction of the QLFS in 2008, two methods have now been used to define informal employment. For the first method, the informal sector is made up of (1) employees defined as informal if income tax (PAYE/SITE) was not deducted from their salary/wage and the number of employees at the place of work is fewer than five. This method has been used internationally as proxy for wage employment in the informal sector (ILO, 2012). Next, (2) employers, own-account workers and those who were unpaid in household business are classified as informal self-employed if their businesses are not registered for either income tax or VAT (Yu, 2012: 10; Budlender, 2012: 2).

For the second method, informal employment includes employment in informal sector enterprises and those workers who display informal characteristics but working in the formal sector. People who are unpaid in household businesses are also classified as informal, while those employees in the formal sector who are not entitled to medical aid or pension funds or do not have a written contract with the employer, are re-coded as informal (Yu, 2010: 8). This follows the guidelines from the 17th ICLS. However, Budlender (2011) and Yu (2010) argue that Statistics SA has not been using this second method in its QLFS reports.[10] Heinz and Posel (2008: 32) also suggest that employees be defined as informal if they do not have a written employment contract and are not entitled to paid leave and pension contributions. Yu (2008: 13) shows a comprehensive table of the different indicators used to measure informal sector and informal employment in South African literature.

Table 2: Indicators used to define informal sector and informal employment in each approach, QLFS

	Stats SA method A	Stats SA method B	Revised Heinz & Posel	Revised Gasparini and Tornarolli	Revised Henley *et al.*	Mini Devey *et al.*
Self-employed						
Company/ CC registration						
VAT registration	✓	✓	✓			
Income tax registration	✓	✓	✓			
Educational attainment				✓		
Occupation					✓	
# of indicators used	2	2	2	1	1	N/A
Employees						
Pension fund		✓	✓			✓
Paid leave			✓			✓
UIF						✓
Medical aid		✓				✓
Written contract		✓	✓			✓
Job permanence						✓
Firm size	✓	✓		✓	✓	✓
Income tax generation	✓	✓				
# of indicators used	2	5	3	1	1	7

Source: Yu (2008: 13)

[10] Budlender (2011) mentions that Statistics South Africa is uncomfortable with its own definition of informal employment and will thus not be reporting on this variable until a new definition has been decided.

The table shows that there is more consensus on the indicators used to measure informal self-employment however, it lacks on the indicators used to measure employees. The rates of informality can therefore be bigger or smaller from study to study depending on the definitions used to measure the concept and depending on which concept is being measured- informal sector or informal employment. Table 3 below shows the approach this study uses to define and classify the six segments of the working-age population in South Africa mentioned above. The definitions for the various segments, including informal employment, are adopted to be as consistent as possible to the existing theoretical and empirical literature (for example, Heinz and Posel, 2008; Wills, 2010; Budlender 2011).

Table 3: Definitions for labour market status

i. Unemployed (Broad)	includes individuals who are not working, but actively searching for a job, as well as discouraged workers (those who would have liked to work but are not actively seeking for a job)
ii. Not Economically Active	entails people who are not employed and do not want to find employment
iii. Informal Employment	total number of informal jobs, whether carried out in formal sector enterprises, informal sector enterprises, or households, during a given reference period
Informal self-employed	Persons engaged in self-employment activities whose businesses are NOT registered for VAT and/or Income tax
Informal employees (including domestic workers and casual workers)	Employees holding informal jobs, that is, NOT entitled to social (UIF, pension, medical aid) and legal (written contract) benefits
iv. Formal self-employed	Persons engaged in self-employment activities whose businesses are registered for VAT and/or income tax
v. Formal wage employees	Employees entitled to social (UIF, pension, medical aid) and legal (written contract) benefits

As mentioned above, the QLFS has been the most widely used dataset in South African labour market analyses. The tables below show how the survey compares with the NIDS in capturing informal employment. The same definitions for informal employees and the informal self-employed as shown in table 3 above are used to measure informal employment across the two surveys. The NIDS wave 1 (2008) and Q2 2008 of the Statistics SA are used to compare informal employment. Q2 of the QLFS is used to compare with NIDS wave 1 because from an analysis of the dataset, most interviews of the latter were done in the second quarter of the year. The sample only includes individuals who are working-age (15-64). Table 4 shows total informal employment in frequencies and table 5 shows it in percentages. Workers are separated into informal employees, unpaid workers, domestic workers and self-employed workers. Such breakdowns were recommended by ILO and seen as useful for definitional, analysis and policy purposes (Hussmans, 2004: 5-6). The NIDS has a special category for casual workers which is not included in the QLFS. Most casual workers are in precarious employment situations, that is, they are not entitled to social and legal protection and do not engage in 'decent work.'[11] Estimates for the casual workers category for NIDS are also shown in the tables. For the QLFS, self-employed workers are separated as employers and own-account workers. Employers are those who fulfil the conditions of informal self-employment and work with the help of unpaid family members. Own-account workers are those who fulfil the conditions of informal self-employment and work on their own. NIDS does not

[11] The QLFS has less emphasis on marginal work, therefore may not be picking up as much informal work as the LFS (Budlender, 2011: 2).

contain a question which asks if the self-employed workers hire people or not, therefore such a disaggregation is not done for the NIDS estimates. Unpaid workers are contributing family workers, irrespective of whether they work in formal or informal sector enterprises. Unpaid work is separated into those inside the informal sector and those outside the sector for the QLFS estimates. The NIDS does not allow for such a disaggregation as it does not explicitly separate workers into the formal and informal sectors. A further disaggregation of informal employment but excluding agricultural activities is also done only for analysis purposes.[12]

Table 4: Frequency of informal employment by alternative data sources, QLFS 2008 (Q2) and NIDS 2008

	Informal self-employment		**Informal wage employment**	**Unpaid**		**Domestic Workers**	**Casual Workers**	**Total (Self-employed + wage employees + unpaid + domestic workers + casual workers)**
	Own-account	Employers		Inside the informal sector	Outside the informal sector			
	Total							
NIDS	1 334 351 (77 858)		1 170 209 (79 720)	285 404 (47 050)		728 321 (61 146)	1 371 213 (81 110)	4 889 498
Stats SA-QLFS	1 183 790 (29 895)	295 037 (14 844)	1 781 929 (39 112)	85 426 (7 626)	40 401 (5 457)	989 243 (26 468)		4 375 826
	Non-agricultural							
NIDS	1 218 520 (73 569)		1 141 654 (79 327)	212 109 (38 348)		712 090 (60 885)	1 282 877 (78 798)	4 567 250
Stats SA-QLFS	1 169 375 (29 774)	286 205 (14 674)	1 511 486 (36 256)	80 927 (7 493)	35 969 (5 261)	989 243 (26 468)		4 073 205

Source: Own calculations from Statistics South Africa's 2008 Quarterly Labour Force Survey (Q2) and the National Income Dynamic Study (NIDS- 2008).
Notes: All frequencies and proportions are weighted. Standard errors are in brackets.
Sample is restricted to adults aged 15-64 in 2008 and gave valid responses.
Total informal employment included all types of work: i.e. unpaid work, casual work, domestic work and agricultural work

[12] Questions 4.6, 4.8, 4.9 and 4.11 of the QLFS 2008 Q2 questionnaire are used to determine these job-based definitions of informal employees. Questions E12.5, E12.6, E12.7 and E13.1 of the NIDS 2008 questionnaire are used to determine the same. Question E28 and E37 of the NIDS questionnaire relate to self-employment and registration of workers.

Table 5: Percentage of informal employment by alternative data sources QLFS 2008 (Q2) and NIDS 2008

	Informal self-employment		**Informal wage employment**	**Unpaid**		**Domestic Workers**	**Casual Workers**	**Total (Self-employed + wage employees + unpaid + domestic workers + casual workers)**
	Own-account	Employers		Inside the informal sector	Outside the informal sector			
	Total							
NIDS	11.12 (0.62)		9.75 (0.63)	2.38 (0.39)		6.07 (0.50)	11.43 (0.65)	40.75
Stats SA-QLFS	8.12 (0.20)	2.02 (0.10)	12.22 (0.25)	0.59 (0.05)	0.28 (0.04)	6.78 (0.18)		30.01
	Non-agricultural							
NIDS	10.15 (0.59)		9.51 (0.63)	1.77 (0.32)		5.93 (0.49)	10.69 (0.63)	38.05
Stats SA-QLFS	8.02 (0.20)	1.96 (0.10)	10.36 (0.24)	0.55 (0.05)	0.25 (0.04)	6.78 (0.18)		27.92

Source: Own calculations from Statistics South Africa's 2008 Quarterly Labour Force Survey (Q2) and the National Income Dynamic Study (NIDS-2008).

Notes: All frequencies and proportions are weighted. Standard errors are in brackets.

Sample is restricted to adults aged 15-64 in 2008 and gave valid responses.

Total informal employment included all types of work: i.e. unpaid work, casual work, domestic work and agricultural work.

The tables above show that estimates for the QLFS and the NIDS do not vary substantially when measuring the different categories of informal employment. However, the special category of casual workers in the NIDS allows to capture more informal employment in South Africa, therefore the survey is more suitable in examining the trends in the country's informal labour market since studies done using the QLFS may have understated a large group of informal workers.

This study has a few data-related limitations that are important to highlight. Firstly, the findings are limited to the balanced sample which only includes individuals who responded on employment statuses in both 2008 and 2012. Other individuals who were interviewed in 2008 did not have successful interviews in 2012 for reasons such as refusal to be interviewed, unavailability, could not be relocated or tracked, had moved out of South Africa or were deceased. Baigrie and Eyal (2013) show that 'attritors' are more likely to be employed. The loss of these individuals leads to a smaller sample size, thereby the findings do not necessarily reflect labour dynamics for South Africa's working-age population. In addition to this, when quite narrow transition groups are focused on (such as Indians/ Asians or post-school, no matric educated workers) as will be shown later, the sample gets smaller while standard errors get bigger making statistical inferences less robust. Although the panel weight supplied by NIDS that is meant to correct for this attrition bias will be used for the forthcoming empirical analysis, estimates or this group of individuals may not be very accurate.

Secondly, the NIDS data does not provide information on employment in the informal sector as it does not entail questions for employees on the number of workers at the enterprise and the registration status of the enterprise. Registration status questions are only available for the self-employed workers.

In light of this data limitation, the study cannot distinguish between employees inside the informal sector and those outside the sector.

3.2 Methodology

To address the research questions, this study uses a two-pronged approach, combining the transitional matrix analysis and an econometric estimation of labour mobility from unemployment to the various labour market statuses, with emphasis on movements into informal employment.

Individual labour market movements between different labour market states using panel data such as NIDS, have become traceable through the construction of transition matrices which detail for each possible initial status in period one, what percentage of individuals finds itself again in the same status (or in other statuses) by period two. Alongside cross-sectional pictures of South Africa's labour market which will be given in the following chapter, the use of longitudinal panel data can help to assess if such developments in South Africa reflected (1) more people remaining in the same labour market state over time, (2) an increase in the number of people transitioning from one state to another, or, (3) a decrease in the transitions from one state to the other. The analysis of transitions in and out of labour market statuses thus offers significant advantages over a cross-sectional analysis, allowing us to observe the directions of flows and levels of status mobility behind any particular change in the proportions of workers in each state. Moreover, the methodology allows quantitatively assessing the role played by other demographic variables in terms of labour market flows over time.

For a transition matrix, each cell denotes the propensity of moving between an initial labour market state i to a final labour market state j. Each cell of the transition matrix is a simple probability where:

$$p_{ij} = n_{ij}/_{ni} \qquad (1)$$

Where $p_{ij}$is the proportion of individuals who moved from some initial state I into a final state j for i=1,…, K and j=1,…, K. The term $n_{ij}$is the number of people who were in state i and moved to state j between periods t and t+1; and $n_i$is the number of people who were in state i in period t. The transition matrix is denoted by:

$$Q = \begin{matrix} \cdots & \cdots & \cdots \end{matrix} \begin{bmatrix} p_{11} \cdots p_{1K} \\ p_{K1} \cdots p_{KK} \end{bmatrix}$$

For this analysis, this matrix can be used in many ways. First, we can examine the share of people who transition into employment, that is, from any out of employment state i (unemployed or not economically active) into employment, that is, the four employment states, namely formal wage employment, formal self-employment, informal wage employment and informal self-employment at j. Conversely, we can examine those who made the inverse transition. Second, we can also examine the share of people who transition between employment states, for example transitions from initial state i=informal wage employment into state j= formal wage employment. Since the study uses discrete panel data, rather than continuous time data, equation (1) can be interpreted as the transition probability with the assumption that transitions occur at random points in time, then a random draw of a transition in one point in time has the same probability (within a confidence interval) of a draw at any other point in time. Finally, the propensity to remain/move out of a certain labour market state can be calculated as the number who remain/leave the state as a share of the total number who move in or out of the state, for example the propensity to move out of an employment category will be:

$$r_{ij} = n_{ij}/(n_{ij} + n_{ji}) \qquad (2)$$

Econometric estimation

While the estimated transition matrices for South Africans between being unemployed in 2008 and the various employment statuses, including informal employment in 2012 indicate what percentages of the labour force moved into informal employment between the two years, the transitions are not explicitly linked to various labour market characteristics. To augment the transition matrix analysis, an econometric estimation of the determinants of transitions is done. This has the advantage of allowing for statistical inferences on the estimated transitions, their structure and determinants. There are several possible estimation methods to econometrically-evaluate the impact of specific individual labour market characteristics and attributes on employment status transitions, including the linear probability model (LPM), difference in differences, the binary logit/probit or the multinomial models. Following Chong et al., (2008), Leung et al., (2009) and Essers (2013), a simplified and suitable approach for the current study is the maximum likelihood binary probit model with the following specification form:

$$\Pr (Y = 1 \mid Xt\text{-}1) = \Phi (Xt\text{-}1\beta), \quad (3)$$

Where Pr denotes probability of an individual observed in 2012 being in some given employment status. Variable Y is the binary outcome of the transition under study; taking a value of 1, if for example, an unemployed individual in 2008, is in informal employment in 2012 or 0 if he/she is outside of informal employment. X are the various characteristics of individuals, which determine their probabilities of moving between the different employment statuses. These factors include gender, age, education, race, marital status, provincial location and whether a person lived in urban or rural areas in 2008. The function Φ is the standard normal cumulative density function for the probit distribution in our case. Qualitatively, the probit is similar to the logit model (Cameron and Trivedi, 2009: 452). β defines the marginal effects of individuals' labour market characteristics on their transition probabilities into the various employment statuses.

Of specific importance to the study, the above estimation allows us to econometrically estimate the probability of individuals who were unemployed or economically inactive in 2008 being in the various informal employment categories in 2012. The specification allows the unemployed individual to either remain unemployed or to be in other employment categories such as being in formal employment. The probit model is estimated for all the possible 2012 employment statuses of persons who were unemployed or economically inactive in 2008. Other studies of transitions use models of duration/survival analysis or hazard functions, for example Devicienti (2002)[13], Stevens (2011)[14]and Ismail (2015).[15]Given that this study is interested in estimating the effects of various labour market covariates on employment status in 2012 rather than the unemployment persistence or exit from unemployment, for example, the probit model is a simpler way of addressing the study's research question.

The probit models are estimated for the restricted ages of those falling between 15 to 64 years of age. First, separate transition probabilities are estimated for individuals who were unemployed in 2008 and are: in informal wage employment in 2012; or in informal self-employment in 2012; or in informal employment in 2012; or remain unemployed in 2012; or are now economically inactive in 2012. Informal employment probabilities are estimated both for aggregate informal employment and for the

[13] Devicienti (2002) estimates poverty transitions for Britain using the proportional hazard model of Prentice and Gloeckler, in which the hazard for transitions occurring in discrete intervals are derived from the underlying continuous time hazard.

[14]Stevens (2011) also used a hazard function in estimating poverty transitions for the United States.

[15]Ismail (2015) uses a survival analysis framework to analyse South African youth transitions in and out of unemployment.

disaggregated forms of informal employment, that is, probabilities of being in informal wage employment and informal self-employment. Second, separate transition probabilities are estimated for individuals who were economically inactive in 2008 being in the same employment categories as in the first estimated model specifications, to account for the possibility of the economically inactive individuals joining informal employment as well. This allows the dissection of the probabilities of transition from both being unemployed or being economically inactive in 2008 to the different forms of employment states in 2012.

The aim of the probit analysis is to estimate the relationship between individual characteristics and transitions into informal employment between 2008 and 2012. This is achieved by using individuals' 2008 employment status and characteristics as the baseline and their employment status in 2012 as the endline outcome. Given that the outcome variable is binary taking values of 1 or 0 observed cross-sectionally in 2012, the probit models are estimated without fixed effects, which could have been appropriate if Y was observed over a number of panels. The reported marginal effects of the various determinants of the probability of y determined at the averages of the covariates depict how the given explanatory variables influence the probability of leaving the initial state in 2008 for another employment destination state in 2012. All marginal effects on dummy variables are benchmarked to the base dummy variable categories. To obtain the effects of interactive variables such as the effects of females who are married on employment outcome status in 2012, the variable gender is interacted with marital status as suggested by Tansel and Kan (2012) and Tansel and Ozdemir (2014).

4. Descriptive analysis

4.1 Descriptive statistics

Following the definitions in table 3, the weighted frequencies and shares of each labour market category for 2008 and 2012 using the NIDS are given in table 6. The proportions for the labour market states are quite similar across the two years. As table 6 illustrates, the not economically active individuals make up the largest share of the total sample, reaching almost 40 percent for 2008. Unemployed individuals formed the second largest category of the sample at almost 20 percent. For the sample in employment, formal wage employment and informal wage employment stood at almost similar shares at about 14 percent of the total sample. The remaining sample is comprised of formal self-employment and informal self-employment at approximately 2 percent and 6 percent respectively.

Table 6: Distribution of Labour Market States in the Total Sample: 2008 and 2012

	2008	2012

	%	%
Unemployment	23.98 (0.61)	25.02 (0.64)
Not economically active	39.58 (0.68)	41.75 (0.75)
Formal wage employment	14.12 (0.58)	14.01 (0.63)
Formal self-employment	1.86 (0.25)	1.60 (0.23)
Informal wage employment	14.36 (0.53)	12.39 (0.51)
Informal self-employment	6.10 (0.35)	5.22 (0.34)
Total	100	100

Source: Own calculations from the National Income Dynamics Study (NIDS- 2008 and 2012).
Notes: All proportions are weighted.
Standard errors are in brackets.
Sample restricted to adults aged 15-64 in 2008.
Informal wage employment includes unpaid work, domestic work, casual work and agricultural work.

Table 7 breaks down the sample into males and females and recalculates the labour market distribution accordingly. As expected, the proportion of the not economically active rises to 44 percent for females and reduces to about 34 percent for males for the 2008 proportions, proving the magnitude of inactive women to be a fundamental driving force behind the labour market dynamics. As regards to informality, the figures also reveal an evident fact that more than three fifths of those women who are employed are in informal employment while men exhibit a more or less equal distribution across informal and formal employment. This is likely a reflection of the proportion of the female workforce which are domestic workers.

In order to provide a general picture of South Africa's labour market and of its informality, the sample is decomposed by a number of key individual factors that influence transitions from unemployment into informal self- employment. Appendix 2 shows the sample distribution by 2008 variables namely age, highest level of education attained, race, marital status and location.

As shown from the table, unemployment seems to reduce with age. A large group of the middle-aged are in formal employment. We see the young and the elderly to be more informal than formal. The middle-aged group has relatively the largest proportion of the sample in informal self-employment at about 10 percent. In terms of education, unemployment seems to exhibit a descending pattern as level of education increases, however it slightly increases for workers with higher education. Formal employment appears to be positively correlated with level of education, while individuals with lesser education levels tend to be more informal than formal. Informal self-employment is highest among those individuals in the sample with only a primary education at about 8 percent. Africans exhibit the highest rates of unemployment while White workers show the lowest levels of unemployment. A large group of White workers are in formal employment while most Africans show more informality than formality. Of the total sample of workers, African workers have a slightly larger proportion of workers in informal self-employment relative to Whites.

In terms of marital status, workers who are not married or not cohabiting show higher levels of unemployment as compared with those who are married or cohabiting. Married and cohabiting workers exhibit high rates of formal employment while those who are not married or cohabiting seem to be more informal than formal. Married and cohabiting workers show higher rates of informal self-employment as compared to those who are not. The location variable shows that workers residing in urban areas have a slightly higher rate of unemployment as compared to those residing in rural areas. Workers residing

in urban areas exhibit high rates of formal employment while those residing in rural areas show higher levels of informality. In terms of informal self-employment, it is more prevalent in workers residing in urban areas.

To sum up, informal employment appears to be mostly associated with individuals who are young or elderly, lesser educated, Africans, not married or not cohabiting and resident in rural/tribal areas. Particularly, its self-employment segment is made up of more middle-aged workers, those with a primary education, Africans, married or cohabiting workers and urban residents. The summary statistics set up the preliminary work for the analysis of transitions into informal employment in South Africa. The sample, as weighted by nationally representative survey weights, characterises roughly the 2008 composition of the South African labour market along all dimensions being considered. In order to further delve into its dynamics, the parts below provide a transition analysis.

Table 7: Distribution of the Labour Market States by Gender: 2008 and 2012

	2008 Male %	**2008** Female %	**2012** Male %	**2012** Female %
Unemployment	19.25 (0.89)	27.57 (0.82)	24.87 (1.01)	25.14 (0.83)
Not economically active	33.63 (0.99)	44.07 (0.91)	33.29 (1.12)	48.22 (0.98)
Formal wage employment	21.35 (1.05)	8.66 (0.60)	20.91 (1.14)	8.73 (0.65)
Formal self-employment	2.71 (0.48)	1.21 (0.25)	2.34 (0.44)	1.04 (0.23)
Informal wage employment	16.52 (0.88)	12.74 (0.66)	12.35 (0.79)	12.42 (0.67)
Informal self-employment	6.55 (0.59)	5.76 (0.42)	6.23 (0.58)	4.45 (0.42)
Total	100	100	100	100

Source: Own calculations from the National Income Dynamics Study (NIDS- 2008 and 2012).
Notes: All proportions are weighted.
Standard errors are in brackets.
Sample restricted to adults aged 15- 64 in 2008.
Informal wage employment includes unpaid work, domestic work, casual work and agricultural work.

4.2 Transition matrix analysis: Total sample

Table 9 shows the transition matrix for South Africa's labour market between 2008 and 2012. The matrices show the proportions of individuals who stayed in the same state, or, moved to the other five states, across the four years. The main diagonal shows the percentages of individuals who remained in a given state between 2008 and 2012.

Table 7: Transition matrix, 2008 and 2012: total sample

Total sample						
	U^{12}	NEA^{12}	FWE^{12}	FSE^{12}	IWE^{12}	ISE^{12}
U^{08}	**39.19** **(1.67)**	34.09 (1.61)	7.11 (1.01)	0.44 (0.31)	14.14 (1.22)	5.04 (0.79)
NEA^{08}	26.10 (1.03)	**59.91** **(1.17)**	2.21 (0.38)	0.26 (0.14)	8.61 (0.69)	2.92 (0.40)
FWE^{08}	7.98 (1.48)	12.66 (2.04)	**67.23** **(2.90)**	3.20 (1.18)	6.22 (1.46)	2.71 (1.03)
FSE^{08}	14.64 (6.61)	8.41 (3.13)	5.32 (2.65)	**47.65** **(8.89)**	13.20 (6.76)	10.78 (5.10)
IWE^{08}	19.63 (1.83)	34.35 (2.35)	10.09 (1.68)	1.18 (0.49)	**30.79** **(2.26)**	3.97 (0.77)
ISE^{08}	17.52 (2.40)	36.10 (3.31)	6.25 (1.98)	3.16 (1.15)	10.38 (2.48)	**26.59** **(3.11)**

Source: Own calculations from the National Income Dynamics Study (NIDS- 2008 and 2012). Notes: The data are weighted using panel survey weights (*w3_pweights*) that account for between-wave attrition. Standard errors are in brackets. Sample restricted to adults aged 15-64 who responded in both waves. Row totals add up to 100.

The first thing to notice from the matrix is that the low levels of p_{jj} for the labour market states, except formal wage employment and not economically active, imply that the majority of the subjects in each category move out of their initial labour market state. From 2008 to 2012, we observe that the formal wage employed are visibly the least mobile among all other labour market groups, with approximately 67 percent of those who are initially formal wage employed remaining in the state. This suggests that churning between formal wage employment and other categories might not be very high. People with formal jobs tend to keep them. Transitions out of this state into informal employment are small which is consistent with the dualist approach which sees labour informality as a survivalist strategy when formal employment opportunities are limited. The largest category of workers who transition out of formal wage employment move into non activity which is a mere reflection of retirement or maternity.

The not economically active workers who make up most of the sample exhibit low mobility, with about 60 percent remaining in this state between 2008 and 2012. Most movers ended up in unemployment. Most of those who moved from being inactive into employment, ended up in informal employment with a majority of them wage employed. A negligible 2 percent moved into formal employment. The formal self-employed make up only 2 percent of the sample labour market. The outflows are in decreasing order, into unemployment, informal wage employment, not economically active, formal wage employment and informal self-employment.

Informal wage employment shows high mobility with only 31 percent remaining in this state. Most of the workers who moved from this state ended up not economically active. Almost a fifth of those who were in this state in 2008 were now unemployed in 2012. The rest of the workers move into formal wage employment, informal self-employment and formal self-employment, in descending order. The relatively larger proportion of workers who move into formal wage employment from informal wage employment appears to correspond to the standard queueing view. The transition from informal to formal employee may also be an outcome of better compliance by firms due to greater resources dedicated to enforcement by the state or a stricter penalty structure. The informal self-employed show the highest mobility rate among all labour market groups. Only

about 27 percent of workers remain in this state across the four years. Similar to informal wage employment, most of the workers who move from this state, end up economically inactive while the rest transition into informal wage employment, formal wage employment and formal self-employment in descending order. Of important note is that for the two categories of informal employment, there is high risk of backward movement or churning into non-economic activity and unemployment which is a mere reflection of the survivalist nature of these jobs. Transitions within informal employment are small. Only about 4 percent of workers transition from wage employment to self-employment, while the reverse transition is approximately 10 percent.

The unemployed constitute almost a quarter of the total sample. Exhibiting relative mobility, the share of the sample which remains in this state is limited to about 40 percent. 34 percent of unemployed workers settle in non-economic activity. Since this study uses the broad definition of unemployment, this figure is quite high as it suggests that some of these workers have stopped 'wanting' to work. Approximately 8 percent of workers who transitioned out of unemployment, ended up in formal employment, with the majority in wage employment. The matrix shows that the most important transition for this study, which is that from unemployment to informal employment constitutes 20 percent of the sample which was unemployed in 2008. Only 5 percent of workers who were unemployed in 2008 became informal self-employed in 2012, which is a mere reflection of barriers to informal entrepreneurship in South Africa. Most of the workers who moved from unemployment to informal employment were absorbed into wage employment (which includes casual work). Noteworthy is that transitions from unemployment to informal employment exceed those from formal employment to informal employment.

The matrix shows huge movements into the NEA state across a number of categories. This may be a result of part of the sample becoming retirees between the two waves of the study. A different age limit might have curbed this 'retirement effect' in our transition analysis. Of specific importance to this study is a transition analysis of the workers by individual characteristics so as to examine which ones are influencing the movements, more specifically those from unemployment into informal employment. The parts below show the transition patterns by gender, age education, race, marital status and location.

4.2.1 Transition analysis: Gender

Table 8: Transition matrix, 2008 and 2012: by gender

Male						
	U^{12}	NEA^{12}	FWE^{12}	FSE^{12}	IWE^{12}	ISE^{12}
U^{08}	**43.27**	23.47	11.81	0.12	14.73	6.60
	(3.13)	(2.52)	(2.27)	(0.12)	(2.11)	(1.60)
NEA^{08}	29.57	**53.07**	3.71	0.48	10.09	3..07
	(1.81)	**(1.99)**	(0.85)	(0.37)	(1.22)	(0.64)
FWE^{08}	6.76	10.99	**67.82**	3.73	7.40	3.29
	(1.64)	(2.47)	**(3.69)**	(1.66)	(2.07)	(1.53)
FSE^{08}	17.15	8.72	5.58	**59.40**	2.54	6.61
	(10.82)	(4.78)	(3.77)	**(11.93)**	(2.01)	(4.36)
IWE^{08}	20.59	33.88	13.26	1.77	**23.96**	6.54
	(2.97)	(3.75)	(2.98)	(0.95)	**(3.24)**	(1.57)
ISE^{08}	22.84	23.47	10.24	2.88	14.71	**25.86**
	(4.49)	(4.90)	(3.95)	(1.31)	(4.82)	**(4.72)**
Female						
U^{08}	**37.38**	38.78	5.03	0.58	13.88	4.34
	(1.95)	(2.00)	(1.04)	(0.44)	(1.49)	(0.89)
NEA^{08}	24.22	**63.30**	1.40	0.14	7.80	2.83
	(1.24)	**(1.42)**	(0.36)	(0.07)	(0.84)	(0.52)
FWE^{08}	10.28	15.82	**66.11**	2.20	3.99	1.61
	(2.94)	(3.59)	**(4.67)**	(1.34)	(1.51)	(0.73)
FSE^{08}	11.71	8.04	5.03	**33.97**	25.62	15.63
	(6.31)	(3.86)	(3.71)	**(11.63)**	(12.78)	(9.46)
IWE^{08}	18.81	34.74	7.39	0.67	**36.58**	1.80
	(2.27)	(2.96)	(1.75)	(0.39)	**(3.05)**	(0.51)
ISE^{08}	13.42	45.81	3.18	3.39	7.05	**27.15**
	(2.40)	(4.31)	(1.61)	(1.76)	(2.18)	**(4.11)**

Source: Own calculations from the National Income Dynamics Study (NIDS- 2008 and 2012). Notes: The data are weighted using panel survey weights (*w3_pweights*) that account for between-wave attrition. Standard errors are in brackets. Sample restricted to adults aged 15-64 who responded in both waves. Row totals add up to 100.

Table 10 shows a transition analysis of 2008 – 2012 disaggregated by gender. The table shows that the transition proportions differ across gender lines. The proportion of workers who remain in unemployment increases to about 43 percent for males and reduces to about 37 percent for females in comparison to the total sample proportion. The proportion of workers remaining in non-economic activity reduces to 53 percent for males while it rises to 63 percent for females. The proportion of workers who remain in formal wage employment stays more or less the same across gender lines. Formal self-employment now becomes a relatively immobile state for males while it becomes more mobile for females. Informal employment remains very mobile, albeit exhibiting a higher mobility for males compared to females (50 percent versus 64 percent). This is consistent with the observation that women are more marginalised from formal employment (Welle and Heilman, 2005; Floro and Meurs, 2009; ILO, 2010) thus more likely than males to stay in informal employment. An analysis of transitions from informal wage employment to formal wage employment from a gender perspective shows that males are more likely than females to make this transition (13 percent versus 7 percent). An examination of transitions within the different types of informal employment (i.e from self-employment to wage employment and vice-versa) shows that males can easily make these transitions as compared to females. Transitions from unemployment to informal employment are small. A larger proportion of males make this transition as compared to females (21 percent versus 18 percent). About 7 percent of males move from unemployment to informal self-employment while about 4 percent of females make this transition.

4.2.2 Transition analysis: Age

Table 11 below shows transition patterns by age categories. The proportion of workers who remain in unemployment is highest among the young workers. This concurs with evidence from Statistics SA (2014) which finds that in the aftermath of the global recession, a large number of South African youth than adults were unemployed and looking for work for one year or longer (long-term unemployed). This can also be evidence of the ineffectiveness South Africa's controversial Youth Wage Subsidy (also known as the Employment Tax Incentive) that was implemented since 1 January 2014. In fact, a recent study by Ranchhod and Finn (2016) finds that the ETI did not have any statistically significant and positive effects on youth employment probabilities and has not resulted in an increase in the level of churning in the labour market for youth. The table also shows that a very large proportion of elderly workers remain not economically active as compared to other age groups. Formal wage employment is most immobile amongst the middle-aged workers with almost 74 percent of workers who were initially in this state remaining in it. Informal employment exhibits the highest mobility rates among younger workers. This group of workers also exhibits a significant flow from informal wage employment into formal wage employment between 2008 and 2012, thus young workers may be using informal employment as a means of temporary or 'bridging' employment while they wait for formal jobs. Most of these youth could be engaging in casual jobs than be permanently attached to informal employment. Transitions from unemployment to formal employment are highest among the younger age group as well. The transition from unemployment into informal employment is more prominent for the middle-aged workers as compared to other age groups. About 23 percent of middle-aged workers who were unemployed in 2008, make this transition compared to 18 percent youth and 19 percent elderly workers. The elderly workers, however, had relatively more workers making a transition from unemployment to informal self-employment than other age groups (however differences are not statistically significant).

Table 9: Transition matrix, 2008 and 2012: by age groups

	U^{12}	NEA^{12}	FWE^{12}	FSE^{12}	IWE^{12}	ISE^{12}
15-34						
U^{08}	**44.00**	28.30	8.96	0.68	13.58	4.49
	(2.11)	(1.87)	(1.33)	(0.48)	(1.57)	(0.98)
NEA^{08}	35.11	**49.75**	3.08	0.30	9.57	2.19
	(1.40)	**(1.47)**	(0.55)	(0.21)	(0.92)	(0.42)
FWE^{08}	8.92	10.89	**65.52**	4.99	6.34	3.34
	(2.71)	(2.54)	**(4.89)**	(2.65)	(2.30)	(2.23)
FSE^{08}	7.11	0.81	4.26	**59.51**	28.32	0.00
	(7.00)	(0.85)	(3.51)	**(17.39)**	(18.16)	(0.00)
IWE^{08}	24.33	26.24	16.46	2.35	**24.62**	6.00
	(2.98)	(3.38)	(3.18)	(1.11)	**(3.29)**	(1.55)
ISE^{08}	28.30	23.05	10.37	2.43	18.42	**17.43**
	(5.51)	(5.26)	(4.54)	(1.92)	(5.45)	**(4.42)**
35-44						
U^{08}	**32.68**	40.12	4.50	0.00	16.95	5.75
	(3.54)	(3.90)	(2.28)	(0.00)	(2.71)	(1.71)
NEA^{08}	20.75	**55.92**	0.38	0.60	14.26	8.09
	(3.22)	**(4.14)**	(0.27)	(0.42)	(2.82)	(2.87)
FWE^{08}	8.53	6.73	**73.78**	1.67	6.25	3.04
	(2.59)	(2.85)	**(4.59)**	(1.01)	(2.58)	(1.68)
FSE^{08}	20.88	0.50	23.70	**40.45**	4.66	9.81
	(13.86)	(0.52)	(14.33)	**(15.63)**	(3.47)	(7.02)
IWE^{08}	22.31	22.49	5.38	0.08	**45.70**	4.05
	(13.86)	(3.88)	(1.72)	(0.08)	**(4.74)**	(1.29)
ISE^{08}	11.40	26.76	6.88	4.23	8.20	**42.53**
	(2.98)	(5.32)	(3.41)	(2.49)	(4.29)	**(6.27)**
45-64						
U^{08}	**26.94**	51.47	2.57	0.00	12.57	6.45
	(4.07)	(4.27)	(1.47)	(0.00)	(2.52)	(2.09)
NEA^{08}	6.42	**85.21**	0.73	0.06	4.56	3.02
	(0.97)	**(1.49)**	(0.52)	(0.06)	(0.93)	(0.60)
FWE^{08}	6.14	21.70	**61.99**	2.62	6.02	1.52
	(2.21)	(4.96)	**(5.50)**	(1.78)	(2.76)	(0.76)
FSE^{08}	16.65	13.62	1.68	**43.90**	8.27	15.87
	(9.96)	(5.45)	(1.71)	**(12.51)**	(6.12)	(8.25)
IWE^{08}	10.12	57.84	5.34	0.52	**25.28**	0.91
	(2.16)	(4.21)	(2.67)	(0.31)	**(3.40)**	(0.45)
ISE^{08}	12.99	59.09	1.42	2.80	4.52	**19.20**
	(3.16)	(5.20)	(1.23)	(1.32)	(2.00)	**(4.21)**

Source: Own calculations from the National Income Dynamics Study (NIDS- 2008 and 2012).
Notes: The data are weighted using panel survey weights (*w3_pweights*) that account for between-wave attrition. Standard errors are in brackets.
Sample restricted to adults aged 15-64 who responded in both waves. Row totals add up to 100.

4.2.3 Transition analysis: Education

Table 10: Transition matrix, 2008 and 2012: by education cohorts

No education								**Post school, no matric**					
	U^{12}	NEA^{12}	FWE^{12}	FSE^{12}	IWE^{12}	ISE^{12}		U^{12}	NEA^{12}	FWE^{12}	FSE^{12}	IWE^{12}	ISE^{12}
U^{08}	**11.80**	46.45	0.00	0.00	30.44	11.31		**28.81**	10.27	24.40	0.00	29.48	7.06
	(3.26)	(6.74)	(0.00)	(0.00)	(6.68)	(6.60)		**(9.01)**	(5.23)	(10.92)	(0.00)	(9.88)	(5.01)
NEA^{08}	10.20	**80.36**	1.24	0.00	5.97	2.23		11.75	**88.25**	0.00	0.00	0.00	0.00
	(1.86)	**(2.75)**	(1.21)	(0.00)	(1.79)	(0.80)		(11.05)	**(11.05)**	(0.00)	(0.00)	(0.00)	(0.00)
FWE^{08}	0.00	31.01	**65.93**	0.00	3.05	0.00		10.79	15.33	**34.61**	17.30	21.98	0.00
	(0.00)	(19.00)	**(19.77)**	(0.00)	(3.31)	(0.00)		(7.86)	(8.52)	**(13.98)**	(14.92)	(11.88)	(0.00)
FSE^{08}	100.00	0.00	0.00	**0.00**	0.00	0.00		0.00	100.00	0.00	**0.00**	0.00	0.00
	(0.00)	(0.00)	(0.00)	**(0.00)**	(0.00)	(0.00)		(0.00)	(0.00)	(0.00)	**(0.00)**	(0.00)	(0.00)
IWE^{08}	13.54	48.33	48.33	0.00	**33.70**	0.77		21.04	23.78	33.01	0.00	**19.35**	2.82
	(3.59)	(6.66)	(6.66)	(0.00)	**(6.26)**	(0.61)		(13.43)	(14.60)	(16.45)	(0.00)	**(16.63)**	(2.23)
ISE^{08}	6.34	55.93	55.93	0.00	12.36	**25.36**		5.38	78.12	4.99	0.00	0.00	**11.52**
	(3.13)	(9.41)	(9.41)	(0.00)	(8.13)	**(8.39)**		(6.02)	(16.65)	(5.60)	(0.00)	(0.00)	**(12.24)**
Primary education								**Higher education**					
U^{08}	**38.24**	41.98	1.07	0.00	11.21	7.50		**48.48**	18.06	18.37	1.50	11.99	1.59
	(3.74)	(3.68)	(0.45)	(0.00)	(2.05)	(2.34)		**(8.71)**	(6.78)	(5.34)	(1.08)	(5.56)	(1.15)
NEA^{08}	18.92	**70.81**	0.34	0.09	6.92	2.92		12.53	**52.69**	13.93	0.60	14.00	6.24
	(1.72)	**(2.01)**	(0.33)	(0.07)	(1.20)	(0.65)		(4.73)	**(9.28)**	(6.67)	(0.60)	(7.69)	(3.26)
FWE^{08}	8.39	15.65	**58.60**	0.00	15.31	2.04		3.41	15.07	**74.35**	3.14	1.15	2.88
	(3.16)	(5.26)	**(7.95)**	(0.00)	(6.47)	(1.07)		(2.02)	(4.69)	**(5.41)**	(1.56)	(0.82)	(2.38)
FSE^{08}	47.36	18.29	0.00	**8.98**	0.76	24.61		0.00	5.93	9.26	**69.05**	6.46	9.30
	(22.37)	(15.50)	(0.00)	**(9.05)**	(0.82)	(18.40)		(0.00)	(4.07)	(4.94)	**(10.97)**	(6.26)	(7.89)
IWE^{08}	19.88	38.33	2.10	0.70	**34.53**	24.61		16.08	15.46	44.57	0.83	**15.87**	7.19
	(3.68)	(3.97)	(1.34)	(0.42)	**(4.07)**	(18.40)		(7.24)	(9.35)	(15.02)	(0.86)	**(12.27)**	(4.23)
ISE^{08}	22.14	38.99	3.13	1.30	7.91	**26.52**		17.93	34.07	20.36	12.10	0.00	**15.55**
	(5.86)	(6.21)	(2.19)	(0.95)	(5.22)	**(6.02)**		(8.33)	(13.74)	(10.47)	(7.85)	(0.00)	**(8.33)**
Secondary education													
U^{08}	**41.25**	33.45	7.55	0.52	13.05	4.18							
	(2.03)	(1.98)	(1.28)	(0.44)	(1.46)	(0.81)							
NEA^{08}	31.77	**52.88**	2.60	0.35	9.48	2.92							
	(1.41)	**(1.54)**	(0.48)	(0.21)	(0.90)	(0.56)							
FWE^{08}	10.61	9.87	**68.55**	2.89	5.90	2.17							
	(2.40)	(2.39)	**(3.90)**	(1.53)	(2.01)	(1.10)							
FSE^{08}	26.29	10.05	0.80	**25.80**	26.15	10.90							
	(14.43)	(5.05)	(0.82)	**(9.94)**	(14.24)	(6.59)							
IWE^{08}	21.48	30.45	11.61	1.82	**30.41**	4.23							
	(2.61)	(3.32)	(2.10)	(0.91)	**(3.13)**	(1.18)							
ISE^{08}	17.51	31.04	5.99	2.87	13.34	**29.25**							
	(3.03)	(4.35)	(2.73)	(1.35)	(3.57)	**(4.42)**							

Source: Own calculations from the National Income Dynamics Study (NIDS- 2008 and 2012).
Notes: The data are weighted using panel survey weights (*w3_pweights*) that account for between-wave attrition.
Standard errors are in brackets.
Sample restricted to adults aged 15-64 who responded in both waves. Row totals add up to 100.

Table 12 above shows a transition analysis of South African workers by education categories. The proportion of workers who remain in unemployment is highest among the workers with higher education. About 48 percent of workers in this education category remain in unemployment. The workers with post-

school and no matric exhibit the highest rates of immobility in the not economically active category, whilst workers with higher education show the least mobility in formal wage employment. The table shows that the group of workers who make the most transitions from unemployment to informal employment, including to self-employment, are those with no education. Approximately 42 percent of workers with no education make a transition from unemployment to informal employment with about 11 percent being self-employed. This transition is also hugely important for workers with a post school and no matric education. About 37 percent of this group of workers who were unemployed in 2008 were now in informal employment.

4.2.4 Transition analysis: Race

Table 13 below shows a transition analysis of South African workers by race. The Asian/Indian workers have most of the workers who remain in unemployment across the four years. Whites are most immobile in non-activity. About 88 percent of Asian / Indians who were in formal wage employment in 2008 remain in this state in 2012, making them the most immobile race in the labour state. In terms of transitions from unemployment to informal employment, about 20 percent of Coloureds make this transition, which is the highest proportion of workers who make this transition. Transitions into formal wage employment from informal wage employment were led by Whites with about 14 percent of them making the transition. As mentioned in the methodology section, when a transition analysis is done for small subsamples such as the racial groups, the standard errors become larger and caution is advised when making interpretations such as these.

Table 11: Transition matrix, 2008 and 2012: by race

African								**Asian / Indian**					
	U^{12}	NEA^{12}	FWE^{12}	FSE^{12}	IWE^{12}	ISE^{12}		U^{12}	NEA^{12}	FWE^{12}	FSE^{12}	IWE^{12}	ISE^{12}
U^{08}	**39.41 (1.72)**	33.37 (1.65)	7.70 (1.11)	0.15 (0.07)	14.14 (1.28)	5.23 (0.83)		**58.88 (16.46)**	22.18 (12.19)	0.00 (0.00)	0.00 (0.00)	18.26 (12.33)	0.69 (0.73)
NEA^{08}	28.39 (1.11)	**57.85 (1.20)**	1.95 (0.33)	0.22 (0.15)	8.54 (0.68)	3.06 (0.41)		8.15 (4.71)	**71.05 (10.59)**	8.96 (7.76)	0.12 (0.12)	8.72 (7.75)	3.01 (2.99)
FWE^{08}	9.14 (1.88)	14.69 (2.58)	**64.53 (3.50)**	2.14 (1.16)	6.25 (1.71)	3.26 (1.36)		0.00 (0.00)	0.00 (0.00)	**87.59 (8.80)**	4.50 (4.51)	7.92 (7.68)	0.00 (0.00)
FSE^{08}	29.14 (11.46)	7.43 (3.74)	10.60 (5.24)	**26.83 (8.86)**	17.15 (11.16)	8.85 (5.24)		0.00 (0.00)	48.03 (28.54)	0.00 (0.00)	**0.00 (0.00)**	51.97 (28.54)	0.00 (0.00)
IWE^{08}	21.36 (2.12)	29.82 (2.32)	10.27 (1.92)	0.87 (0.35)	**33.10 (2.49)**	4.58 (0.94)		0.00 (0.00)	57.70 (22.67)	0.00 (0.00)	0.83 (0.91)	**41.47 (22.69)**	0.00 (0.00)
ISE^{08}	18.53 (2.60)	34.03 (3.30)	6.35 (2.15)	2.62 (1.16)	10.95 (2.71)	**27.52 (3.23)**		8.70 (10.53)	87.42 (13.00)	0.00 (0.00)	3.88 (4.84)	0.00 (0.00)	**0.00 (0.00)**
Coloured								**White**					
U^{08}	**32.46 (6.21)**	38.86 (6.60)	3.66 (2.19)	4.83 (4.64)	16.01 (5.12)	4.18 (3.90)		**34.54 (14.14)**	55.17 (14.69)	0.00 (0.00)	0.00 (0.00)	6.85 (5.65)	3.44 (2.62)
NEA^{08}	20.72 (4.09)	**65.73 (4.54)**	3.01 (1.46)	0.80 (0.60)	9.31 (2.84)	0.44 (0.40)		4.81 (2.60)	**79.99 (6.30)**	2.63 (2.59)	0.39 (0.29)	8.89 (4.80)	3.29 (3.22)
FWE^{08}	14.71 (6.32)	13.23 (5.82)	**65.82 (8.37)**	0.00 (0.00)	6.16 (3.98)	0.08 (0.08)		1.23 (1.23)	7.75 (4.77)	**73.26 (7.66)**	9.08 (4.92)	5.69 (4.07)	2.99 (2.79)
FSE^{08}	0.00 (0.00)	65.80 (23.97)	0.00 (0.00)	**4.02 (4.33)**	0.00 (0.00)	30.18 (24.09)		0.00 (0.00)	4.53 (4.39)	0.00 (0.00)	**75.36 (12.04)**	7.77 (7.50)	12.34 (9.48)
IWE^{08}	16.47 (4.29)	48.23 (6.69)	9.78 (4.04)	0.48 (0.40)	**23.49 (5.38)**	1.56 (0.75)		7.41 (4.81)	66.71 (14.11)	14.06 (9.69)	10.00 (9.56)	**0.00 (0.00)**	1.81 (1.48)
ISE^{08}	18.08 (9.34)	46.75 (18.92)	7.35 (7.31)	0.00 (0.00)	6.20 (4.69)	**21.61 (13.66)**		6.69 (6.45)	46.95 (15.76)	6.14 (6.07)	10.80 (7.19)	6.87 (6.74)	**22.54 (15.53)**

Source: Own calculations from the National Income Dynamics Study (NIDS- 2008 and 2012).
Notes: The data are weighted using panel survey weights (*w3_pweights*) that account for between-wave attrition. Standard errors are in brackets.
Sample restricted to adults aged 15-64 who responded in both waves. Row totals add up to 100.

4.2.5 Transition analysis: Marital status

Table 14 below shows a transition analysis of the sample of workers by marital status. The workers who are not married or not cohabiting are more persistent in unemployment relative to the ones who are married or cohabiting, while the latter group is more persistent in non-economic activity and formal wage employment. Transitions from unemployment into informal employment are led by workers who are not married or not cohabiting. About 20 percent of this group of workers make the transition. Transitions from unemployment to

informal self-employment are however, slightly larger for the married and cohabiting workers compared to those who are not. Approximately 12 percent of workers who are not married or not cohabiting make a movement from informal wage employment to formal wage employment between 2008 and 2012.

Table 12: Transition matrix, 2008 and 2012: by marital status

	U^{12}	NEA^{12}	FWE^{12}	FSE^{12}	IWE^{12}	ISE^{12}
Married / Living together						
U^{08}	**34.45** **(2.84)**	42.13 (2.93)	5.51 (1.68)	0.23 (0.14)	11.77 (1.93)	5.92 (1.54)
NEA^{08}	15.24 (1.67)	**70.56** **(2.19)**	1.29 (0.68)	0.19 (0.10)	7.49 (1.22)	5.23 (1.14)
FWE^{08}	6.15 (1.78)	13.03 (2.85)	**68.24** **(3.80)**	4.07 (1.68)	5.35 (1.72)	3.15 (1.47)
FSE^{08}	14.97 (8.78)	5.60 (2.72)	6.04 (3.59)	**43.87** **(10.80)**	17.07 (9.36)	12.46 (6.94)
IWE^{08}	14.41 (2.53)	41.58 (3.98)	7.05 (1.88)	0.52 (0.47)	**33.80** **(3.82)**	2.64 (0.90)
ISE^{08}	15.49 (2.86)	38.05 (4.61)	6.48 (2.54)	4.24 (1.83)	9.60 (3.42)	**26.14** **(4.26)**
Not married / Not living together						
U^{08}	**42.03** **(2.06)**	29.46 (1.89)	8.05 (1.27)	0.57 (0.49)	15.37 (1.55)	4.53 (0.87)
NEA^{08}	29.97 (1.24)	**56.11** **(1.36)**	2.55 (0.46)	0.29 (0.18)	8.99 (0.83)	2.10 (0.37)
FWE^{08}	11.21 (2.68)	12.34 (2.73)	**64.79** **(4.58)**	1.83 (1.50)	7.80 (2.66)	2.03 (1.33)
FSE^{08}	13.89 (8.37)	14.71 (7.96)	3.72 (3.03)	**56.13** **(13.96)**	4.53 (3.60)	7.01 (5.25)
IWE^{08}	22.94 (2.52)	29.38 (2.79)	12.27 (2.50)	1.64 (0.76)	**28.85** **(2.75)**	4.92 (1.15)
ISE^{08}	19.64 (3.86)	34.06 (4.75)	6.01 (3.05)	2.04 (1.35)	11.20 (3.59)	**27.05** **(4.53)**

Source: Own calculations from the National Income Dynamics Study (NIDS- 2008 and 2012).
Notes: The data are weighted using panel survey weights (*w3_pweights*) that account for between-wave attrition. Standard errors are in brackets. Sample restricted to adults aged 15-64 who responded in both waves. Row totals add up to 100.

4.2.6 Transition analysis: Urban/Rural location

Table 15 which is below, shows that the persistence of unemployment and non-economic activity is more or less the same for workers who resided in urban or rural areas. However, about 71 percent of urban residents who were initially in formal wage employment remained there across the four-year period. In terms of transitions from unemployment to informal employment, about 19 percent of workers from both the urban resident and rural resident workers, make the transition. Workers residing in urban areas make a larger movement from unemployment to informal self-employment relative to those residing in rural areas. While only about 4 percent of workers residing in rural areas make a transition from informal wage employment to formal wage employment, about 14 percent of those resident urban areas make a similar transition.

Table 13: Transition matrix, 2008 and 2012: by location

	U^{12}	NEA^{12}	FWE^{12}	FSE^{12}	IWE^{12}	ISE^{12}
Urban						
U^{08}	**39.75** **(2.37)**	31.84 (2.29)	8.66 (1.55)	0.65 (0.51)	13.27 (1.71)	5.83 (1.20)
NEA^{08}	25.17 (1.71)	**59.56** **(1.98)**	3.16 (0.74)	0.50 (0.29)	8.80 (1.18)	2.81 (0.70)
FWE^{08}	7.37 (1.65)	9.61 (1.98)	**71.32** **(3.17)**	3.74 (1.43)	5.62 (1.63)	2.35 (1.19)
FSE^{08}	14.95 (8.09)	8.46 (3.75)	4.44 (2.94)	**48.68** **(10.84)**	15.17 (8.44)	8.29 (5.84)
IWE^{08}	17.77 (2.47)	32.95 (3.24)	13.86 (2.55)	1.72 (0.77)	**30.85** **(3.15)**	2.85 (0.85)
ISE^{08}	15.40 (3.18)	33.56 (4.65)	8.90 (3.05)	4.28 (1.75)	13.02 (3.75)	**24.84** **(4.25)**
Rural / Traditional						
U^{08}	**38.32** **(2.16)**	37.55 (2.08)	4.72 (0.92)	0.11 (0.08)	15.48 (1.62)	3.81 (0.75)
NEA^{08}	26.92 (1.21)	**60.22** **(1.33)**	1.37 (0.28)	0.04 (0.03)	8.43 (0.78)	3.01 (0.45)
FWE^{08}	10.81 (3.33)	26.69 (6.18)	**48.43** **(6.42)**	0.74 (0.74)	8.97 (3.31)	4.36 (1.88)
FSE^{08}	13.55 (8.90)	8.23 (5.07)	8.44 (5.85)	**44.02** **(12.42)**	6.20 (6.00)	19.56 (9.93)
IWE^{08}	22.67 (2.63)	36.65 (3.18)	3.89 (1.20)	0.29 (0.19)	**30.71** **(2.97)**	5.80 (1.46)
ISE^{08}	21.06 (3.49)	40.36 (4.22)	1.80 (1.15)	1.30 (0.93)	5.97 (1.87)	**29.51** **(4.24)**

Source: Own calculations from the National Income Dynamics Study (NIDS- 2008 and 2012).
Notes: The data are weighted using panel survey weights (*w3_pweights*) that account for between-wave attrition. Standard errors are in brackets. Sample restricted to adults aged 15-64 who responded in both waves. Row totals add up to 100.

To summarise, construction of transition matrices has helped us link labour market status of individuals in 2008 and 2012. Churning in South Africa's labour market seems quite significant with most workers changing their labour market state between 2008 and 2012 thus concurring with earlier studies. Transitions from unemployment to informal employment constitute almost a fifth of the sample of workers who were unemployed in 2008; a majority of them being wage employed. Only 5 percent of workers who were unemployed moved into informal self-employment. Transition matrices have also helped us to link worker movements between 2008 and 2012, with their individual characteristics in order to see which types of workers made more movements from unemployment to informal employment. The results showed that transitions from unemployment to informal employment were relatively larger for males, middle-aged and uneducated workers. There were also relatively larger for workers who are not married or not cohabiting. Transitions from unemployment to informal self-employment were also notable for males, workers with no education, married or cohabiting and urban residents. A descriptive examination to see which sectors and occupations absorbed those workers who transitioned to informal employment would have been interesting to assess whether most of them were in the 'upper tier' or 'lower tier.' However, because of the very few cases which make a transition from unemployment to informal employment, especially self-employment, as well as the many missing responses on sectors and occupations, such an analysis cannot be carried.

5. Econometric Analysis

Chapter 4 has given us the transitional probabilities of worker flows in South Africa's labour market between 2008 and 2012, including from unemployment into informal employment. In addition, the transition matrices helped us link these flows to a number of worker characteristics; however, they lacked in determining their magnitude. By using a probit regression approach, the current chapter complements the previous analysis and helps us to econometrically-estimate the impact of the various worker characteristics on the mobility patterns we have observed in the last chapter, with a pronounced interest on those from unemployment into

informal employment. Following Verick (2012) and Essers (2013)[16] the estimated probabilities of individual transitions from being unemployed or economically inactive 2008 to different labour market states in 2012, the weighted marginal effects[17]of the various individual characteristics on the transitions probabilities are estimated using the probit model. Henceforth, each parameter in the results tables below is interpreted as the survey-weighted percentage point difference in the probability of moving from unemployment (for table 17) or from unemployment or non-activity (in appendix); to another labour market state in 2012.
The worker characteristics considered in the probit regression model include gender, age, education, race, marital status and geography. For the purpose of the regression, the study adopts the following classifications:

• *Gender*, represented by female takes the value of 1 if the individual is a female and zero, if otherwise. Thus, in this case male is the base category.
• *Age* has been classified into three categories, which are the 15-34; 35-44 and 45-64 categories, with the 15-34 age category defined as the base category.
• *Education*: An individual's level of education has been categorically classified according to levels of education completed, into no education, primary education, secondary education, post school, no matric; and higher education, with the no education treated as the base category.
• *Race*: An individual's race has been categorically classified into African, Coloured, Asian/Indian and White, with the African race treated as the base category.
• *Marital status*: takes a value of one if the individual is married and/living together, while the widows/widowers, divorced/separated and those who were never married form the base category.
• *Geographical location* is defined as one if the individual resided in an urban area, and zero, if the individual resided in the rural area, aggregately defined as workers residing in traditional areas and farms.

For all variables included in X, each of the probability determinants are from the 2008 wave given that it is likely to be the initial situations of individual in 2008 which impact on whether that individual moves into another labour market state in 2012. Although the probit results for other transitions will be shown, special focus will be on movements from unemployment to informal employment. Movements to the informal employment state are examined first, then movements to the disaggregated components of informal employment; namely informal wage employment and informal self-employment separately. The marginal effects depict how the given explanatory variables influence the probability of leaving the initial state for a certain destination state.

Results of estimated transition probabilities from unemployment to unemployment, not economically active, formal wage employment, informal employment, informal wage employment and informal self-employment, respectively between 2008 and 2012 are shown in table 16, with columns 1, 2, 3, 4, 5 and 6 respectively showing each of these movements.15 For example, the first column of table 16 shows the probability of remaining unemployed between 2008 and 2012, while the second column shows the estimated probability of moving from unemployment in 2008 to being economically inactive in 2012. For the second probit estimates (shown in appendix 4), the table gives corresponding transition probabilities but for individuals who were either unemployed or economically inactive in 2008 to unemployment and inactivity, formal wage employment, informal employment, informal wage employment and informal self-employment respectively between 2008 and 2012.[18]

Overall, the probit regression results corroborate the transition matrix results to a remarkable extent, except for a few cases. In this framework, gender is clearly ascertained to play a role in explaining persistence in unemployment between 2008 and 2012. In particular, unemployed women are significantly more likely to

[16] The margins, dydx () post estimation command of STATA is used, combined with the svy prefix, to calculate average marginal effects

[17] A marginal effect (partial effect), most often measures the effect on the conditional mean of y of a change in one of the regressors, say Xk (Cameron and Trivedi, 2009: 333)

[18] Results for transitions from the unemployment and unemployment/not economically active category to formal self-employment are not shown because of the very small sample of individuals observed in the data who made the respective transitions.

remain in unemployment compared to unemployed men as shown in column 1 of table Appendix 3. This suggests that South African women have on average, poorer labour market outcomes as compared to men. Statistics SA (2013) reports that even educated South African women are not as well off as their male counterparts in entering employment. Regarding age, the results show that workers between ages 15 to 34 years are significantly more likely to remain in unemployment as compared to their older counterparts. In addition to this result concurring with evidence of youth long-term unemployment after the global recession (Statistics SA ,2014), this can also be evidence of the ineffectiveness South Africa's controversial Youth Wage Subsidy (also known as the Employment Tax Incentive) that was implemented since 1 January 2014. In fact, a recent study by Finn and Ranchhod (2016) finds that the ETI did not have any statistically significant and positive effects on youth employment probabilities and has not resulted in an increase in the level of churning in the labour market for youth. Banerjee et al., (2008) identify two reasons for persistent high unemployment rates among young people: low outflows because searching is not very successful; and high inflows, because, for example, high-school dropouts go directly into unemployment and are likely to remain there. Kingdon and Knight (2001: 6) suggest that the young are more likely to search rather than be 'locked-in' to an undesirable job. The young are also more able to afford unemployed job-search because they have fewer financial commitments than do older workers. Moreover, they may be more ignorant about what their skills can command in the labour market, that is, they may have higher reservation wages than older workers. The education variable seems to play an important role in remaining unemployed, with workers with at least some education significantly more likely to remain unemployed relative to those with no education. This is probably the effect of workers who have at least an education being more likely to remain searching for jobs or 'wanting' to work as compared to those without education, who have a lesser outlook on securing employment as they lack the human capital required by employers.

In terms of race, Whites are significantly less likely to remain unemployed compared to Africans. This in itself is evidence of poor labour market outcomes for the African population group. Leibbrandt et al., (2010: 43) suggest the inequality in terms of education attainment and quality across South African population groups that was left by Apartheid's legacy, as a reason for persistent unemployment rates for Africans. Banerjee (2008: 45) points out the racial prejudice that exists in South Africa that leads to white employers' unwillingness to give a chance to even qualified Africans. As for the female-marital status interaction, the results show that married or cohabiting females are significantly more likely to remain unemployed compared to those who are not. Workers residing in urban areas are significantly more likely to remain unemployed compared to those in rural areas. This is probably a result of unfruitful job search for workers in urban areas; and workers in rural areas rather staying NEA because of the impossibility of search in homelands and the prejudice that they know employers have towards workers from rural areas.

In terms of movements from being unemployed to being economically inactive, the estimated results suggest that unemployed females are significantly more likely to make this transition relative to unemployed males. This evidence may be pointed to women's traditional role as secondary breadwinners, maternity and other family responsibilities, which are likely to alter the urgency at which unemployed women seek employment (Kurtzleben, 2014). In terms of education attainment, workers with a secondary education are significantly more likely to move from unemployment to non-activity compared to workers with no education. This can be attributed to the former group of workers aspiring to continue with their education after failed job search. Workers with higher education are significantly less likely to move from unemployment to non-economic activity compared to those with no education. Asian / Indians and Whites are significantly less likely to transition from unemployment to non-economic activity as compared to Africans.

Column 3 shows that elderly workers are significantly less likely to transition from unemployment to formal wage employment relative to youth. From the demand-side, employers may probably be less likely to employ workers who are almost reaching retirement and are seemingly less productive than the youth. Workers with primary education are significantly less likely to move from unemployment to formal wage employment, while those with post school and no matric education are significantly more likely to make this transition compared to those without an education. This suggests that formal employers are much less willing to employ workers with no education as they tend to be less productive and are a "risky" and costly investment;

reflecting the importance of education in formal employment. Workers with no education tend to be a cost to a company, as they require more on-the-job training as compared to those with at least some formal education. Better levels of education are not only important from the employer's side, workers with better education are also more effective in job searching and networking. It is however, important to note from the table that the sample size for this particular transition is very small therefore; caution is advised for this interpretation.
In terms of race, Coloureds are significantly less likely to transition from unemployment to formal wage employment compared to their African counterparts. Post- Apartheid, there has been a massive resource shift to African schools which has led to a reduction in schooling inequality (van der Berg, 2002: 3), thereby increasing employability of Africans. Moreover, the removal of labour market discrimination may also be a contributing factor enabling African workers to transition from unemployment to formal employment. The rows for Asians/Indians and Whites are empty, subject to there being no workers for these groups in the restricted sample, transitioning from unemployment to formal wage employment between 2008 and 2012 as shown in the matrices in chapter 4. Of major interest to this study is column 4, which shows transitions from unemployment to informal employment. The results show that elderly workers are significantly less likely to transition from unemployment to informal employment as compared to the youth. This may be evidence of utility maximising behaviour of South African young workers who would rather earn a small wage and work in relatively bad conditions in informal employment, than remain unemployed and hope to earn a job in the formal sector. Workers with primary, secondary and higher education are significantly less likely to make a transition from unemployment to informal employment compared to those with no education. This suggests that transitions from unemployment into informal employment are more common for workers without an education since they are more marginalised from formal employment. From the employer's side, workers with no education can easily be exploited compared to those with at least an education thereby they can be taking advantage of this.

In terms of race, Whites are significantly less likely to make a transition from unemployment to informal employment compared to their African counterparts. This is probably a result of generally better formal employment opportunities for Whites in South Africa. In addition, Africans can also be getting informal jobs through intergenerational links, for example, where most of the family members are in unprotected jobs, it is easier for an unemployed member of the family to get an informal job. The results from the same column also show that married or cohabiting workers are significantly less likely to make a transition from unemployment into informal employment relative to those who are not. This can suggest that single/unmarried individuals can easily take risks associated with informal employment such as poor job security as the impact of a lay-off is lesser compared to married or cohabiting workers who may have a child in the picture. Married or cohabiting workers can also be benefiting from the 'spouse effect' where the income from a working spouse reduces the incentive to be informally employed. The final observation from this column is that married females are significantly more likely to transition from unemployment to informal employment. This can be attributed to the attractiveness of informal employment in terms of its offering of more flexible working hours to balance work and child-caring responsibilities for females. Gender and location are insignificant in influencing transitions from unemployment into informal employment.

Column 5 shows that elderly workers are significantly less likely to make a transition from unemployment to informal wage employment as compared to youth. Workers with a primary, secondary and higher education are significantly less likely to make this transition compared to those with no education. As a result of poor formal employment opportunities for workers with no education, they end up resorting to unprotected jobs as mentioned above. Moreover, workers with at least an education may be less willing to enter into informal employment as they may have higher reservation wages and job conditions compared to those without an education. Whites are significantly less likely to make this transition compared to Africans. Generally, South African Whites have better formal employment outcomes than Africans through better networks and education attainment.

Moving on to column 6, while this movement is the main interest of the research question, the results show that only a few variables have a significant power in explaining transitions from unemployment to informal self-employment, but limited by a very small sample size. Workers with a higher education are significantly

less likely to make this transition compared to those without an education. As from our theory, workers with higher education tend to have better formal employment outcomes than those without an education and better education may increase the opportunity cost of informal self-employment, as returns from salaried employment may be higher. Moreover, the stigma associated with informal self-employment for higher-educated workers is more compared to those without an education; therefore, the former would rather stay in unemployment waiting for a formal job offer. From a utility maximising perspective, rather than settling in unemployment, workers with no education who cannot get formal employment would rather start their own small businesses since their skills do not allow them to get 'better' jobs. Married females are significantly more likely to make a transition from unemployment to informal self-employment compared to those who are not. As from our theoretical framework, this is probably the result of financial support for start-up capital from a working partner and informal self-employment's better flexibility in working hours. As regards to the latter, assuming that married females have children, informal self-employment can allow the mother to better divide household duties and work compared to formal employment or informal wage employment.

The table under Appendix 4 shows that while some variables are insignificant in influencing transitions from unemployment to informal employment, when the unemployed are combined with those who were not economically active, the variables now have a significant explanatory power. Notably, married or cohabiting workers become significantly less likely to transition into informal wage employment compared to those who are not. Married or cohabiting females become significantly more likely to transition into informal wage employment. Married or cohabiting workers become significantly less likely to transition into informal self-employment. In overall terms, the results of this section show that a number of variables are significant determinants of labour mobility to informal employment. The uneducated, elderly African workers have a greater likelihood of making the transition into informal employment. This observation is therefore critical for policy making on informal employment in South Africa. Policy options obviously depend on the view that policymakers have towards informal employment. This will be discussed further in the following concluding chapter.

6. Conclusion

The most distinct characteristic of the South African labour market is its high open unemployment rate, yet small informal employment that has failed to absorb much of the surplus labour as expected by traditional labour market approaches. Earlier studies claim to have found significant movement of workers between labour market states to also characterise the labour market, yet the share of informal employment to total employment is still minimal. Among other factors, barriers to mobility into informal entrepreneurship have been established to be a key reason why informality is relatively lower in South Africa compared to other developing countries. Worker transitions have however not been a focal question in explaining the small share of informal employment in the country. This thesis sought to examine which workers are able to enter informal employment, in the presence of barriers to entry. To answer this question, data from the NIDS 2008 and 2012 was used to construct transition matrices, which link individuals' labour market states in 2008 and 2012. The transition matrices were done for the whole sample, and then separated in terms of 2008 demographic characteristics of workers, in order to examine which individual characteristics influenced the movements from unemployment to informal employment. To determine the magnitude, structure and determinants of these transitions, a simple binary probit model was used.

A general picture of the transitions showed that 'churning' across labour market states was quite high, confirming results by earlier studies. Formal wage employment was the most immobile state. This implies that formal wage workers turn out to be the most reluctant to leave their work, confirming the traditional theory which sees formal employment as the ultimate desirable labour market state. The not economically actives (who formed the largest category in the sample) showed negligible outflows, reflecting the rigid nature of the state and women preferring to stay out of employment. The matrices showed that mobility from unemployment into informal employment is small while mobility out of informal employment is high. The two categories of informal employment absorbed about 20 percent of the unemployed sample in 2012 with only 5 percent being informal entrepreneurs. This suggests that in contrast to the Dualistic narrative, informal

self-employment has not proved to be a likely alternative for some of the unemployed and barriers to informality are non-negligible. Moreover, the higher mobility of unemployed workers to informal wage employment is likely evidence of 'survivalism' or bridging employment. There is a high risk of backward movement from informal employment into being unemployed or inactive which is a mere reflection of the temporary nature of informal employment

In the second phase of addressing the research question, two probit analyses were done. The first was constructed that only included workers who made a movement from unemployment to all other labour market states but with a focus on those who moved to informal employment. The second probit included workers who transitioned from both unemployment and inactivity. Transitions to informal employment were first done in its combined form and then separated into self-employment and wage employment. The results from the first probit regression suggested that the youth, uneducated, African workers are significantly more likely to make a transition from unemployment to informal employment. Moreover, single workers and married or cohabiting females are significantly more likely to make this transition. After disaggregating informal employment into its different categories, the results showed that youth, the uneducated and Africans are significantly more likely to transition from unemployment to informal wage employment. On the other hand, the uneducated and single or not cohabiting females are significantly more likely to transition from unemployment to informal self-employment. Evidence from the second probit estimates showed that married or cohabiting workers and married or cohabiting females are significantly more likely to transition into informal wage employment. Married or cohabiting workers are significantly more likely to transition into informal self-employment.

This paper concludes by suggesting that informal employment, more precisely, self-employment in South Africa may not be an easy transition end-point for most unemployed workers. To date, policies to encourage informal sector entrepreneurship do not seem to have been successful. Better implementation of the current policies or better designation of new and relevant policies could enable more workers to transition from unemployment into informal entrepreneurship thus making this sector an avenue of income generation and employment creation. The paper reiterates and acknowledges that the various transitions estimated in the data resulted from a package of factors, some of which are unobservable (for example, availability of finances, managerial abilities, desire for independence and greater flexibility, utility maximising behaviour of individuals). In spite of this limitation, the results from this analysis are vital for both policy implementation and a viable foundation for further work on South Africa's informal sector.

This research could be taken further quantitatively by comparing the income changes that were experienced by workers who transitioned from unemployment into either informal employment or formal employment in order to shed some light on whether these movements were more likely to be voluntary or involuntary movements as done in other panel studies mentioned earlier in the context section of the thesis. A qualitative study, which asks workers why they entered informal employment, or why unemployed workers did not venture into own-businesses would shed more light to the informal employment picture in South Africa. A complementary study which includes other waves of NIDS (2010 and the recently released 2014 wave) would also provide a clearer picture on transitions into informal employment. In terms of the NIDS 2008 questionnaire, other variables (which are currently not available in the NIDS questionnaires) would have definitely added more flesh to the analysis on transitions to informal self-employment such as experience of workers as used in other similar studies such as Tansel and Kan (2012). The analysis has provided a very comprehensive and detailed diagnosis of informal employment in South Africa, which may help policy makers to produce various effective tools for addressing informality in the country.

South Africans typically hold two opposing views relating to informality: one is that it should be encouraged as an under-utilised source of employment, while the second one is that it should be discouraged as an inferior source of employment. The first view argues for policies that facilitate transitions from unemployment to informal employment, while the second one purports for those that facilitate transitions from informality to formality. Indeed, getting the unemployed into formal employment would be the ideal outcome; however this sector is clearly not able to absorb all work seekers, leading to a substantial and persistent broad unemployment rate. This thesis has found that transitions from unemployment to informal employment were

more associated with workers who are generally marginalised from formal employment opportunities such as the young and uneducated African workers. This suggests that informal employment has the potential to promote inclusive growth through providing an alternative to unemployment when there are no alternative employment opportunities available particularly for these groups of people. Informal employment has also been seen to serve as a stepping-stone to upward transition into formal employment. Policymakers should therefore view informal employment in positive light, as it provides opportunities for employment and to a lesser extent, entrepreneurship; given the inability of the formal economy to absorb labour. Policies that reduce barriers to entry into informal entrepreneurship and encourage survival of informal businesses should therefore be readdressed. These include policies that address the skills gap in entrepreneurship and practical business management. Addressing these issues may mean going to the grassroots and improving the quality of education in predominantly 'African' schools. Government assistance through provision of basic infrastructure for small businesses, water and electricity are also viable policy options. There are also indicators that informal employment in South Africa has many aspects that reflect the Structuralist and Dualist theories. Policies need to be nuanced accordingly.

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Appendices

Appendix 1: Employment in the informal economy and its components, selected countries, as percentage of non-agricultural employment

Country (Year)	Persons in informal employment		Persons employed in the informal sector		Persons in informal employment outside the informal sector	
	Thousands	% of non-agricultural employment	Thousands	% of non-agricultural employment	Thousands	% of non-agricultural employment
Moldova, Rep. (2009)	136	15.9	62	7.3	73	8.6
Namibia (2008)	121	43.9	n.a.	n.a.	n.a.	n.a.
Nicaragua (2009)	1,024	65.7	847	54.4	234	15.0
Pakistan (2009/2010)	21,913	78.4	20,416	73.0	2,319	8.3
Panama (2009 Aug.)	517	43.8	327	27.7	192	16.3
Paraguay (2009)	1,473	70.7	790	37.9	683	32.8
Peru (2009)	7,458	69.9	5,223	49.0	2,313	21.7
Philippines (2008)	15,150	70.1	15,680	72.5	2,490	11.5
Russian Fed. (2010)	n.a.	n.a.	7,785	12.1	n.a.	n.a.
Serbia (2010)	113	6.1	66	3.5	57	3.0
South Africa (2010)	4,089	32.7	2,225	17.8	1,864	14.9
Sri Lanka (2009)	3,184	62.1	2,588	50.5	597	11.6
Tanzania (2005/2006)	3,467	76.2	2,353	51.7	1,137	25.0
Thailand (2010)	9,642	42.3	n.a.	n.a.	n.a.	n.a.
Turkey (2009)	4,903	30.6	n.a.	n.a.	n.a.	n.a.
Uganda (2010)	2,720	69.4	2,344	59.8	537	13.7
Ukraine (2009)	n.a.	n.a.	1,525	9.4	n.a.	n.a.
Uruguay (2009)	572	39.8	487	33.9	141	9.8
Venezuela BR (2009 I Qtr.)	5,131	47.5	3,920	36.3	1,275	11.8
Viet Nam (2009)	17,172	68.2	10,948	43.5	6,303	25.0
West Bank & Gaza (2010)	375	58.5	140	23.2	235	35.8
Zambia (2008)	920	69.5	854	64.6	155	11.7
Zimbabwe (2004)	909	51.6	698	39.6	n.a.	n.a.

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Appendix 2: Distribution of working-age population across labour market states: By other demographic characteristics

	U	NEA	FWE	FSE	IWE	ISE
	%	%	%	%	%	%
Age						
15-34	28.10 (0.84)	44.58 (0.92)	9.52 (0.67)	0.88 (0.21)	12.93 (0.70)	3.99 (0.38)
35-44	24.65 (1.38)	17.55 (1.09)	25.27 (1.60)	2.60 (0.65)	19.67 (1.40)	10.27 (1.06)
45-64	13.12 (0.97)	45.36 (1.47)	16.37 (1.24)	3.69 (0.79)	13.55 (0.95)	7.91 (0.76)
Education						
No education	15.57 (1.70)	54.67 (2.31)	3.95 (1.19)	0.19 (0.19)	20.15 (1.93)	5.47 (0.87)
Primary education	20.85 (1.15)	45.06 (1.38)	7.05 (0.83)	0.40 (0.15)	18.78 (1.20)	7.86 (0.91)
Secondary education	27.12 (0.81)	41.39 (0.88)	11.54 (0.67)	1.23 (0.25)	13.24 (0.67)	5.47 (0.41)
Post school, no matric	34.28 (5.61)	8.25 (2.49)	30.30 (5.19)	0.64 (0.40)	21.81 (6.93)	4.72 (1.90)
Higher education	14.95 (1.89)	13.45 (2.04)	47.21 (2.88)	9.80 (1.87)	7.32 (1.48)	7.27 (1.42)
Race						
African	25.67 (0.65)	41.44 (0.72)	11.49 (0.56)	0.82 (0.14)	14.17 (0.57)	6.41 (0.38)
Coloured	23.33 (2.30)	33.36 (2.16)	18.83 (2.17)	1.08 (0.55)	20.08 (1.83)	3.31 (0.94)
Asian	13.17 (3.99)	36.71 (5.62)	19.85 (4.31)	10.84 (4.68)	14.58 (4.93)	4.84 (3.28)
White	12.42 (2.38)	29.17 (2.99)	31.81 (3.12)	9.39 (2.01)	11.20 (2.14)	6.02 (1.32)

	U	NEA	FWE	FSE	IWE	ISE
	%	%	%	%	%	%
Marital status						
Married / Living together	22.13 (1.00)	28.63 (1.09)	22.07 (1.12)	3.35 (0.55)	15.35 (0.95)	8.48 (0.69)
Not married / Not living together	25.18 (0.76)	46.44 (0.85)	9.10 (0.61)	0.92 (0.23)	13.73 (0.64)	4.62 (0.37)
Location						
Urban	24.27 (0.87)	31.82 (0.91)	19.28 (0.86)	2.54 (0.41)	15.29 (0.74)	6.59 (0.51)
Non-urban	23.23 (0.77)	51.39 (0.95)	6.26 (0.58)	0.81 (0.16)	12.96 (0.75)	5.35 (0.40)
Mean age (years)	31.3	30.7	40	43.2	36.4	39
Mean education (years)	11.1	10.8	13.8	16.2	11.3	11.3

Source: Own calculations from the National Income Dynamics Study (NIDS- 2008 and 2012).
Notes: All proportions are weighted.
Standard errors are in brackets.
Sample restricted to adults aged 15- 64 in 2008.
Informal wage employment includes unpaid work, domestic work, casual work and agricultural work

Appendix 3: Definition of dependent variables used in probit estimation

	0 (base) = Male **1= Female**
Age categories	0 (base) = 15-34 years 1= 35-44 years 2=45-64 years
Education categories	0 (base) = No education 1= Primary education 2= Secondary education 3= Post school, no matric 4= Higher education
Race	0 (base) = African 1= Coloured 2= Asian/ Indian 3= White
Marital status	0 (base) = Not married/Not living together 1= Married/Living together
Marital interaction	0 (base) = Not married/ Not cohabiting female 1= Married/ Cohabiting female
Location	0 (base) = Rural 1= Urban

Appendix 4: Probit estimates for labour market state transitions 2008 - 2012 from unemployment in 2008

Variables	Remaining in Unemployment	Unemployment to Not Economically Active	Unemployment to Formal Wage Employment	Unemployment to Informal Employment	Unemployment to Informal Wage Employment	Unemployment to Informal Self Employment
Female	0.161**	0.454***	-0.157	0.0852	0.154	-0.111
	(0.0686)	(0.0767)	(0.127)	(0.0869)	(0.0967)	(0.129)
35-44 years	-0.176**	0.0778	-0.267	0.0408	0.0823	-0.0726
	(0.0806)	(0.0848)	(0.195)	(0.0999)	(0.111)	(0.153)
45-64 years	-0.467***	-0.0437	-0.471**	-0.314***	-0.333***	-0.200
	(0.0908)	(0.0848)	(0.211)	(0.109)	(0.119)	(0.177)
Primary education	0.583***	0.139	-0.804***	-0.347**	-0.398***	-0.177
	(0.127)	(0.0982)	(0.185)	(0.154)	(0.153)	(0.286)
Secondary education	0.622***	0.186*	-0.186	-0.339**	-0.287*	-0.380
	(0.121)	(0.103)	(0.147)	(0.161)	(0.158)	(0.317)
Post school, no matric	0.631***	-0.262	0.499	0.231	0.296	-0.0315
	(0.216)	(0.240)	(0.306)	(0.240)	(0.247)	(0.423)
Higher education	0.363**	-0.471**	-	-0.674***	-0.536**	-0.922**
	(0.171)	(0.194)		(0.236)	(0.248)	(0.374)
Coloured	-0.197	-0.0928	-0.415*	0.0629	0.0180	0.134
	(0.139)	(0.117)	(0.247)	(0.164)	(0.137)	(0.411)
Asian/Indian	0.0209	-0.480*	-	-0.0607	0.0179	-0.560
	(0.269)	(0.266)		(0.306)	(0.316)	(0.344)
White	-0.543***	-0.341*	-	-0.808***	-1.075***	-0.375
	(0.207)	(0.191)		(0.217)	(0.319)	(0.260)
Married/Cohabiting	-0.113	0.0453	-0.0736	-0.270**	-0.239	-0.261
	(0.114)	(0.116)	(0.205)	(0.128)	(0.148)	(0.187)
Married/Cohabiting females	0.257**	0.192	0.169	0.370**	0.247	0.575**
	(0.130)	(0.130)	(0.269)	(0.155)	(0.177)	(0.228)
Urban	0.148**	-0.00211	0.202	0.0628	0.0163	0.171
	(0.0649)	(0.0713)	(0.138)	(0.0817)	(0.0903)	(0.132)
Constant	-2.303***	-2.092***	-1.909***	-1.866***	-1.855***	-3.532***
	(0.184)	(0.172)	(0.300)	(0.247)	(0.233)	(0.524)
Unweighted observations	704	686	99	331	253	78

Appendix 5::Probit estimates for labour market state transitions from unemployment and inactivity in 2008

Variables	Remaining in Unemployment and Economically Inactive	Unemployment and Economically Inactive to Formal Wage Employment	Unemployment and Economically Inactive to Informal Employment	Unemployment and Economically Inactive to Informal Wage Employment	t
Female	0.403***	-0.169*	0.0188	0.0619	
	(0.0467)	(0.101)	(0.0664)	(0.0724)	
35-44 years	-0.546***	-0.435**	-0.0250	-0.0348	
	(0.0573)	(0.182)	(0.0777)	(0.0822)	
45-64 years	-0.0782	-0.456***	-0.258***	-0.332***	
	(0.0545)	(0.148)	(0.0818)	(0.0937)	
Primary education	0.0457	-0.365	-0.207*	-0.260**	
	(0.0709)	(0.380)	(0.118)	(0.126)	
Secondary education	-0.135*	0.189	-0.216*	-0.220*	
	(0.0725)	(0.338)	(0.122)	(0.127)	
Post school without matric	-0.774***	0.745*	-0.00842	0.0111	
	(0.160)	(0.430)	(0.222)	(0.237)	
Higher education	-1.141***	0.396	-0.603***	-0.572***	
	(0.116)	(0.347)	(0.178)	(0.196)	
Coloured	-0.227***	-0.134	-0.00595	0.0140	
	(0.0849)	(0.174)	(0.140)	(0.139)	
Asian/Indian	0.0538	0.199	0.0219	0.0446	
	(0.181)	(0.437)	(0.262)	(0.288)	
White	0.00165	-0.636*	-0.180	-0.164	
	(0.115)	(0.358)	(0.215)	(0.246)	
Married/Cohabit.	-0.597***	-0.133	-0.406***	-0.421***	
	(0.0702)	(0.180)	(0.102)	(0.122)	
Married/C females	0.523***	0.0671	0.472***	0.368**	
	(0.0843)	(0.236)	(0.122)	(0.144)	
Urban	-0.132***	0.203*	-0.0229	-0.0414	
	(0.0448)	(0.110)	(0.0657)	(0.0736)	
Constant	-0.0917	-2.162***	-1.438***	-1.416***	
	(0.116)	(0.352)	(0.191)	(0.196)	
Unweighted observations	1,390	174	727	549	