

REVISITING INFORMAL EMPLOYMENT AND SEGMENTATION IN THE SOUTH AFRICAN LABOUR MARKET

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Abstract

This study revisits the definition of informal employment, and it investigates the puzzle of high open unemployment co-existing with relatively limited informal employment in South Africa. We estimate earnings equations using data from the September 2004 Labour Force Survey and present evidence of persistent earnings differentials not only between formal and informal employment, but also between types of informal employment. These persistent earnings differentials are suggestive of complex segmentation in the South African labour market and challenge the presentation of informal employment as an undifferentiated residual with no barriers to entry or mobility.

JEL Classification: J21, J31, O17, O55

Key words: informal employment; segmentation; South African labour market

I. Introduction

South Africa's labour market is distinctive, characterised by extremely high rates of open unemployment and relatively limited informal employment. Other countries in sub-Saharan Africa and economies with similar levels of per capita income in Latin America and Asia exhibit markedly different employment patterns. Specifically, higher rates of informal employment typically attenuate measured rates of open unemployment. In these countries, underemployment replaces unemployment as the critical labour market challenge. This raises an important question: why is informal employment so low and open unemployment so high in South Africa?

This paper grapples with this question by revisiting patterns of labour market segmentation in South Africa. We include a broader array of types of employment than typically is examined when considering questions of segmentation. In particular, informal employment is not conceptualised as a homogenous category. Rather, we explore the possibility that informal labour markets are themselves segmented. Often, informal employment is treated as an undifferentiated residual with no barriers to entry – anyone willing to work at the prevailing rate of return is free to do so. However, one possible explanation for the low levels of informal activity in South Africa is that barriers to entry are non-negligible. Using data from the 2004 Labour Force Survey, we look for evidence of segmentation across various categories of employment – between formal and informal employment, and within types of informal employment – in order to shed light on the employment puzzle in South Africa.

We also consider an alternative definition of informal employment that is consistent with recent recommendations of the 17th International Conference of Labour Statisticians (ICLS). The 17th ICLS recommended that informal employment should include: (1) employment in informal enterprises and (2) employment in informal jobs. This expanded definition of informal employment allows for a richer and more comprehensive analysis of patterns of segmentation in the South African context. It also reveals some surprising trends in the levels and rates of change of informal employment.

The paper is organised as follows. In the next section, we discuss the theoretical and empirical context for the research, in terms of dualist approaches to segmented labour markets and high rates of open unemployment in South Africa. We then consider alternative ways of identifying informal employment and we propose a more consistent measure than that traditionally adopted in South Africa, based both on enterprise and employment characteristics. We compare the different estimates of informal employment in South Africa, profiling working conditions and tracking recent changes in employment over time. Following this, we estimate earnings functions for workers across all employment types in order to discover if there is evidence suggestive of segmented labour markets. Perfect labour mobility and the absence of barriers to entry for different types of employment should lead to equalisation of earnings after controlling for other factors, such as returns to human capital. Persistent earnings differentials across different categories of employment are therefore consistent with a hypothesis of labour market

segmentation. We conclude the paper with a summary of the results, a brief reflection on policy implications, and suggestions for further research.

II. Context

Labour markets in low- and middle-income countries are frequently described as dualistic. In most formulations, dual labour markets are composed of two distinct sectors – a formal sector and an informal sector. Dualist theories argue that labour markets in the formal sector are characterised by wage rigidity in which wages remain above the market clearing level – due to explicit regulatory interventions (e.g. minimum wage legislation), the market power of workers, or other imperfections in the formal wage labour market.¹ Wage inflexibility creates a situation in which formal employment opportunities are rationed. Economically active individuals who are denied access to formal employment work informally, in activities for which regulatory or distributive distortions are absent. In effect, labour markets clear in the informal or traditional sector in the sense that anyone who chooses can participate in these types of low-productivity or subsistence activities.

Dualist theories have been invoked to characterise the structure of South African employment. For example, Kingdon and Knight (2007:5) suggest that one way of describing the South African labour market is in terms of formal “insiders” and informal/unemployed “outsiders” (see also UNDP 2003:160):

“... formal sector employees can be regarded as ‘insiders’, and residual workers, comprising those in the informal sector (which serves as a residual labour ‘sponge’) and the unemployed, as ‘outsiders’. South African insiders fall within the scope of the industrial relations regulations, including recognition of trade unions and collective bargaining, the right to strike, protection against dismissal, and minimum standards concerning hours of normal and overtime work, minimum wages and minimum leave provisions... The informal sector workers fall outside the labour regulation system”.

A recent variation on the dualism theme has extended the concept to the entire economy. According to this line of analysis, two distinct economies co-exist in South Africa: a “first economy” – advanced, industrialised, and formal – and a residual “second economy” – backward, traditional, and informal (ANC 2005; Mbeki 2003, 2004). In this context, one goal of economic policy would be to bring the second economy into the first.

However, typical dualist formulations present us with a puzzle in the South African labour market. If the unregulated informal sector acts as a residual sponge, why is it not “mopping up” more of the unemployed? Table 1 summarises the very high rates of open unemployment in South Africa, even when a ‘strict’ definition of unemployment is used. There has been a modest fall in the number of searching unemployed from 2001,

¹ For example, Stiglitz (1974) develops a model in which replacing workers is costly, thereby creating an incentive to keep wages above the market clearing level in order to reduce turnover.

but this has been more than offset by an increase in the number of unemployed who are not actively looking for work. Given low labour absorption, it is possible that the decline in the number of searching unemployed is explained not only by a modest increase in employment, but also by the movement of the searching unemployed to non-searching unemployed, particularly if searching is not a costless activity.

Table 1. Unemployment in South Africa (weighted, 1000s), 2001 – 2004

	2001	2002	2003	2004
Unemployment (searching)	4,815 (53)	5,076 (57)	4,522 (56)	4,228 (127)
Unemployment (searching + non-searching)	7,958 (66)	8,401 (71)	8,399 (72)	8,334 (186)
Unemployment rate (searching)	29.76 (0.29)	30.67 (0.30)	28.09 (0.31)	26.40 (0.58)
Unemployment rate (searching + non-searching)	41.18 (0.29)	42.26 (0.30)	42.05 (0.30)	41.42 (0.58)

Source: Labour Force Surveys (LFS) 2001:2, 2002:2, 2003:2, 2004:2

Notes: 1. Standard errors in parentheses. 2. Data are for individuals older than 15 years. 3. Data are weighted (using the new weights released by Statistics South Africa in 2006).

One explanation for high open unemployment in South Africa could come from the labour supply side – the unemployed have reservation wages that exceed earnings in informal employment. Data on reservation wages are not sufficient to provide a conclusive evaluation of this possibility. Nevertheless, the empirical evidence that exists suggests it unlikely that “unrealistic expectations” adequately account for the levels and persistence of unemployment in the country.

Nattrass and Walker (2005), using regionally specific data, find that reported reservation wages of the unemployed were 15 percent lower on average than their predicted earnings. At the national level, questions about reservation wages were included only in two of the earliest household surveys.² Kingdon and Knight (2001) warn that caution must be exercised in interpreting the data collected. Although they find that more than half of the unemployed reported reservation wages in excess of their predicted wages, they do not view the stated reservation wage as “a reliable criterion for judging willingness to work” (Kingdon and Knight 2001:15). Rather, they suggest that other explanations “based on the reporting of expected rather than reservation wages and on lack of information” (2001:19) account for their results.

Although recent labour force surveys in South Africa have not asked about reservation wages directly, they have included questions asking why the unemployed are

² These are the 1993 Project for Statistics on Living Standards and Development and the 1994 October Household Survey.

not working. Possible reasons provided include lacking “skills or qualifications for available jobs”; not being able to “find *any* work”; and not being able to “find *suitable* work (salary, location of work or conditions not satisfactory)” (emphasis in original).³ The overwhelming majority – about eighty percent in the September 2004 Labour Force Survey (LFS 2004:2) – report that they were not able to find *any* work. Only about three percent identify that they could not find “suitable” work.

In this paper, we explore another explanation for why informal employment in South Africa is not more prevalent. Instead of conceptualising informal employment as a residual form of employment with negligible barriers to entry, we look for evidence of limitations to labour mobility within the general category of informal employment. This approach broadens the extent of labour market segmentation captured in dualist representations. Barriers to mobility may exist not only between formal and informal labour markets, but also into, and within, informal activities themselves.

III. Defining informal employment

Informal employment has often been identified using an enterprise-based definition – informal employment is considered to consist solely of employment in informal enterprises. Several criteria are used to classify enterprises as formal or informal: does the enterprise maintain official accounts, is the enterprise registered with a government agency, or does the enterprise employ a small number of workers (typically less than five or less than ten)? However, the enterprise-based definition often fails to capture adequately the number of individuals working in informal jobs – that is, in forms of employment that lack legal or social protections. This occurs when individuals are employed outside of enterprises (e.g. domestic workers) or when individuals are employed in unprotected jobs in formal enterprises. A more comprehensive measure of informal employment, recommended at the 17th International Conference of Labour Statisticians (ICLS), includes both (1) employment in informal enterprises and (2) wage employment in informal jobs outside of informal enterprises (Hussmanns, 2004).⁴

In Table 2, we compare estimates of informal employment for South Africa derived using alternative definitions of informal employment with data from the September 2004 Labour Force Survey (LFS). In research on South African labour markets, informal employment is most frequently defined using the enterprise-based approach, with formality determined by the registration status of enterprises. In some

³ Other questions include whether the unemployed have turned down any job offers, whether they know of any available work, for which they are qualified, but are not willing to do, and why not. Possible reasons for the latter question include “wages too low”, “job not permanent” and “working conditions unsuitable”. Less than one percent of the (broadly) unemployed in the unweighted sample (93 individuals) reported that they knew of available work which they were not willing to do, and of these, only 70 individuals provided reasons for their unwillingness, with 25 reporting “wages too low” as the reason.

⁴ The 15th ICLS developed recommendations for defining the informal *sector* which was based on enterprise characteristics and which could be used as a basis for incorporating informal production into the system of national accounts. The 17th ICLS recommended a broad concept of informal *employment* which includes employment in the informal sector and employment in informal jobs.

cases, domestic workers are included as informal workers, at other times they are treated separately. In the Labour Force Surveys, information on the registration status of enterprises is collected explicitly in question 4.17 parts a) and d).⁵ In the first data column of table 2, we report the unweighted measure of informal employment in the September 2004 LFS derived using this information.

The Labour Force Surveys, however, also directly ask respondents if employment is formal or informal in the next question (4.18). This question seems to be commonly used by researchers in distinguishing formal from informal employment. Appended to question 4.18 is a definition of formal employment (the employer being “registered to perform the activity”). However, it seems likely that responses to the direct question include the respondent’s perceptions of whether the employment is formal or informal. This would explain significant differences in the size of the informal sector when measured using question 4.17, or question 4.18 (measure 2 in Table 2). About 14 percent of those classified with formal employment using question 4.18 are also reported as working in a business that is not registered. Question 4.18 therefore produces a larger estimate of formal employment (69 percent), and a smaller estimate of informal employment, than is produced using questions 4.17a and 4.17d (61 percent).^{6,7}

Official statistics on informal and formal employment are based on question 4.18, which Statistics South Africa recognises in a recent release is a definition “guided by the self-perception of respondents” (2007:10). However, many researchers analysing the national data sets may use a combination of information collected in questions 4.18 and 4.17. An example is reflected in the third measure in table 2, where those ‘self-identified’ as informally self-employed but who also report their enterprise as registered, are re-coded as formal. Broadening the net to identify formal employment produces a slightly higher measure of formal employment and a lower measure of informal employment than question 4.18.

In the final column in table 4, we use an alternative definition of informal employment, one that applies the recommendations of the ICLS to the variables that are available in the Labour Force Survey – that is, we define informal employment in such a way to include both employment in informal enterprises and employment in informal jobs. We consider self-employment to be formal if the self-employed work in registered enterprises. We consider wage employment to be formal if the worker has an employment contract or receives both paid leave and pension contributions.⁸ This definition for wage employment perhaps most closely captures the distinction between

⁵ All the employed are asked whether the “the organisation/business/enterprise/branch where ... works is a) a registered company or close corporation or d) registered for VAT?”

⁶ Note these figures include domestic workers in the estimate of informal employment.

⁷ Not surprisingly perhaps, the degree of overlap between question 4.17a and d and question 4.18 is significantly lower for those in wage employment than in self-employment (i.e. would respondents know whether the business is registered, particularly if reporting for others?) About 96% of the employed, whose sector of employment is identified as formal but whose employer is reported as not being registered are wage employees.

⁸ Using this approach, there is no need to pre-determine whether domestic workers are formal or informal – they are formal if they have an employment contract or receive paid leave and pension contributions.

formal as “protected” (or regulated), and informal, as “unprotected” (unregulated), employment. It produces a significantly larger measure of informal employment than that generated using question 4.18, because some twenty percent of the wage employed, who identified their employment as formal, also reported not having a contract or receiving benefits (paid leave and pension contributions). The alternative definition therefore suggests that informal employment accounted for a considerably bigger share of total employment than that typically measured in South Africa (37 percent rather than 30 percent in 2004).⁹

Table 2. Sector of employment: Alternative measures (unweighted numbers, % share), 2004

	Registration information Q4.17 a & d (1)	Direct question Q4.18 (2)	Combining Q4.18 & Q4.17 (3)	Legal + employment benefits (4)
Formal sector	15,573 61.17%	17, 535 68.87%	17,622 69.21%	15,623 61.65%
Informal sector	9,661 37.95%	7,759* 30.48%	7,673* 30.14%	9,406 37.12%
Don't know/missing	226 0.89%	166 0.65%	165 0.65%	314 1.13%

Source: Labour Force Survey 2004:2.

Note: Data are for individuals older than 15 years.

* includes all domestic workers

Do alternative definitions of informal employment have any implication for assessing employment trends in South Africa? Because of changes in survey design, a long-run comparison is not possible. Therefore, we restrict our attention to the short-run – specifically, we analyse the September LFSs, 2001 – 2004.¹⁰ We compare the alternative measure, based on the ICLS recommendations, with a measure typically used in South Africa. We use a combination of question 4.18 and question 4.17 as representative of the latter (measure 3 in Table 2).

Table 3 summarises trends in formal and informal employment over this period. The data reported here show that, from 2001 to 2004, total employment increased by about half a million. According to the conventional definition, almost all this growth occurred in formal employment. Informal employment experienced only a small increase – accounting for less than fifteen percent of the total employment growth – over the period. Measurements using the alternative definition reveal somewhat different trends.

⁹ It produces a measure of informal employment that is closest to the definition based on reported enterprise registration (measure 1 in Table 2). About 80 percent of employees whose employer was reported as registered were also reported with either an employment contract or with paid leave plus retirement benefits, accounting for the similarity between the two measures.

¹⁰ The LFS for September 2000 could potentially be included in this analysis. We exclude it here for two reasons: (1) It is not strictly identical to the other September LFSs because it does not collect information on VAT registration (i.e. question 17 d) is excluded and only question 17 a is included; and (2) relative to the other September LFSs, 2000 survey appears to overestimate considerably the amount of informal employment – possibly due to miscounting of individuals in subsistence agriculture.

The overall increase in employment is still driven by the growth of formal employment, but, in this case, informal employment *contracted*. Both the absolute and relative size of informal employment declined over the period.

Table 3. Measuring sector of employment: typical and alternative measures (weighted, 1000's)

	2001		2002		2003		2004	
	Typical	Alternate	Typical	Alternate	Typical	Alternate	Typical	Alternate
Formal sector	7,973 (62)	6,307 (60)	8,195 (63)	6,807 (61)	8,335 (65)	7,416 (63)	8,500 (219)	7,592 (210)
Informal* sector	3,234 (40)	4,789 (47)	3,192 (46)	4,499 (52)	3,184 (46)	4,004 (50)	3,300 (87)	4,059 (104)
Domestic workers	872 (21)		852 (22)		899 (25)		876 (34)	

Source: Labour Force Surveys (LFS) 2001:2, 2002:2, 2003:2, 2004:2.

Notes: 1. Standard errors in parentheses. 2. Data are for individuals older than 15 years. 3. Data are weighted (using the new weights released by Statistics South Africa in 2006). 4. Numbers may not tally across definitions because of a differing number of unknowns for sector.

* The typical measure includes domestic workers.

Table 4 gives us an idea of what lies behind the decline in informal employment measured using the alternative definition. According to the LFS data, there has been an increase in the number of wage employees who report working with employment contracts. In 2001, 52 percent of employees were reported as having a written contract with their employer; in 2004, this increased to 68 percent. In contrast, self-employment, both formal and informal, does not show a similar sustained trend. Despite year-to-year fluctuations in the estimates, self-employment appears to have remained at approximately the same level over this short interval.

Table 4. Disaggregating employment trends (weighted 1000s), 2001-2004

	2001		2002		2003		2004	
	Employee	Self-employed	Employee	Self-employed	Employee	Self-employed	Employee	Self-employed
Conventional definition								
Formal sector	7,370 (61)	602 (23)	7,591 (62)	604 (22)	7,717 (63)	618 (24)	7,834 (201)	616 (45)
Informal sector*	1,737 (31)	1,496 (29)	1,608 (32)	1,584 (36)	1,679 (35)	1,505 (33)	1,668 (55)	1,602 (55)
Alternative definition								
Formal sector	5,753 (58)	553 (22)	6,251 (60)	554 (21)	6,817 (62)	574 (22)	7,033 (193)	559 (43)
Informal sector	3,239 (42)	1,550 (30)	2,858 (42)	1,640 (37)	2,434 (41)	1,501 (33)	2,400 (75)	1,659 (56)

Source: Labour Force Surveys (LFS) 2000:2, 2001:2, 2002:2, 2003:2, 2004:2.

Notes: 1. Standard errors in parentheses. 2. Data are for individuals older than 15 years. 3. Data are weighted (using the new weights released by Statistics South Africa in 2006).

* includes domestic workers.

These data, which show evidence of a formalisation of wage employment in recent years, seem surprising in light of research which suggests the growing casualisation of employment in South Africa (Devey *et al.* 2006; Muller and Esselaar 2004). However, we find also that the increase in the proportion of wage employees with written contracts has not been accompanied by an increase in the proportion with permanent employment. Although the share of casual employment did not change over the period, a growing percentage identified their employment as temporary or for a fixed period.^{11,12}

Table 5 adds information about real earnings trends to this picture. Contrary to standard labour demand theory, real hourly earnings for informal wage earners – who are in jobs with fewer regulatory restrictions – have been falling along with employment. Real wages for formal employees have also been declining. This may indicate that the process of formalisation of wage employment may be primarily occurring among higher paid informal wage workers, thereby lowering average wages among both formal and informal wage employees. In contrast to these trends, real earnings among the informal self-employed have been rising. Those individuals in formal self-employment enjoy the highest rates of average remuneration of any employment category.

Table 5. Average hourly real earnings (2000 base year), 2001 – 2004

	2001		2002		2003		2004	
	Employee	Self-employed	Employee	Self-employed	Employee	Self-employed	Employee	Self-employed
Conditioned on positive earnings								
Formal sector	18.80 (0.34)	38.72 (2.24)	18.43 (0.65)	47.70 (11.25)	17.53 (0.28)	57.63 (11.35)	17.86 (0.49)	43.09 (2.88)
Informal sector	5.34 (0.14)	6.62 (0.28)	4.79 (0.18)	7.07 (0.48)	5.11 (0.21)	7.51 (0.78)	4.63 (0.13)	7.76 (0.53)

Source: Labour Force Surveys (LFS) 2000:2, 2001:2, 2002:2, 2003:2, 2004:2.

Notes: 1. Regulatory definition distinguishes the formal and informal sectors. 2. Data are weighted. 3. Standard errors in parentheses. 4. Earnings were deflated using the Consumer Price Index for 2000.

These trends provide additional insight into South Africa's peculiar employment situation. Despite persistently high rates of open unemployment, the net gain in employment opportunities has occurred in the more high cost, highly regulated segments of the labour market – partly due to the formalisation of informal wage employment. And despite its greater regulatory flexibility, informal employment has not expanded to reduce open unemployment. At the same time, real earnings from informal self-employment have increased on average, raising the question of why more individuals do not take advantage of these improved opportunities, particularly if barriers to entry are negligible.

¹¹ In 2001, approximately 3.6 and 11.35 percent of wage employees reported their employment as either temporary or for a fixed period respectively; in 2004, this has increased to 4.6 and 12.7 percent.

¹² Our alternative definition produces a better, or more consistent, match on the period of employment than the other definitions. For example, about 91 percent of those with formal employment defined using measure 4 report their employment as permanent, compared to 83 percent when formal employment is defined using measure 3 in Table 2.

Constraints to labour mobility within labour markets may help explain the patterns of employment seen in South Africa. Therefore, we turn our attention to a more formal analysis of labour market segmentation.

IV. Earnings differentials and labour market segmentation: econometric estimates

Under conditions of complete labour mobility, hourly earnings should be equal across types of employment, controlling for individual characteristics that affect labour market performance, such as experience and education. In contrast, persistent earnings differentials are one indication of barriers to labour mobility, between the formal and informal economy, but also between types of informal employment. Segmented labour markets exist when there are barriers to mobility within a given labour market. In this section, we examine the determinants of employment earnings in the case of the South African labour market and take persistent earning differentials between individuals with similar levels of human capital and work experience, among other controls, as suggestive of barriers to mobility.

We use the alternative definition of informal employment¹³, discussed at length above, to differentiate formal and informal employment within specific employment status categories. Table 6 summarises the distribution of employment, as well as average hourly earnings and hours worked, across these different categories in South Africa using data from the September 2004 Labour Force Survey.

Formal and informal non-agricultural wage employment are the two most important categories of employment in South Africa, accounting for over half of total employment in 2004 (34 and 17 percent respectively). Average earnings are significantly higher in formal employment than in informal employment, consistent with segmentation along formal/informal lines. In addition, earnings differentials are apparent *within* the general categories of “formal” and “informal” employment

These observed patterns in average earnings could be caused by measurable differences among individual workers and not by structural barriers to labour mobility. For example, it could be that individuals with limited human capital are concentrated in the lowest paid forms of employment and the patterns identified simply represent the returns to different endowments of skills and experience. Inequality in earnings is not sufficient to demonstrate labour market segmentation. What is needed is evidence of barriers to labour market mobility which prevent some individuals from taking advantage of employment opportunities available to others with similar characteristics (Günther and Launov, 2006).

¹³ Our results, however, are not contingent on this definition.

Table 6. Distribution of employment by sex and employment type, hourly earnings and hours worked, 2004 (alternative definition of informal employment)

	Distribution of employment		Average hourly earnings & weekly hours worked	
	N	%	Earnings	Hours
Formal				
Non-agricultural, private employee	8,778	34.49	16.49 (21.70)	45.91 (10.95)
Non-agricultural, self-employed	830	3.26	41.13 (51.80)	51.85 (17.42)
Agricultural, employee	1,586	6.23	6.30 (9.38)	49.04 (10.67)
Agricultural, self-employed	240	0.94	61.80 (132.22)	51.2 (17.17)
Public, employee	4,211	16.54	29.25 (25.11)	42.20 (9.69)
Informal				
Non-agricultural, private, employee	4,435	17.42	5.43 (6.75)	43.64 (17.20)
Non-agricultural, self-employed not own account	720	2.83	11.69 (20.57)	46.74 (20.41)
Non-agricultural, self-employed own account	1,984	7.79	7.14 (16.35)	42.79 (22.60)
Agricultural, employee	1,112	4.37	3.62 (5.61)	19.16 (12.95)
Agricultural, self-employed	958	3.76	1.41 (6.77)	28.85 (17.11)
Public, employee	254	1.00	8.09 (10.66)	40.69 (15.26)
Don't know	345	1.36	2.65 (8.29)	43.03 (22.68)
Total	25,453	100.00	14.73 (25.37)	44.38 (15.12)

Source: Labour Force Survey 2004:2.

Notes: 1. Average earnings are conditioned on positive hours worked (and less than 140 hours a week) and on positive earnings reported. 2. The data are not weighted. 3. Standard deviations are in parentheses.

A simple way to test for segmentation is to estimate earnings functions for employed individuals and see if earnings differentials persist, controlling for individual characteristics that may influence the returns to labour. We estimate a standard Mincerian earnings equation, where the logarithm of hourly employment earnings is the dependent variable. Earnings derived from the LFS data have a number of short-comings which need to be acknowledged before earnings equations are estimated. In particular, the LFS does not impute earnings for the value of production for own-consumption. Therefore, many employed in subsistence agriculture report zero earnings. Furthermore, a significant number of respondents do not disclose their earnings.

In the September 2004 LFS, which we analyse here, about five percent of our sample report zero earnings for employment (although they worked 28 hours a week on average). A further seven percent have no, or missing, earnings data. Almost all (98 percent) of those with zero earnings are in informal employment, and the majority (about eighty percent) in agricultural employment. In contrast, individuals who fail to disclose their income disproportionately work in formal employment (accounting for about eighty percent of those with missing earnings data).

Excluding very low income earners in informal employment and high income earners in formal employment is likely to produce biased regression coefficients in our estimations. Specifically, we would expect earnings differentials between formal and informal employment to be understated. To address this problem we impute earnings for the employed with zero or missing earnings data, using information from the sample of the employed for whom positive earnings are reported. In Table 7 we describe average earnings for those with nonzero earnings, and imputed average earnings for the samples with zero and missing earnings. The employed who report zero earnings are estimated to earn well below the average for positive reported earnings, in contrast to those who do not disclose earnings information, who are higher-than-average income earners.

Table 7. Average earnings, 2004

Sample	Average earnings (standard deviation)
Positive earnings reported	15.42 (25.74)
Zero earnings	4.13(5.07)
Missing earnings	19.48 (14.44)

Source: LFS 2004:2

Table 8 summarises the estimated coefficients for the earnings function. We report the results both for the sample with non-missing, positive earnings (regression (1)), and for the sample with imputed values for zero or missing earnings (regression (2)). Dummy variables are used to control for the same set of employment categories shown in Table 6 (formal non-agricultural wage employment is the omitted category). The standard explanatory variables typically included in Mincerian equations – e.g. age, age squared, education, literacy – have coefficients with the expected signs and statistical significance. Returns to education beyond primary education are positive and increasing with the level of education.

In addition, women have significantly lower earnings than men, controlling for human capital and type of employment. This suggests that women are disadvantaged in all forms of market employment, not simply wage employment. Responsibility for non-market child care work does not appear to explain the negative gender effect. The presence of children under 7 years of age has an independent negative impact on earnings.

Table 8. Estimated earnings regressions, 2004

	(1)	(2)	(3)
Formal non-agricultural, self-employed	0.233* (0.065)	0.386* (0.051)	0.385* (0.049)
Formal agricultural, employee	-0.644* (0.031)	-0.616* (0.033)	-0.505* (0.033)
Formal agricultural, self-employed	0.051 (0.165)	0.352* (0.121)	0.501* (0.125)
Formal public, employee	0.331* (0.025)	0.270* (0.021)	0.306* (0.021)
Informal non-agricultural, private, employee	-0.602* (0.025)	-0.666* (0.025)	-0.637* (0.023)
Informal non-agricultural, self-employed not o.a.	-0.350* (0.065)	-0.423* (0.061)	-0.406* (0.059)
Informal non-agricultural, self-employed o.a.	-0.783* (0.042)	-0.870* (0.040)	-0.830* (0.040)
Informal agricultural, employee	-0.940* (0.033)	-0.966* (0.033)	-0.853* (0.035)
Informal agricultural, self-employed	-1.123* (0.184)	-1.032* (0.046)	-0.917* (0.046)
Informal public, employee	-0.562* (0.068)	-0.653* (0.057)	-0.558* (0.057)
Age	0.042* (0.005)	0.035* (0.004)	0.034* (0.004)
(Age squared)/100	-0.384* (0.069)	-0.284* (0.054)	-0.280* (0.052)
Literate (read and write in at least one language)	0.177* (0.028)	0.198* (0.026)	0.175* (0.026)
Completed primary education (only)	0.034 (0.034)	0.034 (0.032)	0.027 (0.032)
Incomplete secondary education	0.194* (0.025)	0.234* (0.023)	0.209* (0.023)
Completed secondary (matric) education	0.548* (0.030)	0.702* (0.030)	0.658* (0.029)
Post-secondary education	1.063* (0.037)	1.244* (0.034)	1.209* (0.032)
Female	-0.286* (0.015)	-0.269* (0.014)	-0.265* (0.013)
Married	0.147* (0.018)	0.229* (0.017)	0.240* (0.016)
Child younger than 7 years in household	-0.029*** (0.011)	-0.046* (0.010)	-0.037* (0.010)
Accessed formal credit	0.253* (0.029)	0.396* (0.026)	0.361* (0.026)
Accessed informal credit	-0.163* (0.024)	-0.199* (0.023)	-0.168* (0.022)
Living in a metropolitan area			0.275* (0.020)
R ²	0.58	0.58	0.60

Notes: 1. Standard errors in parentheses. 2. The omitted categories are for Africans with less than completed primary education working in formal sector, non-agricultural private wage employment. 3. The estimation also includes variables for race (with Blacks as the omitted category) although these are not reported in the table. Estimated coefficients for Whites, Indians and Coloureds are all positive and significant (and in declining order of magnitude). 4. The sample in (1) includes all the employed aged 15 years and older for whom positive earnings were reported, and in (2) and (3), it includes imputed values for those with zero or missing earnings data. 5. * significant at 1% level; ** significant at 5% level; *** significant at 10% level.

The signs of the estimated coefficients for the employment categories are consistent across the two different samples. As expected, increasing the sample size, and imputing values for those with zero or missing earnings mostly strengthens the significance of our estimates, increasing the size of the coefficients for categories of formal employment and decreasing those for categories of informal employment.

In regression 2, the coefficients on all the employment category variables are strongly significant. In general, formal employment has significantly higher earnings than informal employment – a finding consistent with the predictions of dual labour market theories. To test for evidence of barriers to mobility *within* informal employment, we test whether the estimated coefficients on the informal employment category variables are significantly different from each other. Table 9 reports the F-test statistics for pair-wise comparisons of coefficient differences. In almost all cases, the hypothesis of equality of coefficients can be rejected with at least 95 percent confidence. There are two exceptions: (1) private non-agricultural informal wage employees and public informal wage employees and (2) agricultural informal wage employees and agricultural informal self-employment. This suggests that informal non-agricultural wage employment (public and private) and informal agricultural employment (wage and self employment) may each represent specific, reasonably integrated, segments of the labour market.

Table 9. Testing coefficient differences, informal employment only – Equation 2 (no metro specification), P-values in parentheses

	6. Private, non-agric, wage	7. Non-agric, self, not own-account	8. Non-agric, self, own-account	9. Agric, wage	10. Agric, self
7. Non-agric, self, not own-account	14.91 (<0.001)				
8. Non-agric, self, own-account	24.50 (<0.001)	41.07 (<0.001)			
9. Agric, wage	72.14 (<0.001)	65.15 (<0.001)	4.08 (0.043)		
10. Agric, self	58.34 (0.001)	67.03 (<0.001)	8.33 (0.004)	1.71 (0.191)	
11. Public, wage	0.04 (0.836)	8.16 (0.004)	10.80 (0.001)	24.52 (<0.001)	29.01 (<0.001)

Note: The sample includes imputed earnings for those with zero or missing earnings data.

The test results summarised in Table 9 demonstrate that there are persistent earnings differentials among categories of informal employment after controlling for observable individual-level characteristics. This evidence is consistent with the existence of barriers to mobility into and within informal types of employment. The sectoral earnings differentials for agricultural informal employment can be explained partially by geography. Including a bivariate control for metro/non-metro in the regressions reduces the size of the coefficients on the agricultural employment variables (Table 8, Equation

3). Nevertheless, earnings differentials across categories of informal employment remain robust in the cross-sectional estimations.

Among categories of informal non-agricultural employment, individuals who are self-employed, but not own-account workers, have the highest hourly earnings, controlling for individual characteristics. Informal wage employees, both public and private, come next in the earnings ranking, followed by self-employed, own-account workers. This suggests that own-account workers cannot freely move into informal wage employment and are constrained in their ability to upgrade their self-employment activities. The barriers to entry into informal wage employment exist despite negligible rates of unionisation among these workers and a relatively high degree of labour market flexibility.

An obvious concern with our estimations that use cross-sectional data, is the omitted variables problem caused by unobserved (individual fixed) effects. If there is negative selection into informal employment, for example, then we would expect our estimated coefficients for the informal employment variables to be biased upwards. This certainly warrants further investigation using panel data as these become available. However, we think it unlikely that unobserved effects will adequately account for earnings differentials identified here between the various types of informal employment.

V. Discussion

We have shown that the definitions used to identify and measure informal employment have important implications for understanding labour market dynamics in South Africa. Using a definition that adopts and adapts the recommendations of the ICLS shows that informal employment accounts for a larger share of total employment than is typically found. Moreover, this share has been declining in recent years, despite low levels of regulatory controls and falling real earnings. These findings are striking in the context of widespread open unemployment. Not only has informal employment failed to “mop up” surplus labour in South Africa, but its capacity to do so appears to be shrinking.

Labour market segmentation – throughout the entire labour market – helps to explain these surprising dynamics. Using data from the September 2004 Labour Force Survey, we found evidence which is consistent with complex segmentation in the South African labour market. As predicted by dualist theories, there are significant earnings differentials between formal and informal employment. But we also find significant earnings differentials between different types of informal employment. One explanation for these differentials is that they reflect barriers to entry and mobility, not only into the formal labour market, but also within the informal labour market. These barriers, in turn, may be important contributing factors explaining South Africa’s high rates of open unemployment.

This study has focused on whether the quantitative evidence is consistent with the existence of complex segmented labour markets in South Africa. However, we have

remained relatively silent about the factors causing the types of segmentation observed. Other research studies using different methodologies provide some possible answers to this question.

For example, Chandra and Nganou (2001) analyse survey results among self-employed operators of small and micro enterprises in Johannesburg and find that the vast majority entered self-employment from formal wage employment. Lack of personal savings or business experience may present barriers to entry into self-employment. Along similar lines, Cichello *et al.* (2006) find that crime, a lack of risk management tools, and insufficient start-up capital are barriers to self-employment in Khayelitsha township.

Another study of low-income neighbourhoods in the Cape Town metropolitan area revealed that working knowledge of English or Afrikaans improves access to employment opportunities and labour market information (Deumert and Mabandla 2006). Similarly, studies outside of South Africa have found that social capital and networks are important in determining access to opportunities within the informal economy (Barr and Oduro 2000; Collier and Garg 1999; Hart 1973). Although this literature is suggestive, clearly more research into the determinants of labour market segmentation is needed to flesh out the findings highlighted here.

Our research takes into account measurable differences in individual characteristics which may influence earnings. However, the cross-sectional analysis of the Labour Force Survey does not adequately address the possibility that unobserved individual attributes are influencing the results. Panel data which contain information on the same individuals over time are needed to examine the impact of unobserved effects. This is a limitation of the current study and an area for future research. Nevertheless, the results we present in this paper represent an important first step in exploring these issues.

This research does suggest that barriers to labour mobility and patterns of segmentation are potentially critical issues to be incorporated into the formulation of employment policy in South Africa. If employment and labour market outcomes are to play a role in reducing income inequality and poverty, then barriers which prevent individuals from taking advantage of economic opportunities as they emerge must be identified and their adverse effects minimised. Without such efforts, policies that are successful in increasing gainful employment may fail to enhance equity and improve the welfare of economically disadvantaged communities.

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