

Unemployment in South Africa: the nature of the beast

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WPS/2001-15

August 2001

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Abstract: Unemployment in South Africa is so widespread that it demands an explanation. This paper examines two questions about South African unemployment. Firstly, why do the unemployed not enter the informal sector, as is common in other developing countries? Secondly, why do the unemployed not enter wage employment more readily? The findings provide little support for the idea that unemployed people choose to be unemployed: the unemployed are substantially worse off, and less satisfied with their quality of life, than they would be if informally employed. Various impediments to entry into the informal sector increase open unemployment. The test of the hypothesis that the unemployed have unrealistically high wage aspirations suggests that the commonly reported high reservation wages (relative to predicted wages) are not to be interpreted as reflecting unwillingness to work.

Acknowledgements

This paper has benefited from the comments of Sam Bowles, Angus Deaton, Marcel Fafchamps, and Francis Teal as well as from comments made by participants at the Trade and Industrial Policy Secretariat Conference, South Africa, September 2000, the American Economic Association's Annual Meeting, January 2001, and the Labour Economics Seminar, University of Oxford, February 2001. The research was supported by a research grant from the U.K. Department for International Development.

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1. Introduction

Unemployment in South Africa is remarkably high. In 1998 it was officially measured at 39% on the broad definition and 26% on the narrow definition (StatsSA, 2000). Moreover, it had risen steadily in the preceding years. Unemployment is potentially a matter of serious concern - for its effects on economic welfare, production, erosion of human capital, social exclusion, crime, and social instability. However, its potential costs depend on the nature of the beast. The question we address is this. Is unemployment in South Africa largely voluntary or involuntary? The answer has important ethical and policy implications. If unemployment is largely voluntary, its cure can be downgraded as a policy concern. Interest groups and ideologues have taken predictable stances but the issue has not been addressed rigorously in South Africa.

Although the theoretical distinction between voluntary and involuntary unemployment is entrenched in the literature, the notion that one can judge whether unemployment is voluntary or involuntary has been questioned (Layard, Nickell, and Jackman, 1991). Their argument can be illustrated in Figure 1. For simplicity, the total labour force - the employed plus the unemployed - is assumed to be constant and equal to LL' on the horizontal axis. All workers are willing to work in the primary sector. The demand D_1 for primary sector employment is a function of the primary sector wage, set at W_1 by efficiency wages or union bargaining. Thus primary sector employment is shown by LN_1 . This leaves N_1L' workers available for the secondary sector. The curve D_2 shows the demand for labour in the secondary sector as a function of the wage in that sector. The secondary sector labour market is competitive, so that the wage adjusts to clear the market: N_2L' workers are employed at wage W_2 . This leaves N_1N_2 workers unemployed. These people are willing to work in the primary sector at the going wage W_1 but cannot find work there, but they are unwilling to work in the secondary sector at the going wage, W_2 . They are thus both involuntarily and voluntarily unemployed in this segmented labour market.

Notwithstanding the theoretical difficulties, Clark and Oswald (1994) and Theodossiou (1998) approach this question in the psychologists' tradition by examining the utility levels of the jobless. They find that unemployed persons in various developed countries have much lower levels of happiness or wellbeing than those in work, and accordingly reject the hypothesis that unemployment is voluntary. A number of economists refute the notion advanced by Benjamin and Kochin (1979) that a good proportion of interwar unemployment in Britain was voluntary and based on generous unemployment benefits (see papers by Cross; Collins; Metcalf, Nickell and Floros; and Ormerod and Worswick, in the *Journal of Political Economy*, 1982). Crafts (1987) argues that much of interwar unemployment in Britain was involuntary long-term unemployment which was not associated with high replacement ratios, with being well-off or with voluntary search: the lack of search was, for the most part, a result of discouragement - a choice made under duress.

The dominant view of unemployment in developing countries is that much open unemployment is due to search and is voluntary (Harris and Todaro, 1970; Harris and Sabot, 1982). Probabilistic models of rural-urban migration produce an equilibrium level of urban unemployment. The equilibrium condition is that, with the urban formal sector wage above the competitive level, the 'expected wage' (the formal sector wage multiplied by the probability of obtaining formal sector employment) equals the rural supply price. It might appear that the

existence of a free-entry urban self-employment sector rules out the possibility of there being equilibrium unemployment. However, positive unemployment can arise because self-employment income is too low (as in Figure 1), or because the probability of securing wage employment is higher if search is conducted from open unemployment than from self-employment, or because self-employment is regarded with disdain. If formal sector job-search from unemployment is more efficient than from informal employment, those able to afford unemployment remain openly unemployed. However, the poor cannot afford to do so. If most unemployment in the economy is of this search variety, the inter-household relationship between unemployment and income is likely to be positive insofar as the informal sector absorbs the poor.

2. The nature of unemployment in South Africa

The nature of unemployment in South Africa has attracted a literature. In the early 1980s there was a heated debate over whether unemployment in rural areas was voluntary or involuntary. On one view, much of it was voluntary: at least part of the labour market cleared and rural-dwellers chose to be unemployed because of the income available from household agriculture (Kantor, 1980; Gerson, 1981). This view was challenged by others (Knight, 1982; Simkins, 1982) who pointed to the lack of productive activities available at the margin to rural-dwellers. The issue was by no means settled and the debate has continued in recent times. For example, an ILO report on the South African labour market (ILO, 1996, p111) raises the notion that people with access to non-earned income may be voluntarily unemployed. The issue has also arisen in the debate about the appropriate definition of unemployment - whether to use the narrow measure (excluding the unemployed who wanted work but did not search actively in the reference period) or the broad measure (including this group). In 1998 it made a difference between an unemployment rate of 26 per cent and one of 39 per cent. The ILO report (ILO, 1996, p104) suggests that including the non-searching unemployed may exaggerate the level of unemployment, implying that the broad measure includes people who are out of the labour force. Similarly, the South African Statistical agency's recent decision (StatsSA, 1998, p1) to drop the non-searching unemployed from the official definition of unemployment and from the denominator in calculating the unemployment rate implicitly assumes that such people have voluntarily withdrawn from the labour force.

Workers can be found in three different states: wage employment, self-employment, and unemployment. Consider first the choice between self-employment and unemployment. In what circumstances would a worker be unemployed rather than self-employed? More specifically, why do unemployed workers in South Africa choose to remain unemployed and to search, or to wait, rather than join the free-entry informal sector? This informal sector might be an end in itself or a means to wage-employment, i.e. a base from which to search, or wait, for wage-employment. We shall adduce evidence to show that income from wage-employment greatly exceeds income from self-employment. This suggests that wage-employment is the preferred state. However, income from self-employment will be shown to exceed income while unemployed. Why then do the unemployed not choose to search from the self-employed state? One possible explanation is that job-search is more efficient if undertaken while unemployed. In that case, unemployment might properly be regarded as voluntary. However, for many workers access to those informal sector activities which offer non-negligible income may be prevented by barriers to entry. In that case, there might be no viable alternative to unemployment for such people, and it would be misleading to label them as voluntarily unemployed.

Secondly, consider the choice between wage-employment and unemployment. Given the possibility of redistribution within the household, the distribution of household income according to need creates an incentive for a member to remain needy and thus a disincentive to work. Higher household income, by raising transfers, further encourages the consumption of leisure. Thus there is both a disincentive effect (dependent on the extent of redistribution) and an income effect (dependent on the amount of income available for redistribution). If this ‘luxury unemployment’ hypothesis is correct, unemployment may be regarded as voluntary. There is a second reason why workers might choose unemployment rather than wage-employment. It is that the unemployed lack information. In an imperfectly competitive labour market the unemployed face a distribution of wage offers with probabilities attached. They are willing to remain unemployed until a sufficiently high wage offer arrives: at the margin, the expected return from continued search no longer exceeds the cost of search (Stigler, 1962). Voluntary unemployment of this sort increases as risk aversion diminishes. The unemployed may also hold unrealistically optimistic expectations of the ‘expected wage’ as defined in probabilistic models of migration. Those who, on account of imperfect information, have excessive expectations of securing wage employment and/or of the wage they will be offered, choose to remain unemployed even when it would be economically rational to accept available job offers. These forms of unemployment are voluntarily chosen. By contrast, unemployment is more likely to be involuntary when the probability of securing wage-employment is extremely low and when barriers to entry into part of the informal sector render the income from the remaining free-entry self-employment activities so low as to be discounted.

Our concern in this paper is to examine the extent to which unemployment can be said to be voluntary or involuntary. We pose two broad questions in the next two sections. Firstly, why do the unemployed not enter self-employment - are they prevented by barriers to entry? Secondly, why do the unemployed not enter wage employment - are they deterred by their own unrealistically optimistic wage expectations? In a sense, economic behaviour is always voluntary: economic agents invariably have at least some room for manoeuvre and choice. The real question is whether the available set of options is so limited as to render unemployment involuntary for practical and policy purposes.

Whereas in the past, the absence of reliable nationally representative household-level data has prevented empirical analyses of such issues in South Africa, the recent availability of rich household survey data collected by the South African Labour Research Unit (SALDRU) and the Central Statistical Service (now known as Statistics South Africa) allows us to explore these issues. We use household survey data collected in 1993, 1994, and 1997 described in Kingdon and Knight (2001).

3. A simple framework

We provide a simple theoretical framework within which to set our empirical analysis. The probability distribution of income (y) next period that an unemployed worker faces may correspond to the curve in bold shown in Figure 2. There are three possible states: unemployment (at zero income, i.e. $y=0$), informal sector employment (the dotted distribution), and formal sector employment (the dashed distribution). The probabilities sum to unity, i.e. the area under the bold curve equals one. We expect the probability of an unemployed worker securing formal sector employment to be far lower than the proportion of formal sector employees in the labour force: incumbents have a strong incentive to hold onto their jobs and are protected against competition from the unemployed, and many of the unemployed have characteristics which reduce their employability. Whatever search effort the unemployed

worker undertakes, there is a strong probability that he will remain unemployed next period. Hence the high value of p at $y=0$.

We shall argue that the income to be derived from informal sector employment is generally low, reflecting the limited opportunities and the degree of competition for them. The reservation wage (y_1) for entry into employment (based on the indifference map reflecting the marginal rate of substitution between goods and leisure) precludes informal sector employment at income to the left of y_1 . Hence the small probability of entering informal sector employment next period.

The probability distribution of formal sector income is derived on the assumption that the unemployed worker engages in optimal search, i.e. searches up to the point at which the expected benefit from search equals the marginal cost of search. The expected mean wage from formal sector employment conditional on obtaining such employment is y_2 . It is y_2 , rather than y_1 , that the unemployed worker may have in mind when asked the question: what is the wage at which you would be willing to take a job? This is consistent with the view that people are motivated by a sense of fairness and report what they consider to be the fair wage, or with the view that workers adhere to social norms of implicit cooperation that prevent undercutting.

There are various reasons why the reported reservation wage may exceed even y_2 . The standard explanation is a willingness to remain unemployed longer in the expectation that a wage offer (say, at least y_3) greater than the mean predicted wage will eventually arrive. This is the concept, based on the expected returns from search, that corresponds to voluntary unemployment. However, it is also possible that workers who are poorly informed and optimistic may overstate their mean expected wage, for instance predicting y_3 . The response may also be higher than y_2 (say, y_3) if the question is approached with bargaining in mind.

Our empirical approach is shaped by the following points that emerge from this discussion. Entry by the unemployed into the free-entry part of the informal sector may indeed be limited by the true reservation wage, i.e. the minimum income required to compensate for the disutility of effort (y_1). However, what is actually reported need bear no relationship to the true reservation wage. The reported reservation wage may even exceed the realistic mean expected wage for formal sector employment ($y_3 > y_2 > y_1$).

4. Why do the unemployed not enter the informal sector?

Employment in the informal sector is of course jointly determined by the supply and demand functions for labour (corresponding to the curves $S_2 S_2$ and $D_2 D_2$ respectively in Figure 1). It is nevertheless helpful to distinguish them. One possible reason why the unemployed do not enter the informal sector is that they prefer leisure and can afford it (the supply side). The other is that the unemployed are deterred from entering by barriers to entry (the demand side). The former suggests that unemployment is voluntary, and the latter that it is involuntary. In this section, we explore the relationship between labour market states (unemployment or informal employment), on the one hand, and poverty and perceived quality of life, on the other, in order to choose between the alternative hypotheses.

While there is no commonly agreed definition of ‘informal sector’, for present purposes we take informal workers to be those not in regular employment, that is, workers who are in

casual wage employment, domestic service, or agricultural/non-agricultural self-employment¹. Table 1 shows that the informal sector absorbs only a very small proportion of the workforce by developing country standards (19% of the total labour force) and that open unemployment is more common. The proportion of informal employment in total employment in South Africa is only about 30%; in India it is estimated to be about 90% (Kulshreshtha and Singh, 1998)².

The probability distributions of monthly earnings of informal and formal sector workers show that the distribution of informal earnings lies to the left of the distribution of formal earnings (Figure 3). The ratio of their geometric mean individual earnings (291 and 1017 rands per month) is 1 : 3.5. It might be argued that the lower earnings in informal work may be because of inferior characteristics of informal sector workers. We fitted earnings functions for formal sector workers (both OLS and selectivity-corrected ones) and used these to predict earnings of informal sector workers on the hypothetical basis that they faced the formal sector earnings equation. The results showed that a large part of the formal-informal earnings difference remained after controlling for characteristics, irrespective of whether we used the OLS or the selectivity-corrected earnings functions. The unexplained part (*i.e.* the difference due to coefficients) was 50% of the actual difference in mean earnings between the two sectors when we used OLS and 64% when we used selectivity-corrected earnings equations. This suggests that part of the reason why formal sector earnings are higher than those in the informal sector is that returns to characteristics are higher in the former.

Table 2 presents evidence on the relationship between labour market status and both poverty and wider measures of deprivation. It shows that, on virtually every indicator of well-being, unemployed people are very substantially worse-off than the informally employed. For example, per capita monthly household income (expenditure) of the unemployed is only 31.2% (48.2%) of the corresponding figure for the informally employed. Living conditions are also far worse for the unemployed than for the informally employed - in terms of living space, access to drinking water, and the availability of sanitation, electricity, *etc.* Insofar as the unemployed take account of their own individual income rather than household income per capita, it is notable that unemployment insurance is very limited in scope, that benefit entitlement lasts for only the first six months, and that only 1.3% of the unemployed received any unemployment benefit at the time of the survey.

Table 3 presents the average predicted earnings of unemployed people in informal employment. It presents these separately for people in informal self-employment and in informal wage employment, *i.e.* among domestic servants and those in other casual wage

¹ Since domestic service is low-paid and was until very recently unprotected (often exploitative) employment, we consider domestic servants as informal workers even if they report themselves as 'regular' employees, as some of them do. Self-employed professionals are excluded from the definition of the informal sector and are assumed to be regular, formal sector workers.

² Borat (1999) rightly argues that the size of the informal sector in the early October Household surveys is underestimated because they count as formally employed all those persons who work for someone else, even though some of these work for informally self-employed persons. From 1997 onwards, the OHSs rectify this omission and while this raises the size of the informal sector substantially, it is still not a large share. For example, the size of the informal sector estimated from OHS94 accounts for 14.7% of total employment, but from OHS97 and OHS98 for 24.4% and 21.9% respectively. It is sometimes argued that the size of the informal sector in South Africa is underestimated and the unemployment rate overestimated because some people engaged in casual, small-scale self-employment or in illegal activities may not report these and they are counted as unemployed instead (Schlemmer and Levitz, 1998). However, the October Household surveys ask a detailed set of questions, making such underestimation of self-employment and over-estimation of unemployment unlikely (Bhorat, 1999). Moreover, it is not clear that illegal activity such as theft (information on which is indeed likely to be suppressed) should be counted as employment. Such activity is to some extent endogenous, *i.e.*, the effect of unemployment and of consequent destitution, an income transfer rather than a productive activity.

employment. It shows that, depending on the model used, their predicted earnings in such employment are between 1.44 and 2.35 times their income in unemployment, *i.e.* their average per capita household income (of R 186 per month, as seen in Table 2)³.

It is arguable that when predicting earnings in informal self-employment we over-estimate the return to labour by failing to isolate the return to capital in self-employment. In order to identify the marginal return to labour (MRL), we fitted a Cobb-Douglas production function for the sample of the self-employed. For those self-employed persons who reported having no capital (the very smallest-scale self-employed operations), their net income from the enterprise is taken as their MRL. The median (mean) MRL per month for this group is R 160 (447). For self-employed persons who use any capital, the median (mean) MRL calculated from the production function is R 188 (1273). Thus, the median return to labour in informal self-employment - with or without capital- is significantly greater than a person's median income in unemployment (R 104 per month in Table 2); the same is true of mean values (Table 4). The unemployed are clearly worse off, on average, than they would be in the informal sector. This is also true of the majority of unemployed individuals. We used selectivity-corrected earnings functions fitted for self-employed persons to predict the individual self-employment earnings of the unemployed sample. We then compared these with their individual unemployment income, *i.e.* their household per capita income, and found that for 87.5% of the unemployed individuals, predicted monthly informal sector earnings exceeded monthly household per capita income. Some part of the difference may be necessary to compensate for the disutility of effort involved in informal sector employment. Nevertheless, it would be remarkable if the unemployed chose to remain so deprived. It appears that the limited opportunities for entering the informal sector provide no real alternative to unemployment for most of the unemployed.

The voluntary unemployment hypothesis can be further tested following the approach of Clark and Oswald (1994), di Tella *et. al.* (1998), Theodossiou (1998), and Blanchflower and Oswald (1999) described earlier. Their evidence – coming from the US and Europe - indicates that the unemployed are substantially and significantly less happy than the employed and it is used to suggest that unemployment must be involuntary because people would not choose to be

³ The coefficients of earnings functions fitted on informal sector workers (self-employed and casual waged workers separately) were used to predict earnings of unemployed persons. The selection term lambda was significant at the 1% level in both the informal and casual earnings equations, and it was well identified through use of household demographic variables in the first stage probit. Selectivity-corrected earnings functions gave higher average predicted earnings from informal employment than did OLS earnings functions, irrespective of whether the selectivity term lambda was included in the prediction or not. Both approaches have been used in the literature. The lambda-inclusive approach is typically justified in studies that use it on the grounds that the dot product of all the regression variable means and their respective coefficients gives the mean of the observed wage. Some studies also include lambda owing to the erroneous belief that lambda is a measure of unobserved characteristics. The lambda-exclusive approach is used in many studies on the grounds that the role of the inclusion of lambda is simply to correct the bias in the remaining coefficients in an OLS regression and that constructed lambda itself is not a variable but rather a part of the error term. While the choice of model in Table 3 does not alter our inference - namely that predicted earnings in informal employment greatly exceed unemployed income - we would tend to favour the lambda-exclusive model since lambda is not a measure of unobserved characteristics: it is simply a monotonically decreasing function of the probability of being in informal employment. For individuals who have a high probability of being in informal employment, lambda is given a value close to zero, irrespective of their unobserved characteristics; for individuals who have a low probability, lambda is assigned a high value. Thus, while one might infer something about a person's unobserved traits from the value of lambda at low values of the observed variables, one cannot infer anything about unobserved traits at high values of observed variables. For a review of the two approaches see Schaffner (1998) and Vella (1988). Also see Manski (1989) and Johnston and DiNardo (1997) for a critique of the sample selection methodology.

unhappy⁴. Following this literature, we extend the notion that comparing well-being levels across individuals can shed light on the nature of their unemployment. We pose the question: are unemployed people any happier than informally employed people? If they are, then it might be possible to argue that their unemployment is the result of choice, and hence voluntary, rather than due to limited opportunities for informal sector work.

We test the hypothesis for South Africa by examining the impact of the household unemployment rate and the household informal-employment rate on the household's perceived quality of life and poverty, controlling for other factors. The SALDRU survey (SALDRU93) asked households the question: 'Taking everything into account, how satisfied is this household with the way it lives these days?' The five possible responses were 'very satisfied', 'satisfied', 'neither satisfied nor dissatisfied', 'dissatisfied', or 'very dissatisfied'. In order to investigate the impact of unemployment and informal sector employment on perceived quality of life, an ordered probit model was used, with 'very dissatisfied' given the value of 0; 'dissatisfied' 1; 'neither satisfied nor dissatisfied' 2; 'satisfied' 3; and 'very satisfied' 4. Thus, the dependent variable can be interpreted as an index of happiness or of satisfaction with life.

The analysis was carried out using household-level data since the quality-of-life code is available only at the household and not at the individual level⁵. The unemployment variable is the household unemployment rate, *i.e.* the percentage of labour force participants aged 16-64 within the household who are unemployed⁶. Other variables in this regression are household variables, cluster variables, or aggregated individual variables averaged across all household members (*e.g.* average age of all labour force participant members of the household, percentage of household members with higher education, *etc.*).

Table 5 presents the ordered probit equation for the quality of life (or happiness) index fitted on SALDRU93 data. It shows that, in general, happiness increases with income and education, as found in European and US studies, and is lower for each of the race groups African, coloured and Indian, than for whites. Whereas the household unemployment rate significantly lowers household happiness - controlling for household per capita income and other factors - the household informal employment rate does not depress it. To the extent that earned income is mediated by employment status, the association of unemployment and happiness is likely to be greater than that seen in Table 5. When household income dummies were excluded (results not reported), the marginal effect of unemployment on happiness fell from -11 percentage points to -16 percentage points.

In summary, the unemployed are substantially disadvantaged *vis a vis* the informally employed in terms of income and expenditure, and also feel less happy. This casts doubt on the luxury unemployment hypothesis and implies that the unemployed have little choice but to remain disadvantaged. It suggests that the informal sector is not generally a free-entry sector in South Africa, and that there may be barriers which prevent many of the unemployed from

⁴ It is possible to argue - given the cross-section nature of the data used in these studies - that causality may run the opposite way: unhappy people are less desirable to employers so that low well-being might be the cause of joblessness rather than its effect. While this objection is hard to overturn conclusively, Clark and Oswald (1994) cite longitudinal evidence collected by psychologists that sheds doubt on this reverse causality interpretation (see Warr, Jackson and Banks, 1988).

⁵ When using individual-level data in the initial runs, the household's quality-of-life code was assigned to each member in the household. The results were very similar to those reported in Table 5, and are available from the authors.

⁶ For example, in a household with three labour force participants where one is unemployed, the household unemployment rate is 33%. Thus, the household unemployment rate takes values such as 0, 0.20, 0.25, 0.33, 0.40, 0.50, 0.67, 0.75, 0.80, or 1.0 for most households.

entering much of this sector. Several authors note that many activities in the so-called informal sector of developing countries are highly stratified, requiring skills, experience and contacts, with identifiable barriers to entry. For example, petty trading often has highly structured labour and product markets with considerable costs of entry. Banerjee (1986) found that in urban India, entry into the self-employment sector is not easy. Even when skill and capital are not required, entry can be difficult because of the presence of cohesive networks which exercise control over location and zone of operation.

There is a paucity of evidence on whether the informal sector is a free-entry sector and on why it is relatively small in South Africa. However, there are pointers. Historically the apartheid system repressed the informal activities of black South Africans through such restrictive legislation as the Group Areas Act, harsh licensing, strict zoning regulations, and effective detection and prosecution of offenders (Rogerson, 1992). Bouts of slum clearance and other periodic attacks on the illegal spaces within which informal enterprise thrived, served to rid South African cities of black-dominated informal sector niches that were construed as hazardous to public health and stereotyped as unsightly and unsanitary (Rogerson 1992). While these restrictions have been progressively lifted since the mid-1980s, there were lingering licensing controls and restrictive bye-laws in many urban centres at the time of the surveys⁷. Moreover, repression and disempowerment of Africans under apartheid would have inhibited the development of entrepreneurial and social skills and of social networks. These factors are important for confidence in entering the self-employed sector and for success in it⁸.

Labour market institutions such as Industrial Councils (now called Bargaining Councils) and Wage Boards set sectoral minimum wages and stipulate working conditions in many industries in South Africa. These minimum wages and stipulations are applied to all firms in the industry and region, irrespective of size, *via* the 'extension' provision. There are serious penalties for flouting the agreements of these institutions. Such provisions impose a burden of high labour costs on small firms and it is likely that they would seriously inhibit the entry and growth of such firms (Black and Rankin, 1998, p461). This is one explanation for the large average size of firms in South Africa. These institutional features may inhibit small firms but should not inhibit individual entrepreneurship, i.e., owner-operators. Self-employment may be hampered by capital/land/credit constraints as well as by lack of infrastructure in black townships (Kaplinsky, 1995, p188). Moreover, both small firms and owner-operators are likely to suffer from the prevalence of violence and insecurity in the informal sector (Kaplinsky, 1995; Manning and Mashigo, 1993).

In sum, while it is possible that formal-work aspirations, greater effectiveness of search from the unemployed than from the informally employed state, and access to non-earned income are reasons why some persons choose to remain unemployed, the evidence of much greater deprivation associated with unemployment than with informal sector employment tells

⁷ A 1999 government document titled 'Ideas Paper No. 1: South African Labour Market and Job Creation' states that many local governments still put obstacles in the way of the self-employed and informal sector, or fail to provide the planning support and facilities needed for them to thrive.

⁸ Maluccio, Haddad and May (1999) using panel data from Kwazulu-Natal find that social capital - as measured by the frequency of group membership - had increased very substantially between 1993 and 1998 following the dramatic political changes that occurred early in that period. While such increases in social networks should perhaps have increased the size of the informal sector since 1993, the available data suggest no marked expansion. For example, between OHS94 and OHS98, the size of the informal sector (for comparability across years, defined as own-account workers and excluding domestic workers and employees working in informal units) remained roughly constant over the four-year period, being 10.1% in 1994 and 9.5% in 1998 (StatsSA Statistical Releases, various years), though this is a very inadequate definition of the informal sector.

against the idea that much unemployment in South Africa is voluntary. It suggests that barriers-to-entry into the informal sector are a powerful factor in explaining high unemployment.

A possible objection to this inference is that unemployed formal-sector job-search is an investment in future higher incomes and people may be willing to endure temporary poverty and deprivation in order to engage in full-time job-search. If the unemployed are indeed engaging in such an inter-temporal optimisation strategy, then being in unemployment and poverty may still be consistent with voluntary search unemployment. However, data on hours spent in job-search by the unemployed and data on duration of unemployment cast doubt on this interpretation. Only 9% of the narrowly unemployed searched full-time (35 or more hours) for work in the reference week, and the vast majority (68%) spent no more than 10 hours in job-search. Thus, it would have been possible for most of the searching unemployed persons to combine job-search with informal sector work.

While the SALDRU93 survey did not ask a question on unemployment duration, the October Household Surveys include a question for unemployed persons on the duration of their uncompleted spell of unemployment. The answers are recorded in categorised form rather than as a continuous variable. The categories in OHS97 are 'less than 1 month', 'between 1 and 6 months', '6 months to 1 year', '1 to 3 years' and 'greater than 3 years'. By assigning midpoints of the categories, a duration of unemployment variable 'number of months' has been created. For those who were unemployed for more than 3 years, an arbitrary value of 48 months was assigned⁹. The survey also asked individuals whether they had ever worked previously. Table 6 gives the distribution of duration of unemployment. It shows very long duration of unemployment (>3 years) for 37% of the unemployed. A further 29% were unemployed for between 1 and 3 years, so that about two-thirds of all jobless workers were unemployed for more than a year. The mean uncompleted duration of unemployment in 1997 was about 2 years and 2 months and the median was 2 years. The distribution of unemployment duration and its long mean and median, together with the earlier evidence of poverty and lack of well-being among the unemployed, casts doubt on the notion that a high proportion of the unemployed are in voluntary unemployment.

Finally, an ordered probit of duration of unemployment (not presented) was fitted as a function of variables which would influence employability and the cost of search, using the OHS97 data. Even standardising for these variables, we found a negative relationship between per capita household expenditure and unemployment duration. A Smith-Blundell test failed to reject the exogeneity of the per capita expenditure variable¹⁰. This evidence suggests that poverty increases unemployment duration, perhaps by inhibiting search. This is consistent with Kingdon and Knight's (2000) results which show that poverty deters job search activities in South Africa. It is also consistent with the observations of Wilson and Ramphela (1989) who provide substantial anecdotal evidence that poverty inhibits job-search in South Africa. These findings cast doubt on the hypothesis that unemployment while in poverty is a chosen search strategy, and they support the hypothesis that unemployment is involuntary.

⁹ The mid-point values attached to the 5 duration categories 'less than 1 month', 'between 1 and 6 months', '6 months to 1 year', '1 to 3 years' and 'greater than 3 years' were 0.5, 3.5, 9.0, 24, and 48 months respectively. It is unfortunate that the last category is truncated at 3 years since a high proportion of all unemployed people fall in this category and many of them may suffer unemployment for much longer periods than 3 years. There is a loss of information and of variability in the duration variable because of this truncation. However, this is better than the duration information available in the OHS94 dataset where the truncation occurs at 1 year and where more than two-thirds of the unemployed were unemployed for more than 1 year!

¹⁰When log of per capita household expenditure is instrumented by household assets, the coefficient on the instrument is close to zero. In other words, there is no positive relationship between prosperity and unemployment duration. These results are available from the authors.

5. Why do the unemployed not enter wage-employment?

Another rationale for characterising unemployment as voluntary is the optimistic wage aspirations hypothesis. Persons whose reservation wages are greater than their predicted wages (*i.e.* the wage they can expect to get in the labour market) may be considered to be voluntarily unemployed. The SALDRU93 and OHS94 surveys both include a question on the reservation wage (RW). The SALDRU survey asked: “What is the lowest wage in rands per month that ...name... would accept for a permanent job?”¹¹. The October Household Survey 1994 asked “What is the minimum salary or wage ...name... is prepared to work for?”¹². The SALDRU93 data has RW only for unemployed persons who searched for a job in the past week but the OHS94 has it for both the non-searching as well as the searching unemployed. Unfortunately, neither of these surveys asked unemployed persons a more precise question, for example specifying expected hours of work per week or month, or distance to work (say, ‘for work within 5 miles of your residence’), or asking for past wages, or past wage offers rejected.

We fitted log wage functions for employed persons and used the estimated parameters to obtain predicted wages (PW) of the unemployed¹³. Thus, it is possible to construct a variable ‘log reservation wage minus predicted log wage’, *i.e.* $\log RW - \log PW$. We define a person as having ‘high’ reservation wages ($HIGHRW$) if their $\log RW$ exceeds their $\log PW$. The variable $HIGHRW$ is a 0/1 variable; the reservation wage ratio (RWR) is the ratio of RW to PW .

Table 7 shows the mean values of RW , PW , RWR , and $HIGHRW$ for unemployed persons in the SALDRU and OHS94 datasets. OHS94 figures are more trustworthy because of the much larger sample sizes. About 50% of the unemployed have a RW that exceeds their PW . The cumulative distribution of the RWR shows a great dispersion in the RWR : about 29% of the all the unemployed have $RWR < 0.6$ (RW is more than 40% below their PW); about 30% of the unemployed have $RWR > 1.4$ (RW exceeds their PW by more than 40%). The RWR is distributed roughly evenly around one: there is no apparent upward or downward bias for the unemployed group as a whole. However, our understanding of reservation wages may be advanced if the bias of individuals can be predicted from their characteristics [as we do later in the paper].

The suggestion that about 50% of all unemployment in South Africa is voluntary – in the sense that RW is greater than PW – is credible only if it is believed that the stated reservation wage is a reliable criterion for judging willingness to work. It is not possible directly to analyse the reliability of the replies to the RW question because we do not have previous wages or rejected wage offers with which to compare the reported RW . However, we

¹¹ SALDRU93 also asks the question “What is the lowest wage in rands *per day* that ...name... would accept for a casual or day job?”. We have used the first question rather than the second since it seemed more reliable. For example, standardising the reported daily reservation wage figure to the month by multiplying the daily rate by 25 gave an average monthly reservation wage for casual jobs that was 45% higher than the reported monthly wage for a permanent job.

¹² The October Household Survey 1997 had no question on reservation wages.

¹³ Since the reservation wage question asked for the minimum ‘salary’ or ‘wage’ that an individual will accept, it refers to waged or salaried employment rather than to self-employment. In order to compare reservation wages with predicted wages, therefore, wage functions are fitted for regular waged employees who worked 35 or more hours last week. In the SALDRU survey people stated whether they were regular (rather than casual) wage employees. In the OHS data, regular wage employees are taken to be those who reported monthly wages rather than weekly, daily, or annual wages. The wage equation used for predicting in the OHS94 data included variables for years of experience and its square, years of education and its square, race, household head, married, male, urban, homeland, and province.

attempt to evaluate the reliability of the RW by computing the mean of RWR for different worker groups, by gender, race, age, education, location, and previous work experience. We also regress $\log RW$ on $\log PW$ for each worker group separately, deriving the elasticity of RW with respect to PW, as well as the proportion of the variation in RW that is explained by PW. Table 8 shows that African, rural homeland, low-education workers, females, the young, and persons who have never worked before have a higher mean RWR than their opposite numbers; they also tend to have a lower elasticity of RW with respect to the PW than do their opposite numbers, and the adjusted R-square is much lower for these groups.

These simple descriptive statistics suggest several potential explanations – other than the conventional search explanation – for why RW exceeds PW for such a substantial proportion of the unemployed. Firstly, labour market ignorance: people living in rural homelands have by far the most unrealistic reservation wages in the sense that, among all groups, their RWR is the highest. Since these people live in remote areas, their contact with the labour market is poor and, thus, they are likely to be ill-informed about their labour market worth. Similarly, it is plausible that those who have never worked before, and less educated workers, are less well informed than others about their worth. These two groups not only have higher values of RW than their opposites but their RW is also less well correlated with their PW. The evidence suggests that people who are likely to be less well-informed about what they can fetch in the labour market tend to have not only unrealistic but also unrealistically high RWs.

Secondly, when asked what minimum wage that they would accept for a job, workers may instead report the wages that they expect. This is what Polachek and Siebert (1993, p236) appear to have in mind when they say that centralised collective wage setting prevents many people from setting a low RW. If the wage exceeds the competitively determined level - for example, the result of union bargaining, efficiency wages, or institutional wage-setting - then people are likely to report a high RW based on the wages that they observe. This behaviour may reflect adherence to social norms which prevent undercutting (Solow, 1990; Osmani, 1990) or a concern about fairness. The notion of fairness is normally advanced to explain the outcomes generally observed in ‘ultimatum’ games in rich and poor societies - namely the apparently irrational rejection of beneficial but low offers by players in the game (Gintis, 2000)¹⁴.

Thirdly, adopting a bargaining stance: when people are asked a question about the minimum wage they will accept for a job, they may imagine themselves in a bargaining context, since that is the context in which they are ever asked such a question (‘what wage are you willing to work for?’). The RW they then report is the one they would start bargaining with - but in most cases, they would be prepared to come down considerably from that initial figure¹⁵.

¹⁴ The ultimatum game experiment normally takes the following form: under conditions of anonymity, one player, called the ‘proposer’ is handed a sum of money, say \$10, and is told to offer any number of dollars between \$1 and \$10 to the second player, who is called the ‘responder’. The responder - again under conditions of anonymity - can either accept the offer or reject it. If the responder accepts the offer, the money is shared accordingly. If the responder rejects the offer, both players receive nothing. The economically rational response would be to accept even very low offers. However, when the game is played, respondents frequently reject offers below 30% of the total stake. This suggests that respondents have notions about what they would consider ‘fair’.

¹⁵ There is anecdotal evidence for this explanation from researchers who have done field work collecting information on reservation wages. For example, according to a personal communication from Nicoli Nattrass, women trained as machinists who were asked the minimum they would be willing to accept initially quoted about R120 per week, but when a less hypothetical question was posed - ‘there is a factory nearby which is offering jobs to women machinists for R64 per week: would you accept it?’ - all the women in the sample were willing to take the job. Kingdon found similarly in Nyanga township that some young men quoted R 1000 per month as the

Fourthly, people may report a reservation wage for work in a geographical area other than the one in which they live. For example, a person living in a rural area but aspiring to work in an urban area may have a high reservation wage relative to his predicted wage because the wage equation predicts a lower than urban wage for rural workers¹⁶.

These explanations are not mutually exclusive. If there is a lack of common understanding of the reservation wage question across respondents, it will render the reported RWs unreliable. It is conspicuous in Table 8 that there is little correlation between RW and PW, with generally low values of the adjusted R-squared. This casts doubt on the reliability of the reported RWs and suggests that caution should be exercised in using them.

The explanations arising from Table 8, being based on descriptive statistics, may be spurious. We can go further by examining the factors that make a person more likely to have a high RW (relative to PW) in a multivariate context with the dataset used in Table 8, *i.e.* OHS94. We fit two models – a binary probit of HIGHRW and an OLS equation of RWR, a continuous variable. The two dependent variables are similar to each other and, indeed, their equations yield similar results. The multivariate approach permits us to test further the various hypotheses, identified above, to explain high RW. Table 9 confirms most of the inferences from the descriptive statistics. *Ceteris paribus*, low-education persons, the young, those with no previous work experience, and rural homeland persons have both a significantly higher probability of being in HIGHRW unemployment and a significantly higher RWR than their opposites. The apparently strong effect of being African in Table 8 is wiped out. This is not surprising since we now control for factors with which race is well correlated. In other words, it is not race but its correlates - such as rural homeland location and lack of education and of labour market contacts - that distinguish high and low RW behaviour.

Three of the variables have coefficients consistent with a search explanation for relatively higher reservation wages. The fact that household heads have lower reservation wages than non-heads suggests that their greater economic responsibilities require them to improve their chances of landing jobs. Age has a significant U-shaped effect in the RWR equation, with the turning point occurring at the high age of 48. This may be because opportunity cost of search is lower for young people, and they do not wish to get locked into low paying jobs. However, the result is also consistent with the explanation in terms of poor information. People may base their reservation wages not on the opportunity cost of search but on the wages that they expect. Young people have little experience of the labour market and may therefore have inaccurate expectations, biased upwards either because of natural optimism or because they adopt a bargaining stance. With age, people become more realistic about their labour market worth. Those with no education (the reference category) have both a significantly higher RWR and probability of HIGHRW than persons with each of the other educational levels. The South African labour market is more segmented for the less educated. For instance, the coefficient of variation of the wages of workers with primary school or less (1.25) exceeds that for workers who went beyond primary school (1.05). On the search hypothesis, we might expect the less educated, facing greater segmentation, to be willing to set a higher RWR, *ceteris paribus*, in the hope of landing a high-paying job. In this sense the

minimum they would be willing to accept but when asked whether they would accept a labourer's job at R 500 per month if they were offered it today, they said that if it was a regular permanent job, they would do so.

¹⁶ The wage equation used to predict wages included a dummy for urban residence which had a large positive and significant coefficient. Thus, the PW of a rural unemployed person would be significantly lower than that of an otherwise identical urban unemployed person. However, if he is reporting a RW based on a desired urban expected wage, his RW will be high relative to his actual (rural) PW.

results appear to confirm the search explanation. However, other research (Kingdon and Knight, 2001) shows the probability of employment to increase very significantly with education, i.e. the unemployment rate is much lower among the more educated. Since more educated persons have a higher probability of employment, education should raise the expected success of search and thus raise RWR. In this sense the results contradict the search explanation. However, the educated are generally better informed and, being in a tighter labour market, are likely to have heard of more wage offers. The results on education are thus consistent with the lack of information explanation.

Table 9 also confirms the effect of previous labour market experience. Holding other characteristics constant, the RWR of people with previous work experience is significantly lower than that of others. This supports the lack of information hypothesis. The effect of previous work experience is not consistent with a search explanation since people who have worked before are likely to have a higher probability of employment. Rural homeland residence is associated with a significantly higher RWR and HIGHRW than any other location category. This effect is consistent with the explanation that people report expected rather than minimum wages. Rural homeland people may be ignorant about their labour market worth in the distant cities, or they may look to the high wages found in public sector employment in the homelands. A search explanation is implausible since returns to search are likely to be the lowest for rural homeland-dwellers, given that their probability of employment is the lowest (Kingdon and Knight, 2001). Although the OHS94 dataset does not have information on household income, it did ask questions about perceived quality of life. ‘Was there any time in the last year when the household did not have enough money to feed its children?’, is used as a proxy for household poverty. Another question was ‘in winter, how difficult is it for you to breathe where you live because of smoke and pollution?’. The index of breathing difficulty is taken as a rough proxy for longterm deprivation. While the variable proxying poverty was insignificant in both regressions in Table 9, breathing difficulty was significant. People who live in deprived conditions have significantly higher RWRs and a higher probability of being in HIGHRW unemployment than their opposites. This is unlikely to lend support to a search explanation for high RWs since voluntary search is more plausible for those with less material deprivation.

In summary, while some of the findings of Table 9 (household headship and age) are consistent with a search explanation for high reservation wages, most (age, education, previous labour market experience, rural homeland residence, and material deprivation) suggest other explanations, based on the reporting of expected rather than reservation wages and on lack of information. The evidence in favour of voluntary search unemployment as the explanation for $RW > PW$ is weak.

6. Conclusion

Unemployment in South Africa is so widespread that it demands an explanation. This paper has examined two questions about South African unemployment. Firstly, why do the unemployed not enter the informal sector? Secondly, why do the unemployed not enter wage employment more readily?

The findings provide little support for the idea that unemployed people choose to be unemployed. The unemployed are, on average, substantially worse off than the informally employed - in terms of income, expenditure and well-being. This contradicts the luxury unemployment interpretation of joblessness, whereby higher household income reduces the

incentive to become employed in the informal sector and increases the incentive to consume more leisure. It might be contended that, given the disutility of work, some people prefer to substitute leisure for higher monetary income, so that their apparent deprivation cannot be used to argue that they are constrained to be unemployed. However, if their unemployment is to be interpreted as voluntary, such people should be happier (or less unhappy) than employed people. Our findings show that the unemployed are very substantially and significantly less satisfied with their quality of life than informally employed people. They suggest that unemployment arises not through choice but through impediments to entry into informal work, and they are at odds with the notion that unemployment is voluntary. Although this important issue deserves more research, we find various plausible reasons why the informal sector has been inhospitable to newcomers in South Africa.

Our test of the hypothesis that the unemployed have unrealistically high wage aspirations was inconclusive. Although about half of the jobless had reservation wages that were higher than the wage they could reasonably expect in wage employment, it is doubtful that many of these were voluntarily unemployed. The reported reservation wages are unreliable guides to the nature of unemployment. Firstly, the survey question about the reservation wage was not sufficiently specific: it was open to various interpretations. Thus, secondly, people appear often to report the wages they hope to obtain in the formal sector (which are possibly also the wages they regard as fair) rather than the minimum they would accept. Nevertheless, the reported reservation wages bear little relation to predicted formal sector wages, and variations in the latter explain only a very small proportion of the variation in the former. Thirdly, therefore, lack of information about the labour market – the result of living in remote areas, lack of education, or lack of previous work experience - causes people to be ignorant about their market worth. Fourthly, people may imagine themselves in a bargaining context when asked a question about the reservation wage. Ignorance combined with natural optimism, or bargaining considerations, may help to explain why the reported reservation wage often exceeds the predicted wage.

It is very likely that most currently unemployed workers in South Africa are involuntarily unemployed in the sense that they would accept formal sector jobs at the going wages. Although each unemployed worker may voluntarily choose not to enter free-entry activities, this may well be because incomes in the free-entry part of the informal sector are extremely low. The apparent act of choice is effectively involuntary. For as long as barriers to entry continue to restrict opportunities in much of the informal sector, this sector will be unable to absorb significantly more of the currently jobless. Unemployed workers face a high probability of remaining unemployed, whatever their search activity. A graphic example is provided by the 39,000 applications for 35 permanent jobs as gardeners and cleaners which were advertised by the University of Cape Town¹⁷. The need for policies that would reduce unemployment in South Africa is compelling. So also is the need for research that would compare South Africa with similar developing countries which have avoided high unemployment.

¹⁷ *Monday Paper*, 16, 3, March 3-10, 1997, University of Cape Town, “Applications Stream in for Workers' Posts”.

References:

- Banerjee, B. (1986) *Rural to Urban Migration and the Urban Labour Market: A case study of Delhi*, Himalaya Publishing House, Bombay.
- Benjamin, D. and L. Kochin (1979) "Searching for an Explanation of Unemployment in Interwar Britain", *Journal of Political Economy*, 87: 441-470.
- Bhorat, H. (1999) "The October Household Survey, Unemployment and the Informal Sector: A Note", *South African Journal of Economics*, 67, No. 2: 320-326.
- Black, P. A. and N. Rankin (1998) "On the Cost-Increasing Effect of the New Labour Laws in South Africa", *South African Journal of Economics*, 66, No. 4: 452-63.
- Blanchflower, D. and A. Oswald (1999) "Well-being over time in Britain and the USA", mimeo, Economics Department, Warwick University, November, 1999.
- Clark, A. E. and A. Oswald (1994) "Unhappiness and Unemployment", *Economic Journal*, 104 (424), May 1994: 648-59.
- Collins, M. (1982) "Unemployment in Interwar Britain: Still Searching for an Explanation", *Journal of Political Economy*, 90(2), April: p369-79.
- Crafts, N. F. R. (1985) "Long Term Unemployment in Britain in the 1930s", *Economic History Review*, 40(3): 418-32.
- Cross, Rodney (1982) "How much Voluntary Unemployment in Interwar Britain?", *Journal of Political Economy*, 90(2), April: p380-85.
- Di Tella, R., R. McCulloch, and A. Oswald (1998) "The Macroeconomics of Happiness", paper presented at the Conference on The Labour Market: Stocks and Flows, Institute of Economics and Statistics, University of Oxford, 28-29 September, 1998.
- Gerson, J. (1981) "The Question of Structural Unemployment in South Africa", *South African Journal of Economics*, 49, No. 1.
- Gintis, Herbert (2000) *Game Theory Evolving*, Princeton University Press, Princeton.
- Harris, John and Michael Todaro (1970) "Migration, Unemployment, and Development: A Two-Sector Analysis", *American Economic Review*, 60, No. 1, March: p126-42.
- Harris, John and Richard Sabot (1982) "Urban Unemployment in LDCs: Towards a More General Search Model", chapter 2 in R. Sabot (ed.) *Migration and the Labour Market in Developing Countries*, Westview Press, Boulder.
- ILO (1996) "Restructuring the Labour Market: The South African Challenge: An ILO Country Review", ILO, Geneva.
- Johnston, J. and J. DiNardo (1997) *Econometric Methods*, McGraw Hill.
- Kantor, B. (1980) "Blacks: Is there Unemployment?", *Businessmen's Law*, No. 9: p104-7, 143-44.

- Kaplinsky, Raphael (1995) "Capital Intensity in South African Manufacturing and Unemployment, 1972-90", *World Development*, 23, No. 2: 179-92.
- Kingdon, Geeta G. and John Knight (1999) "Unemployment and Wages in South Africa: A Spatial Approach", Working Paper No. WPS/99-12, Centre for the Study of African Economies, University of Oxford.
- Kingdon, Geeta G. and John Knight (2000) "Are Searching and Non-Searching Unemployment Distinct States when Unemployment is high? The Case of South Africa", Working Paper No. WPS/2000-2, Centre for the Study of African Economies, University of Oxford.
- Kingdon, Geeta G. and John Knight (2001) "The Incidence of Unemployment in South Africa", mimeo, Centre for the Study of African Economies, University of Oxford.
- Knight, J. B. (1982) "The Nature of Unemployment in South Africa", *South African Journal of Economics*, 50, No. 1: 1-12
- Kulshreshtha, A. C. and Gulab Singh (1998) "Contribution of Informal Sector in the Indian Economy", Central Statistical Organisation, New Delhi.
- Layard, Richard., Steve Nickell, and Richard Jackman (1991) *Unemployment: Macroeconomic Performance and the Labour Market*, Oxford University Press.
- Maluccio, J., L. Haddad and J. May (1999) "Social Capital and Income Generation in South Africa: 1993-98", Food Consumption and Nutrition Division Discussion Paper No. 71, International Food Policy Research Institute, Sept. 1999, Washington D.C.
- Manning, C. and A. Mashigo (1993) "Manufacturing in Microenterprises in South Africa", Research Report, COSATU/Economic Trends Group Industrial Strategy Project, Development Policy Research Unit, University of Cape Town.
- Manski, Charles (1989) "Anatomy of the Selection Problem", *Journal of Human Resources*, 24(3): 343-60.
- Metcalf, D., Steve Nickell and N. Floros (1982) "Still Searching for an Explanation of Unemployment in Interwar Britain", *Journal of Political Economy*, 90(2), April: p386-99.
- Ormerod, Paul and G. D. N. Worswick (1982) "Unemployment in Interwar Britain", *Journal of Political Economy*, 90(2), April: p400-09.
- Osmani, S. R. (1990) "Wage Determination in Rural Labour Markets: The Theory of Implicit Co-operation", *Journal of Development Economics*, 34, No. 1-2, November: p3-23.
- Polachek, S. W. and W. S. Siebert (1993) *The Economics of Earnings*, Cambridge University Press.
- Rogerson, C.M. (1992) "The Absorptive Capacity of the Informal Sector in the South African City", in David M. Smith (ed.) *The Apartheid City and Beyond*, Routledge.

- Schaffner, J. A. (1998) "Generating Conditional Expectations From Models with Selectivity Bias: Comment", *Economics Letters*, 58: 255-61.
- Schlemmer, L. and C. Levitz (1998) *Unemployment in South Africa: The Facts, the Prospects, and an Exploration of Solutions*, South African Institute of Race Relations, Johannesburg.
- Simkins, Charles (1982) "Structural Unemployment Revisited", SALDRU Fact Sheet No. 1, University of Cape Town.
- Solow, Robert (1990) *The Labour Market as a Social Institution*, Oxford, Blackwell.
- StatsSA (1998) *Unemployment and Employment in South Africa*, Statistics South Africa, Pretoria.
- StatsSA (2000) *October Household Survey Statistical Release PO317*, May 2000, website: http://www.statssa.gov.za/Statistical_releases/Statistical_releases.htm.
- Stigler, George (1962) "Information in the Labour Market", *Journal of Political Economy*, 70 (supplement), October.
- Theodossiou, I. (1998) "The effects of Low Pay and Unemployment on Psychological Well-being: A Logistic Regression Approach", *Journal of Health Economics*, 17: 85-104.
- Vella, Frank (1988) "Generating Conditional Expectations From Models with Selectivity Bias", *Economics Letters*, 28: 97-103.
- Warr, P.B., P.R. Jackson and M. Banks (1988) "Unemployment and Mental Health: Some British Studies", *Journal of Social Issues*, 44: 47-68.
- Wilson, Francis and Mamphela Ramphela (1989) *Uprooting Poverty: The South African Challenge*, W.W. Norton & Co., London.

Table 1
Percentage distribution of 'broad' labour force participants into unemployed, informal workers, and formal workers, by gender, region, and race
SALDRU 1993 data

	Unemployed (a)	Informally employed (b)	Formally employed (c)	Total (a + b + c) %	N
Rural					
males	35	13	52	100	3038
females	48	25	27	100	2671
total	41	18	41	100	5754
Urban					
males	21	15	64	100	4121
females	27	26	47	100	3441
total	24	20	56	100	7562
Rural+urban					
males	27	14	59	100	7204
females	36	25	38	100	6112
total	31	19	50	100	13316
Race					
African	39	21	40	100	9578
Coloured	21	15	64	100	1302
Indian	11	15	73	100	451
White	5	14	81	100	1985
total	31	19	50	100	13316

Table 2
Labour market status and Socio-economic situation
SALDRU93 data

	Unemployed	Informally employed	Formally employed
Household unemployment rate	0.751	0.134	0.105
Per capita household income:(Rand/month)			
- mean	185.68	594.50	989.90
- median	104.26	200.00	549.25
Per capita household expenditure: (Rand/month)			
- mean	221.02	458.55	772.15
- median	147.30	242.02	440.53
Other indicators:			
Remittance income/total income	0.17	0.07	0.01
Other non-earned income/total income	0.26	0.10	0.04
Below international poverty line of \$1 a day	0.45	0.30	0.08
Number of assets*	3.16	4.11	5.25
Years of education	7.06	6.66	8.51
African	0.90	0.78	0.58
Household size	7.01	5.38	4.70
Perception of well-being:			
Dissatisfied or very dissatisfied with life	0.73	0.57	0.46
Thinks that the most important help by govt would be help with jobs	0.65	0.51	0.44
Living conditions:			
Lives in a house/part of house	0.50	0.56	0.66
Number of household members per room	1.95	1.61	1.27
Dwelling has corrugated iron roof	0.65	0.60	0.45
Piped water within or tap in yard	0.43	0.61	0.75
Has to fetch water daily	0.53	0.36	0.22
Distance to water (meters)	260.90	174.14	83.61
Dwelling has flush toilet	0.33	0.50	0.68
Dwelling has electricity connection	0.35	0.52	0.71
Community characteristics:			
Urban	0.43	0.58	0.65
Homeland	0.59	0.41	0.24
Number of facilities in community	2.90	3.43	5.80
Distance to facilities from home	98.89	74.37	65.17
Community has tarred roads	0.15	0.28	0.43
Roads impassable at certain times of year	0.51	0.43	0.27
N (% of labour force)	4154 (31%)	2542 (19%)	6620 (50%)

Notes: Apart from 'years of education' and community characteristics, all above variables are coded at the household level in the dataset. For the purposes of this table, however, we have assigned the value of the household variable to each individual member of the household. Then we take the sub-sample of persons in each labour market 'state' and average the variables across individuals in that state. Similarly, the community variables are assigned to each individual living in that community before averaging across unemployed individuals in a given state. The very high household unemployment rate in the first column indicates that unemployed people are likely to live in households where other members are unemployed as well. *Number of assets owned by the family from among the following list: motor vehicle, bicycles, radio, electric stove, gas stove, fridge, primus cooker, TV, geyser, electric kettle, and telephone.

Table 3
Average of predicted earnings of unemployed persons

Wage equation	In informal self-employment	In casual wage employment
OLS	267	286
Selectivity corrected (λ exclusive prediction)	363	389
Selectivity corrected (λ inclusive prediction)	437	430

Table 4
Marginal product of labour in self-employment

	Marginal product of labour in self-employment		Monthly per capita income in unemployment
	With capital	Without capital	
Median	188	160	104
Mean	1273	447	186

Note: For self-employed persons whose businesses used any capital, log of (value of) output was regressed on log of (value of) input and on logs of capital and labour hours. Other variables were years of education and region (urban and homeland). The adjusted R-square was 0.695. The mean (median) marginal product of labour was calculated by multiplying the coefficient on log of labour by the mean (median) of ratio of output to labour. This yielded a MPL of R 187.91 per month on the basis of 40 hours work per week and 4.3 weeks per month.

Table 5
Impact of unemployment and informal employment on perceived quality of life
SALDRU - Household level averaged data

Variable	Coefficient	Robust t-value	Marginal effect**	Coefficient	Robust t-value	Marginal effect**
Household unemployment rate	-0.326	-6.40	-0.117	-0.307	-5.38	-0.110
HH informal employment rate				0.038	0.73	0.014
Age	-0.030	-2.79	-0.011	-0.030	-2.75	-0.011
Age square	0.000	2.71	0.000	0.000	2.67	0.000
Education : primary*	-0.017	-0.28	-0.006	-0.017	-0.28	-0.006
junior*	0.018	0.29	0.007	0.020	0.32	0.007
secondary*	0.091	1.46	0.033	0.094	1.51	0.034
higher*	0.580	5.88	0.208	0.585	5.90	0.210
Training*	-0.392	-4.55	-0.141	-0.390	-4.54	-0.140
Migrate*	0.206	1.70	0.074	0.207	1.70	0.074
HH per capita income Quartile2	0.016	0.36	0.006	0.021	0.47	0.008
Quartile3	0.242	3.73	0.087	0.252	3.87	0.090
Quartile4	0.285	3.53	0.102	0.298	3.53	0.107
Lives in owned home*	0.120	2.73	0.043	0.120	2.73	0.043
Number of children<16 in HH	0.003	0.34	0.001	0.004	0.41	0.002
Number of elderly>64 in HH	0.030	0.98	0.011	0.029	0.96	0.011
Urban*	-0.201	-2.23	-0.072	-0.205	-2.30	-0.074
Male*	-0.026	-0.56	-0.009	-0.020	-0.44	-0.007
African*	-0.935	-8.74	-0.335	-0.935	-8.74	-0.335
Coloured*	-0.432	-3.65	-0.155	-0.429	-3.63	-0.154
Indian*	-0.253	-2.33	-0.091	-0.254	-2.34	-0.091
Racial minority in community*	0.178	1.78	0.064	0.173	1.76	0.062
Homeland*	0.003	0.02	0.001	-0.002	-0.02	-0.001
Cluster controls		yes			yes	
Province dummies		yes			yes	
N		7212			7212	
LogL		-9717.66			-9716.27	
Restricted LogL		-10657.14			-10657.14	
Pseudo R-square		0.0882			0.0883	

Note: * signifies a 0/1 variable. ** signifies marginal effect of variable on the probability that the household is satisfied or very satisfied with its quality of life. Cluster controls include cluster crime rate, cluster food-price index, and a dummy for whether cluster has roads that become impassable at certain times of the year. Omitted categories are no education, no pre-employment vocational training, non-migrant, lowest household per capita income quartile, non-owned home, rural, female, white race, non-minority and non-homeland.

Table 6
Percentage distribution of duration of unemployment, OHS97

Uncompleted duration	Frequency	Percent	Cumulative percent
0 - 1 months	1012	6.3	6.3
1 - 6 months	1694	10.6	16.9
6 -12 months	2794	17.5	34.4
12-36 months	4574	28.7	63.1
>36 months	5891	36.9	100.0
All	15965	100.0	100.0

Table 7
Reservation wage minus predicted wage and voluntary unemployment

	N	Reservation wage (RW)	Predicted wage (PW)	Reservation wage ratio $RWR=(RW/PW)$	% of unemployed for whom $HIGHRW=1$
SALDRU93	1305	789	734	1.20	0.55
OHS94	13485	799	749	1.15	0.49
OHS94:	Cumulative distribution of RWR				
	≤ 0.6	≤ 0.8	≤ 1.0	≤ 1.2	≤ 1.4
Cumulative percentage distribution (%)	28.8	38.4	49.5	60.1	69.8

Table 8
Reservation wage ratio and elasticity of the reservation wage with respect to the predicted wage, by worker group, OHS94

Type of worker	Average		Reservation wage ratio	<u>Regression of logRW on logPW</u>	
	RW	PW		Elasticity of the RW with respect to the PW	Adjusted R-square
Female	736	672	1.16	0.763	0.1498
Male	889	860	1.13	0.615	0.0990
African	770	646	1.27	0.667	0.1075
Non-African	882	1048	0.81	1.269	0.3341
Low education (≤ 7 years schooling)	618	496	1.30	0.546	0.0400
High education (> 7 years schooling)	932	935	1.04	0.801	0.1327
Young (age ≤ 30 years)	761	694	1.18	0.700	0.1214
Older (age > 30 years)	843	814	1.12	0.704	0.1464
Ever worked before	823	849	1.02	0.870	0.2060
Never worked before	784	687	1.23	0.608	0.0969
Low duration (unemployed ≤ 1 year)	847	812	1.10	0.846	0.1891
High duration (unemployed > 1 year)	773	716	1.17	0.612	0.1039
Urban homeland	916	978	0.98	0.773	0.0923
Rural homeland	771	587	1.37	0.567	0.0597
Urban non-homeland	844	863	1.04	0.755	0.1427
Rural non-homeland	515	460	1.12	0.911	0.1629

Note: The elasticity was calculated by regressing log of reservation wage on predicted log wage.

Table 9
Determinants of HighRW and RWR, OHS94 data

	Binary probit of HighRW		OLS regression of RWR	
	Coefficient	Robust t-value	Coefficient	Robust t-value
Age	-0.0116	-1.54	-0.0288	-4.22 ***
Age square	0.0001	1.29	0.0003	3.89 ***
Male*	-0.0073	-0.23	0.0091	0.36
Household head*	-0.2003	-4.67 ***	-0.1334	-5.07 ***
Married*	-0.0849	-2.62 ***	-0.0065	-0.21
Number of dependents	-0.0058	-0.69	0.0002	0.03
Race : African*	-0.0296	-0.30	0.0232	0.41
Coloured*	-0.5737	-4.91 ***	-0.3823	-6.95 ***
Indian*	0.1845	1.49	-0.0301	-0.39
Location: Urban homeland*	-0.4400	-3.46 ***	-0.3137	-3.71 ***
Rural non-homeland*	-0.4200	-3.18 ***	-0.2050	-2.43 **
Urban non-homeland*	-0.3281	-2.78 ***	-0.1795	-2.45 **
Numemp1*	-0.0258	-1.56	-0.0138	-1.10
Education : primary*	-0.2148	-3.46 ***	-0.1811	-3.78 ***
junior*	-0.3826	-5.08 ***	-0.3378	-6.34 ***
secondary*	-0.2528	-2.87 ***	-0.3406	-6.03 ***
higher*	-0.3580	-1.91 *	-0.2576	-2.62 ***
Vocational training*	0.0316	0.16	-0.0907	-0.93
Lives in owned home*	0.1627	2.75 ***	0.0615	1.57
Beforewk*	-0.1248	-2.76 ***	-0.0705	-2.03 **
Nmfchild*	0.0498	1.10	0.0396	1.25
Dbreathe	0.0615	2.64 ***	0.0360	2.00 **
Constant	0.8332	3.26 ***	2.0868	11.21 ***
Province dummies	yes		yes	
N	13485		13485	
Adjusted/pseudo R-square	0.0793		0.0709	
LogL	-8604.36		----	
Mean dependent variable	0.49		1.15	

Note: HIGHRW=1 if RW>PW, 0 otherwise; RWR=RW/PW; Number of dependents is the number of persons below 16 and over 65 in the household; Numemp1=number of household members who are employed; Beforewk=1 for individual who ever worked in the past for pay, profit, or family gain, 0 otherwise. Variables marked with * are 0/1 variables; Nmfchild=1 in the last year, there was ever a time when the household did not have enough money to feed the children in the household; Dbreathe is an index of how difficult it is for members to breathe where the household lives because of smoke and pollution and it takes the value of 1 for not difficult and 4 for very difficult; Base category for region is rural homeland. SALDRU data has RW information only on those unemployed persons who searched in the past week, yielding a much smaller sample size of 1305 persons on whom RW data is available.

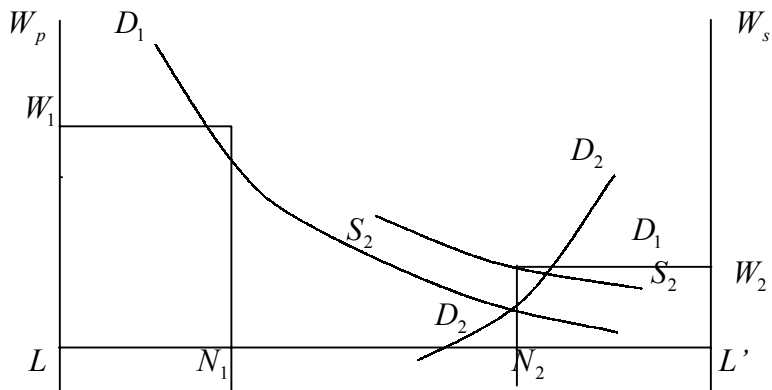


Figure 1

The formal and informal sector of the labour market

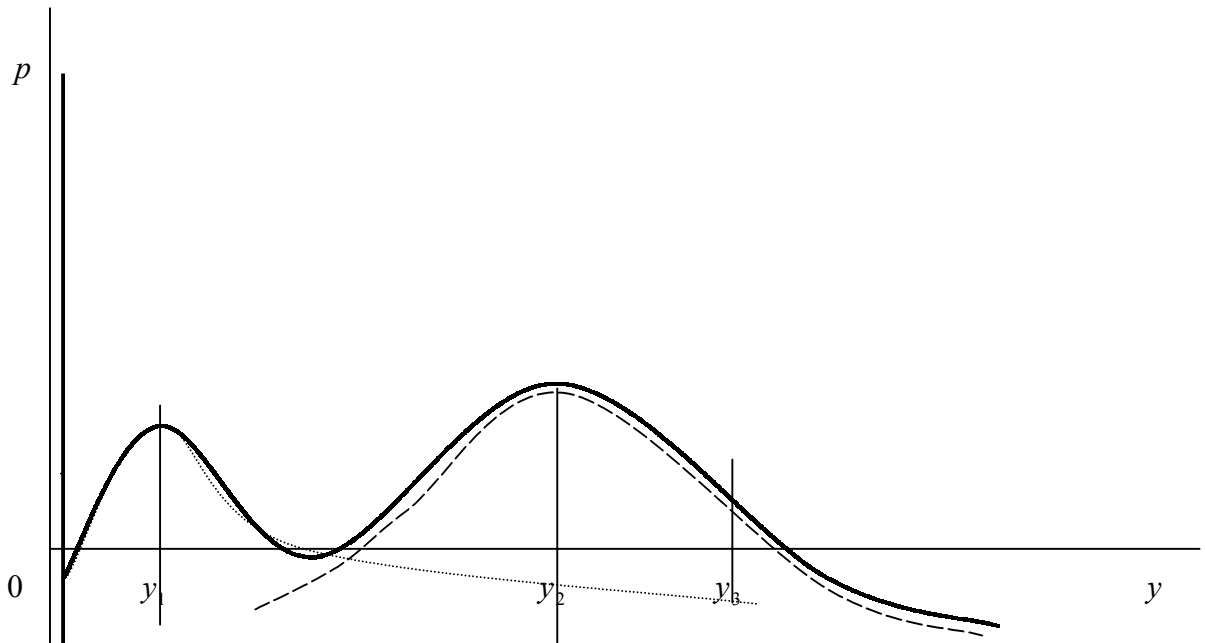


Figure 2

Distribution of earnings by unemployment, informal employment, and formal employment
(The area under the bold curve is equal to 1.0)

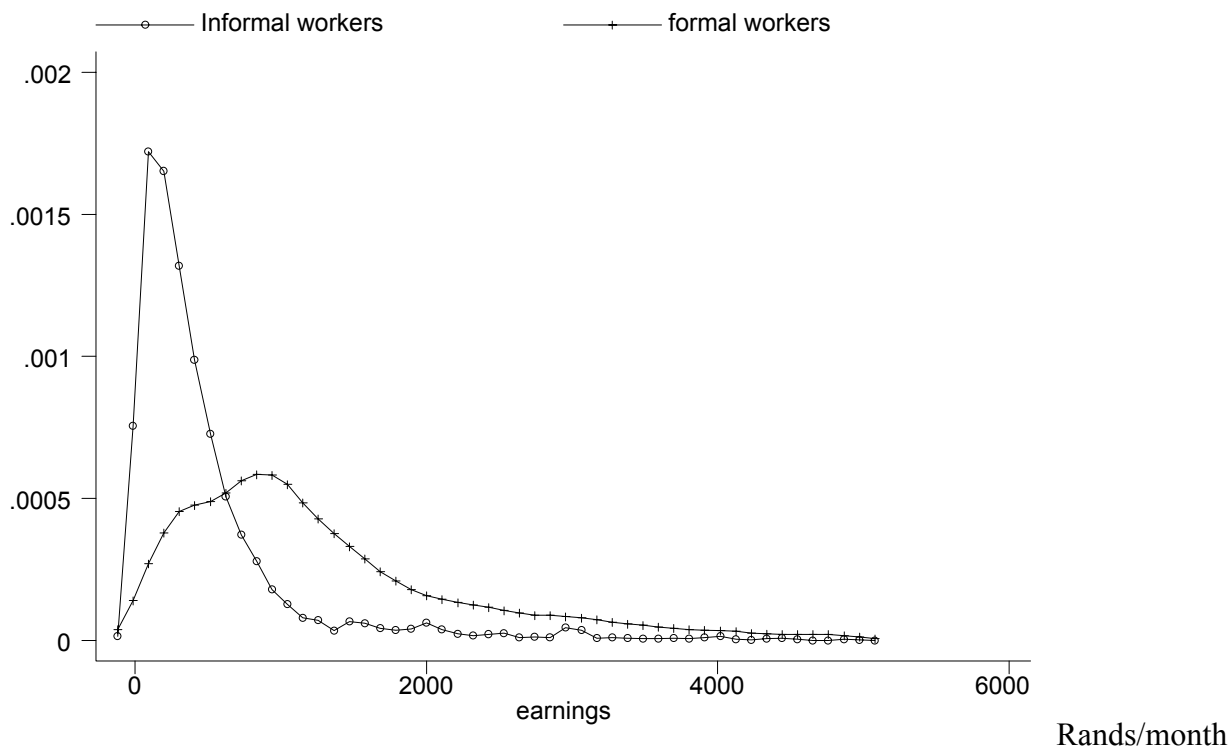


Figure 3
 Epanechnikov kernel density of monthly earnings
 (The area under each curve is equal to 1.0)