The Dynamics of Job Search and the Microfoundations of Unemployment: Evidence from Duncan Village

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1. Introduction

There is significant consensus that unemployment and more generally, exclusion from the labour market, is the central socio-economic problem in South Africa. Joblessness is strongly implicated in such socio-economic problems as crime, poverty, alcoholism, HIV-AIDS, and even poor educational outcomes and low skill levels (see for example Bhorat *et al.* 2001; Fryer and Vencatachellum, 2004; Nattrass, 2003).

The literature flowing from household survey data has however tended to confine itself to *measuring* unemployment and its consequences. In doing this, it tends to treat unemployment as something that *happens to* individuals and communities. However, factors such as unemployment and poverty will have obvious feedback effects on the current capabilities of individuals, on the intergenerational transmission of capital (and especially human capital) and on social and market structure. Below critical threshold levels, such factors can generate market and coordination failures. The distortions generated by unemployment can become endogenized in the sense that they become part of the *cause* of unemployment. To date, there is no clear understanding in the South African literature as to whether such endogenous factors are important and how they interact with other factors such as so-called imposed distortions (caused, for example by labour legislation and union wage premia) and other macroeconomic causes of unemployment. Section 2 sets out the theoretical case in slightly more detail.

Part of the reason that these issues have been under-explored is that existing household survey data is deficient in the kinds of information that would allow for such an

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exploration. For example very little is known about job search in South Africa. The importance of understanding job search is obvious. Job search *is* the external labour market, in the sense that it defines the way in which employees and employers locate each other, and, as such, it is one of the most important factors determining the information structure of the labour market. Moreover, it is also the interface between the social and the more narrowly economic spheres. [2]

In order to explore such questions, therefore, it is necessary to go beyond existing household survey data, and generate databases that allow for these potential feedback mechanisms to be explored. Section 3 reports on one such dataset, a January 2004 survey of 160 households in Duncan Village, a peri-urban township located within easy commuting distance of the East London CBD and the West Bank industrial area (see Map 1). Duncan Village is well suited for such a study, for a variety of reasons. Firstly, Duncan Village has been well studied, particularly by urban anthropologists (Bank, 2002). Secondly, unemployment levels are extremely high (Table 1 below), yet in contrast to many rural areas and small towns in South Africa, the proximity to the CBD and West Bank means there is a fairly interesting mix of jobs in the community.

Although the data exploration reported in Section 3 is preliminary, and inferences for the South African labour market in general cannot be drawn from one small community, the results are nevertheless suggestive. The evidence presented in Section 3 supports the hypothesis that endogenous distortions may be very important given the 'typical' economic environment faced by the 'typical' poor South African household. The data seems to confirm that the *endogenous* structure of the labour market, and particularly the use of social networks in search, exacerbates exclusion. It also demonstrates how exclusion may generate very powerful intergenerational effects. Section 4 concludes.

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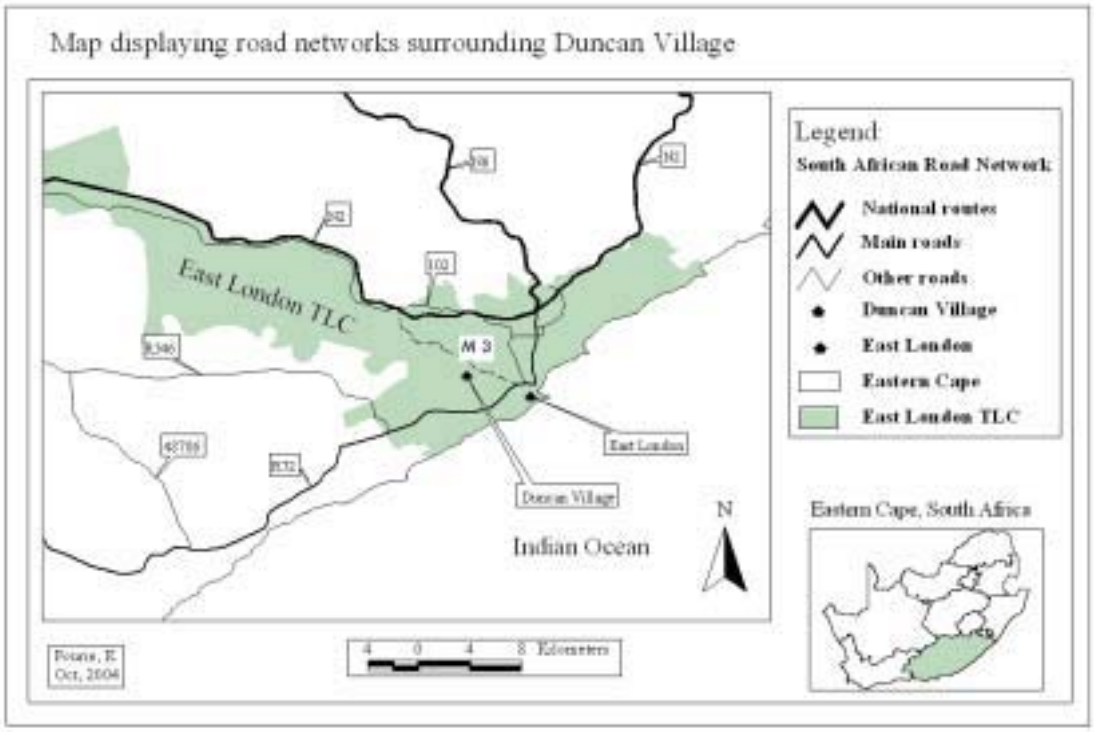
2 This relationship is explored by Godbout (1998) who describes *markets* as the *secondary sphere of sociability*. We might follow this and call a large proportion of social activity the 'secondary sphere of the economy'. A synthesis between the narrowly economic and the social would need to incorporate both of these insights.

Map 1: Duncan Village road networks and proximity to CBD



Source: Fourie, K (2004)

2. Some theoretical issues

The principle theoretical inspiration for this work is the notion of market failure developed since Akerlof (1970) and, in particular, the application of failure theoretic approaches to the labour market. Akerlof's (1970) principle insight is that in the presence of information asymmetries, *impersonal* market relations *will* fail and, that this failure will be complete. Akerlof framed his argument in terms of quality uncertainty, asymmetric information, and adverse selection. In this section it is argued that these considerations are likely to be important in the South African labour market.

Markets may not fail in two circumstances. Firstly, market transactions may have important *personal* components (in the sense that they involve durable relationships) that facilitate trust and hence prevent failure. Secondly, there may be a *threshold* above which the adverse selection trap is avoided even for impersonal transactions. It may seem obvious that some market transactions that actually work are impersonal. However, Akerlof's criticism is very fundamental, and in purely *physical* terms (as opposed to social), the requirements for a market to work are prohibitive. Even with *completely* homogeneous products, the buyer needs to be reasonably skilled at judging quality, and needs to spend time checking the goods. As the size of the transaction increases, transaction costs mount. This is particularly the case because even with goods that nature provides in a fairly homogeneous state, moral hazard means that sellers have the incentive to adulterate them. For example, although maize is a fairly homogeneous product, sellers of grain are notorious for adding stones to or wetting grain to bulk it out. It might be relatively easy to check whether a small bag of grain is clean, but a dealer who wants to buy tons of the stuff may have a problem. Moreover, even if there is no difficulty with *quality* verification, the existence of *any* time lag between delivery and payment will generate dishonesty in the absence of any trust enforcing mechanisms (Williamson, 1985).

As a consequence, markets are almost always supported by *trust*. Contracts, enforceable through the law courts, are one way of enforcing trust, but using the law-courts is expensive and, in any case, it is very hard to write contracts that cover every possible contingency. In practice, therefore the 'glue' that holds the economy together is *informal trust.* If you buy a loaf of bread from Spar, you take it on trust that its quality will be of a certain standard. When you buy a tin of All Gold baked beans, you are taking it on trust that the tin does not merely contain water. Trust is essentially *social* because it involves a relationship between the buyer and seller. Spar knows that its relationship with its customers will be broken if it violates its self-imposed standards. Many sellers thus rely on *reputation.* This is very important, because provided that there are several sellers, the fact that the market is not purely impersonal does not necessarily mean that it is not 'first best' in the neoclassical sense. Once a standard has arisen, and is enforced either by some authority or by the eagerness of sellers to maintain their reputation, customers may well be able to shop around freely for the best deal. Even though one may have a relationship with a particular store,

one's exit option is fairly open, so that if that store's standards start to slip, or it tries to raise its price, one can exit that particular relationship and form another quite easily.

This consideration implies that *first best* may still be important even when markets are not *perfectly* competitive. They may remain *contestable* (Baumol and Willig, 1981; Tavares de Araujo, 1995; Fryer and Stuart, 2002) if entry and exit are reasonably easy, even if there are large firms (responding to technological externalities or 'making' the market) or if the commodity traded is subject to externalities.

However, while it might be the case that many markets do work in 'first best' fashion, it seems equally obvious that many do not, and therefore that 'first best' is not universal. Some market relationships fail or are *dominated* by one or other of the parties because they are not contestable. The interesting question (which economic theory is just beginning to tackle) concerns exactly where the threshold between first best and other forms lies.

Consider the labour market. Although "who you know" is often the dominant factor in getting a job, many jobs *are* filled "on merit"—what evidence there is suggests that just under half of workers in developed countries get their jobs through the impersonal, strictly market channels of applications and agencies (Montgomery, 1991; Calvó-Armengol and Jackson, 2004). Buyers may be sufficiently well informed about the quality of the asset for the adverse selection trap to be avoided. Moreover, it is easier to be informed about quality if there is less quality variation. Standards become very important. On this point, it is instructive to consider the effect of education on the quality of labour (that is, its productivity). In countries with excellent education systems, workers with a particularly level of education (say, nine years of education) will not only be on average more productive than their counterparts in countries with weak education systems, their quality will also be less *variable*. Nickell (1998), for example, shows that the German education system provides better and less variable education for lower skilled workers than its American and British counterparts, and links these to labour market outcomes.[3]

There is ample evidence that the current stock of human capital in South Africa is beset by problems of low and variable quality. For example, Bhorat *et al* (2001:127-8) comment on literacy and numeracy test results for the 13 to 18 age group in 1993. Even whites do not do very well, but the performance of blacks is alarming. Numeracy skills for blacks were only about 40% of those of whites. Literacy skills were about 55% of those of whites. Pass rates do not lag behind as much. This implies that blacks with any particular level of education are on average less numerate and literate than their white peers. For blacks already in the labour market there is evidence that "normal" factors associated with lack of

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[3] (West) German men in the bottom wage decile appear to earn twice as much their American counterparts (Nickell, 1998: 309), and the difference is growing. Nickell (1998: 298) reports that real wages of bottom decile worker fell by over 1% *per annum* and increased by over 2.5% *per annum* in the 1980s in the USA and Germany respectively.

educational resources were further compromised by apartheid education. Chisholm (1992: 281) notes that 66% of the black adult population was functionally illiterate in 1992, with the highest number in the 16-34 age group–the "generation schooled by apartheid". This group is currently in its prime working years (26-44). Chisholm's comments about apartheid education – "Levels of illiteracy and innumeracy appear to have *risen* with higher numbers attending school" – lends support to the notion that there is abnormal quality *variation* in human capital in South Africa. [4]

Where these thresholds are not achieved, markets will fail unless alternative channels based on personal relationships are available. In the example of the South African labour market, there is evidence that for the majority of workers without at least 10 years of education, "formal", first best market channels are not available. In the two samples discussed in Section 3, the monopolization of formal search channels by the relatively well-educated is very striking.

For the rest, it follows that unless they have access to alternative *social* channels of information (particularly referrals from friends and relatives), they are likely to face failure, because they will be unable to provide employers with a credible signal of their quality. Indicators of the extent of failure in the South African labour market are stark and well-known. These are discussed in Section 3, but it is worth noting here that, of the jobless, the majority is not even engaged in job search, and presumably the main reason for this is that the prospects of finding work are virtually (or in many cases, actually) zero. Finally, what evidence there is (discussed in Section 3) suggests that of those that do search, the vast majority (roughly three quarters) seems to have no access to either "first best" or social channels of information. Instead, they use the relatively unproductive *private* method of 'going from place to place'. Apart from anything else (such as the ability to transmit a believable signal) such private search gains none of the economies of scale associated with 'public' and 'social' channels of information.

What evidence there is of how people in work attained their jobs (discussed in Section 3) suggests that people who use this last method are least likely to find work and, if they find work, the work is likely to be in low paying jobs. This highlights one of the negative aspects of the use of 'social capital' rather than what might be termed 'market capital' (these terms are explained in more detail below): it intensifies exclusion. High ability workers *and* workers who can verify some minimal qualities through the use of networks are selected out of the market, and this reinforces the tendency for adverse selection to

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4 Also see Case and Yogo, 1999; Case and Deaton, 1999; Anderson *et al.* 2001; Financial Mail, 2003. An indicator is that in 2002 only 3 300 blacks passed higher grade matric (university entrance level) maths, compared to 17 000 higher grade matric passes produced by the minority white community. Standardised testing at levels below matric was only introduced in 2001, and indicated (for example) that grade three students' performance in reading and writing was poor (Financial Mail, 2003: 23).

destroy the market for the remainder (see Montgomery, 1991: 1411-3). Thus those below both human capital and social capital thresholds are likely to be "doubly lemons", or "doubly outsiders".

Moreover, individuals with particular social characteristics (such as black males in the USA), and living in areas with few employed people, are least likely to have connections who can put them in contact with potential employers. Patterns of exclusion are likely to become locked in, and assume distinct geographical and demographic patterns. Initial variation is likely to be amplified through various feedback mechanisms. For example, market failure, leading to unemployment, feeds back to human capital through the depreciation of skills and ethics of workers who experience prolonged un- or underemployment, and the subsequent perceptions of employers (so-called 'statistical discrimination') that groups of workers subject to high unemployment are less productive.[5] These problems are particularly relevant for youth unemployment, which means that *fundamental* social and cognitive skills may never be acquired (Holzer, 1998). For some idea of how serious joblessness is for young South Africans, note that in 1997, only 31% and 20% of males and females aged between 21 and 25 had jobs, and the corresponding figures for the 26-30 age group were only 55% and 33% (OHS 1997 data cited by Fryer and Stuart, 2002). Moreover, there are likely to be intergenerational effects, particularly on the stocks of human capital, as both the incentive and ability to educate children is undermined in poor areas where employment prospects are bleak (these issues are discussed in more detail in Section 3).[6]

In summary, quality variation, exacerbated by high levels of unemployment, is likely to lead to measurable endogenous distortions at three levels. Firstly, 'first best' markets can be regarded as a kind of public capital asset, yielding a service (informational flows) that enhances individuals' ability to utilize their human capital fully. Adverse selection is likely to lead to the destruction of certain markets, and hence to undermine the overall capital stocks of people who are reliant on such markets. Secondly, at the level of the individual, failure is likely to affect

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5 Möller (1993) provides the most detailed account of this "depreciation" in South Africa. Also see Fryer (1998), and Dinkelman and Pirouz (2001) for South Africa, and Holzer (1998) for the USA. To recognize the importance of depreciation in our context, it is necessary to avoid the mistake of thinking that unskilled labour has no skills. Critical social and cognitive skills) are highlighted by, for example, Holzer (1998: 230). Holzer (1998: 240) also explains the dynamics of statistical discrimination.

"Minorities [in the case of the USA] are hurt in the hiring process by employer perceptions of their weaknesses in cognitive skills and observable credentials. To some extent, these perceptions are ... accurate; despite recent gains, blacks and Hispanics continue to score lower than whites on tests measuring cognitive abilities... But employer perceptions may be overstated ... [and] may well reflect some degree of employer discrimination (whether pure or 'statistical')" (Holzer, 1998: 240).

6 There are even more fundamental effects on individual ability. There are well-documented effects of poor environment on the development of young children (Brombenfenner, 1974; Kamin, 1999). For example, in a study of children in the USA, it was found that at five and half years, cared-for children had a mean IQ of 124 points while the uncared for had a mean IQ of 94 (see Montagu, 1999: 41). Massey (2004: 7) presents evidence that "long-term exposure to social disorder and violence because of segregation produces a high allostatic load among African Americans, which leads, in turn, to a variety of deleterious health and cognitive outcomes."

private capital stocks, and particularly stocks of human capital, and these effects are likely to be transmitted from generation to generation. Finally, social networks that form in response to these failures may be called 'social capital', and social capital yields information returns in a similar manner to market capital. However, reliance on social groups of limited size is likely to provide individuals with a much smaller set of information, and hence a lower likelihood of using their human capital to the full. The feedback effects may therefore only be partially mitigated. Moreover, such social networks are by their nature exclusive: their existence exacerbates market failure, and hence the exclusion of groups that do not have social or market capital stocks.

3. Results

3.1 Employment, underemployment and unemployment

Table 1 shows unemployment rates and labour force participation rates for various surveys and according to different variants of the standard definition. It presents in a nutshell both the extent of the unemployment problem and the extent of the problem facing researchers trying to understand it. What is most interesting for the present study is the *range* of possible unemployment rates. The difference between the "strict" and 'expanded' definitions has been a focal point in the literature in South Africa, and there have been several studies on the question of whether 'searching' and 'non-searching' unemployment are different states (Dinkelman and Pirouz, 2001; 2003; Kingdon and Knight, 2000b; 2001a; 2001b). However, while the strict unemployment rate is the 'lowest plausible' rate if the data is taken at face value, the expanded definition is by no means the highest plausible. The Machibisa (see note (c) in Table 1 for an explanation) and Duncan Village surveys provide much more detailed information than the other surveys on the question of ambiguity. These suggest that the difference between the expanded and so-called highest plausible unemployment rate (which takes the "expansion" to its logical conclusion) is at least comparable to the difference between the expanded and strict rates.[7]

Unemployment in Duncan Village appears to be very high, even by the strict definition, and even by South African standards. In Duncan Village (unlike the national databases), the

[7] There is significant evidence that this is also that case in the national databases. For example, a pattern of the South African datasets is the number of blacks in the non-labour force category "not elsewhere classified". In OHS (1995) for example, this category contained approximately 1 500 000 blacks (Bhorat et al. 2001: 77). There were more such unclassified black women (990 000) than there were searching black women (810 000). There is at least some evidence to suggest that a significant number of such statistical nonentities are unemployed. Of the 1991 Census data Fryer (1998) comments: "For Blacks this [not elsewhere classified] category is 11% of the working age population. It is 5% for coloured, 4% of Asians and only 1% for whites. This follows exactly the same ranking as unemployment rates, indicating that many of the 'unspecified' are probably discouraged workers."

'discouraged worker effect' (the difference between strict and expanded definitions) is small.[8] There is, however, enormous ambiguity on the employment side, and it is largely the reclassification of 'underemployed' to 'unemployed' that accounts for the very high 'highest plausible' unemployment rate of 72% for men and 76% for women in Duncan Village.

Table 1: Unemployment (U) and labour force participation rates (LFP) (%): possible ranges within the standard definition

	Strict		Expanded		Highest plausible	
	U	LFP	U	LFP	U	LFP
Machibisa[c] women (1990)	24	63	33	72	47[b]	75
Grahamstown[c] women (1996)	21	48	39[a]	62		
men	21	58	36	71		
Duncan Village (2004) women	**52**	70	**58**	80	76	82
men	46	78	51	86	72	89
National						
SALDRU (1993) total	*12*		30			
OHS (1995) total	*13*		27			
OHS (1997) women	26	38	44	50		
men	18	57	29	67		
total	*21*	**47**	36	**58**		
OHS (1999) total	*23*		36			
LFS (2002 - September) total	*31*	**57**	42	**68**		

Source: Own calculation except OHS 1995 (Bhorat et al, 2001: 77); OHS 1997 & 1999 (Dinkelman and Pirouz, 2001: 28); LFS (Simkins, 2004: 260).

Note: a) Even when the expanded unemployment rate is less than double the strict rate, it is possible that the expansion has more than doubled the number classified as unemployed. The rate may not double because the expansion increases the denominator (the number classified as in the labour force) by the same number as it does the numerator.

b) Highest plausible U: Machibisa: All cases that *could* be classified as unemployment within the spirit of the standard definition, including all part-time workers who want more work and "non labour force" women who present no "valid" non-labour force occupation; Duncan Village: All 'NLF' women who would accept an RDP job and all underemployed women who were both searching actively and would accept an RDP job.

c) The Grahamstown results are drawn from Grahamstown East, the "poor" side of Grahamstown, a small university city in the Eastern Cape Province (Fryer and Stuart, 2002). Machibisa is part of Edendale, a freehold township of Pietermaritzburg, a medium size city and administrative capital of Kwa-Zulu Natal (see Fryer, 1994 and Fryer and Vencatachellum, 2002).

8 This is almost certainly partially due to the proximity of Duncan Village to East London making search relatively easy. It is also likely that the high unemployment rate is partially due to migration in response to the fact that there *are* at least some jobs in East London.

Characterising some individuals who *have* work as "unemployed" may seem nonsensical. However, in many respects the underemployed are more similar to the unemployed than the employed, and the Duncan Village survey provides detailed data that allows for this to be tested. Table 2 attempts to show this by comparing the 'unambiguous' unemployed and employed groups, and the underemployed (those who have income, but are actively searching). The figures appear to support the hypothesis. In all respects (except that a majority of the underemployed are male)[9], the underemployed are closer to the unemployed than the employed. Their earnings are very low (reflecting low wages and low hours), they tend to be younger, and they appear to have very low reservation wages, with almost as large a proportion as the unemployed (84 percent compared to 89 percent) indicating that they would take an RDP job paying R30 for a six-hour day.

Table 2: Characteristics of the various "pure" labour market categories, Duncan Village, 2004

	Strictly Unemployed	(Under)employed searchers with income	Employed (and not searching)
Total (n)	138	52	83
"First best" earnings (" ")	R525	R506	R777
Actual earnings (" ")	R0	**R188**	R631
Hours worked per week		**34**	44
RDP?	89%	**84%**	17%
Education (years)	10	9	10
Gender (% male)	45%	54%	52%
Age	**30**	35	38

Source: Own calculations.

3.2 Job search

Note that Table 2 indicates that the unemployed are not on average less educated than the employed. This suggests that education is *not* a determinant of the likelihood of having a job in Duncan Village. This is partially a statistical artefact, stemming from the cohort of younger individuals having high education levels and facing very high unemployment rates. This is explicable in terms of educational enrolment and completion having improved since 1994, while job creation has not, so that the cohort of young people is better educated, and faces higher unemployment rates, than the cohort of older people.[10]

9 As discussed below, this may be counteracted by the fact that a higher proportion of females are 'self-employed'. It is worth noting here that the criteria used for constructing the 'highest plausible' did not take into account the self-employed, who remained treated as 'employed'.

10 The main difference in Duncan Village is in unemployment. The 'strict' unemployment rate for the 15-30 group was 61%, whereas it was 39% for the 31-50 group. The younger group was slightly better educated, with 36% of (compared to 31% for the older group) having 12 or more years of education.

Nevertheless, the fact that education is only weakly correlated to employment rates suggests that other factors determine access to jobs. The paper now turns to addressing this point directly by considering job search.

Table 3: Percentage of unemployed searchers using the various search modes

MODE	OHS (1995)	Grahamstown (1996) [a]	Machibisa (1990)	Duncan Village (2004)
Place to place (p-p)	80	52	78	60
Word of mouth (w-o-m)	**8**	**35**	**14**	**18**
Newspaper/agency (formal)	12	13	8	21

Sources: Own calculations, except Bhorat *et al.* (2001: 78) for OHS '95.
Note: a) OHS 1995, and Duncan Village 2004, males and females; Grahamstown and Machibisa, females only

Consider Table 3, which represents what might be regarded as a 'stylised fact' about job search in South Africa, namely that of the search modes explain in Section 2, 'place to place' is by some margin the dominant mode (Bhorat *et al.* 2001; Dinkelman and Pirouz, 2001; Kingdon and Knight, 2001a).

However, the idea that search activity is dominated by 'place to place' search to the extent that Table 3 suggests, does not take into account the likelihood that the sample of individuals who are unemployed have *failed* to find work, and that their search mode is therefore ineffective. Indeed, if a search mode were perfectly effective, it would not be observed in a study of the unemployed because all of the people using it would have jobs. Table 4, which pools current search with currently employed people who used the various search modes, appears to confirm this (although possible cohort effects have not been controlled for). A far higher proportion of the currently working used the other search modes ('word of mouth' and 'formal'), suggesting that these give better access to the labour market. This implies that the sample of currently searching unemployed would be a biased indicator of overall search activity.

Table 4: Employed who used search mode to get current job, compared to current searchers

Sample category / MODE	Duncan Village 2004 (Males and Females)		Machibisa 1990 (Females only)	
	Searching	Employed	Searching	Employed
Place to place (p-p)	60	27	78	43
Word of mouth (w-m)	**18**	**46**	**14**	**38**
Newspaper/ agency (formal)	21	28	8	20

Source: Own calculations.

Table 5 elaborates on this hypothesis. Firstly, it is evident that in both the Machibisa and Duncan Village samples, 'formal' methods are the preserve of the well-educated. Although the average education of individuals using this method in Duncan Village is almost 12 years, over 50% of individuals using this search mode have not found work. This may be due to the cohort effect (discussed on page **Error! Bookmark not defined.**). In Machibisa, women using this mode had lower average education levels (the their Duncan Village counterparts) and faced dramatically lower unemployment.

Even more relevant for this paper is the difference between the individuals using 'word of mouth' and 'place to place' search. The theory suggests that these individuals face failure in the labour market *per se*, and that their labour market performance depends on their ability to access information through social networks. The theory predicts that 'place to place' search, which relies on *individually gathered* information, will be associated with poorer labour market outcomes.

The data appear to confirm this expectation. Moreover, at this level of aggregation, the distinction between the two modes does not appear to be explained by educational differences and therefore does appear to be explained by social factors that impact on labour market information. The difference in terms of the probability of finding work is dramatic in both surveys. In the Machibisa sample, using 'word of mouth' also has a significant positive effect on earnings, so that the expected return to this kind of social capital is *twice* that accruing to search based purely on private capital. In Duncan village, the difference in the probability of getting work is so great that it overcomes what appears to be a slight wage disadvantage (an anomaly that is discussed below) compared to those who used private information.

Table 5: Indicators of differential access

Mode	% male	Mean education (years)		Expected wage[b]		Unemployment		Mean wage (employed)[b]	
	DV	DV	Mach	DV	Mach	DV	Mach	DV	Mach
p-p	76%[a]	10.1	6.6	R98	R30	76%	50%	R415	R61
w-m	51%	9.7	6.4	R256	R66	36%	17%	**R399**	R79
formal	46%	11.7	9.8	R439	R136	52%	19%	R894	R168

Notes: a) The percentages represent the share of the search group with the particular characteristic. Note that percentages do not add to 100% in columns.

b) "Wage" represents earnings per week. The expected wage is a rough indicator of the return to each search mode. It is calculated as the average over the whole group of employed and unemployed associated with that search mode.

Table 6 breaks the sample into males and females, and also considers the self-employed. The fact that 'place to place' search gives the weakest access to jobs is confirmed, and this is particularly marked for females. Moreover, the observation (Table 5) that wages are higher for those who got their jobs using 'place to place', appears at least partially to be due to aggregation. For females, weekly earnings seem to be significantly higher in jobs accessed through word of mouth (R352 per week) than through 'place to place' search (R229) (although the anomaly persists for males). It is notable that 'word of mouth' is *quantitatively* the most important mode for both male and females (and recall that 'place to place' is dominant amongst searchers). What is remarkable is that for women, word of mouth seems *more* important quantitatively relative to males, and 'place to place' less so. Males were more than twice as likely to have got their jobs using 'place to place' search than women.

Table 6: How did you get your job? Duncan Village, 2004

	female				male			
	SE	w-o-m	formal	p-p	SE	w-o-m	formal	p-p
% of employed		51%	34%	**15%**		42%	23%	36%
% of self-employed and employed	36%	33%	22%	9%	18%	34%	18%	29%
Education	9.3	9.5	12.2	7.7	9.3	9.9	11.2	10.9
Age	34	36	36	38	33	38	39	37
UE rate[a]		42%	56%	**87%**		29%	45%	**68%**
Weekly earnings:								
current	R245	R352	R1020	**R229**	R476	R445	R748	R474
"first best"	R336	R524	R1060	R594	R1029	R448	R769	R691
searching now?	48%	33%	0%	0%	83%	32%	17%	11%
RDP?	78%	44%	0%	50%	80%	39%	25%	56%
Total (n)	23	21	14	6	12	22	12	19

Source: Own calculations.
Notes: a) Unemployment rate, calculated for sample of earners and unemployed using that category. All other figures for earners only.

The table also demonstrates that search mode correlates with other labour market indicators in a manner that is consistent with theory. Firstly, consider "weekly earnings in 'first best' job". This is an estimate (by the respondents themselves) of what people are earning in jobs of the sort for which the respondents are best qualified. The difference between current and 'first best' earnings is an indicator of the degree of under-utilisation of human capital. It is evident that, particularly for women, current earnings are much lower than 'first best earnings' for 'place to place' search.

Secondly, it is notable that a large number of people *with some work* indicated a willingness to accept RDP work. Once again the pattern is indicative of a correlation between job quality and search mode, with the 'place to place' categories demonstrating the highest likelihood amongst the employed (as opposed to self-employed) of accepting an RDP job. It is also noteworthy that the self-employed of both sexes are even more likely to accept such a job than the 'place to place' category.

Finally, how people got their jobs (and whether they are employed or self employed) correlates with whether or not people are currently searching (for a better job). Although word of mouth is associated with a *higher* search probability than 'place to place', this may be explicable in terms of individuals who got their jobs through social networks having better market information. However, it is intriguing that people who have work and are searching for a better job seemingly use 'place to place' *search* more than 'word of mouth' (Table 7). Note that the fact that the 'underemployed' are similar

to the unemployed in this regard seems to support the hypothesis that the distinction between the unemployed and underemployed is blurred.

Table 7: Current search activity

	Without work		Searching while working	
	Fem	Male	Female	Male
formal	25%	17%	8%	27%
p-p	55%	69%	52%	58%
w-o-m	21%	14%	40%	15%
number (n)	73	59	25	26

Source: Own calculations.

Table 8 refers to the characteristics of the strictly unemployed, broken down by gender. Most of the patterns that have emerged in the analysis are confirmed here. The dominance of 'place to place' is affirmed for both genders, but it is clear that for women, other modes are relatively more important compared to men once again. 'Place to place' search appears to be associated with failure. The most telling statistic is the proportion of individuals who have been searching for more than a year.[11] 'Place to place' searchers have a dramatically higher probability than word of mouth. Although the shorter search spells may not necessarily indicate successful transitions between unemployment and work, all of the evidence suggests that word of mouth delivers jobs more frequently and more quickly.[12]

The gender comparison between 'place to place' and word of mouth is less straightforward. As with the employed, the indicators are that males using 'place to place' search have better prospects than males using word of mouth. On average, they have higher education, higher reservation wages, and higher 'first best' wages (i.e. they believe they are qualified to earn higher wages). What is really dramatic is the very low number of males using word of mouth. This is particularly interesting because even though it delivered jobs with slightly

11 In OHS 1997, for instance, 67% of the unemployed had been unemployed for one year or more, and of these, more than half had been unemployed for more than three years (Kingdon and Knight: 2001a: 6). The picture was broadly the same in LFS September 2002 (Simkins, 2004: 362). As these authors note, these figures are likely to be *underestimates* because they record *uncompleted* spells of unemployment, and this reservation applies to the Duncan Village data reported here. The dataset does contain information on completed spells, but this is yet to be analysed.

12 The possibility that unemployed individuals drop into and out of the labour force, and that individual's accounts of their own pasts may be biased in significant ways, has not been considered in much detail in the South African case and probably cannot be explored with available datasets. These effects are significant in the US (see Clark and Summers, 1979; and Akerlof and Main, 1981; Akerlof and Yellen, 1985) and are likely to be highly so in South Africa. However, it seems unlikely that the relatively low unemployment duration of those using word of mouth is entirely accounted for by this kind of effect. As Table 5 indicates, there is evidence that word of mouth provides better access to jobs.

lower wages, word of mouth was *the* most important mode through which males accessed jobs (Table 6). The fact that there are so few unemployed word of mouth males is not exclusively due to males with social connections finding jobs quickly and thus selecting themselves out of the sample, leaving a small remaining group of 'lemons' whose social connections are useless and whose prospects of finding work are minimal. The male 'word of mouth' unemployed had been searching on average for *less* time than other males. Moreover, in the pooled sample (employed and unemployed) more women (46% of the pooled sample) are associated with word of mouth search than males (33%).

What seems to be indicated is that women simply have more access to social networks that provide access to jobs. The question is therefore why more women (and particularly men) do not use word of mouth. The answer is probably that they cannot: it is not a question of people *choosing* different search modes. If a job searcher can generate a signal which employers trust using formal methods, that searcher will do so. If they cannot generate signals they use social networks, which are by nature exclusive, but are also by nature likely to provide a very limited set of information about jobs. For example a worker may know about a job in *his* firm, and may transmit this information to *one* social connection. The connection will therefore have information about *one* job, compared to a person who looks at the vacancy column in the newspapers and has a range of jobs to apply for. Of course when jobs are scarce this may not translate to great choice, because of rationing. However, it may well be that the better quality of information through this the 'formal' mode gives employers better choice than if they use relatively narrow social networks.

Table 8: Strictly unemployed: characteristics by search mode. Duncan Village, 2004

	female			male		
	w-o-m	formal	p-p	w-o-m	formal	p-p
% of strictly unemployed	21%	25%	55%	14%	17%	69%
Av Ed	10.2	11.3	9.4	7.7	12.0	10.1
Age	30	32	30	30	27	32
% searching more than a year	**23%**	56%	66%	**40%**	43%	68%
Weekly wage:						
reservation	R486	R498	R258	R223	R568	R285
"first best"	R636	R855	R322	R329	R766	R468
RDP?	85%	61%	**97%**	100%	75%	**98%**
Total (n)	15	18	**40**	8	10	**41**

Source: *Own calculations.*

3.3 Feedback effects

There is evidence of dramatic underutilization of human capital, represented not only by unemployment, but also by underemployment reflected in disparities between the work people do and the kind for which they are 'best qualified'. This is likely to have a number of effects on the accumulation of human capital, as discussed in Section 2. For example, the prevalence of underemployment is likely to undermine on-the-job training both directly and because it undermines the private return to such investments. Not surprisingly, there is evidence that returns to experience are nil.

Apart from the effect on the individual's own human capital, on social capital, and on the ability of the market to process information, there are likely to be other feedback effects on the stocks of human, social, and market capital. One such effect that has already been inferred is that the market *per se* will collapse in the presence of high unemployment and human capital quality variation. Another effect that can be explored with the Duncan Village database is the intergenerational one. It is well established in the development literature that at the household level, there may be strong substitution effects (operating through the effect of higher returns to education improving the incentive to acquire human capital) and income (wealth) effects on the demand for education. Glewwe and Jacoby (2004) find a significant wealth and substitution effects on the demand for education in Vietnam. Thomas *et al.* (2004: 71) find dramatic effects on household spending on education[13] associated with Indonesia's crisis in 1997/98. Families faced with chronic, rather than transitory, poverty, as in the case of unemployed households in South Africa, may of course respond differently. However, there is some evidence in South Africa that these income effects are important (Fryer and Vencatachellum, 2004), and moreover, that returns to human capital are very low (Hertz, 2003), particularly for primary and incomplete secondary education, and that this undermines the incentive to keep children at school and to engage in expenditures that are complementary to the acquisition of human capital (Fryer and Vencatachellum, 2004).

An indicator of possible intergenerational effects is provided by Table 9, which shows the educational attainments and labour market outcomes of young individuals[14] from different kinds of households.

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13 Thomas *et al.* (2004) argue that a typical response to a crisis in household income in a poor family was to take the *youngest* children out of school, presumably because larger investments already sunk into older children would be lost if these were taken out of school (Thomas *et al.* 2004: 81). The effects of young children falling several years behind, or even receiving lower complementary investments in the crucial years (see Footnote 6 above) can have permanent effects on human capital trajectories.

14 The database provides detailed information on children still at school and, in particular, of the factors that determine whether adults are committed to their children's education. However this has not yet been analysed.

Table 9: characteristics of youths (15-25) in household with employed and unemployed heads

	Type 1 youths Unemployed head	Type II youths Employed Head
still at school or in tertiary education	20%	49%
of those who have left school:		
completed matric	5%	**71%**
average years education	8.9	11.2
employed	0%	18%
searching	55%	60%
Total (n)	**20**	43

Although the sample size of type I youths (living in a household with an unemployed head) is small, the results are nevertheless striking. Evidently, there are dramatically more type II youths still attending school. It is therefore not surprising to find that the average level of education is much higher for type II youths. However, the margin by which their average education exceeds those of type I youths is remarkable. As might be expected (but is not reported in the Table) type I youths predominantly used 'place to place' (only one individual used formal search), whereas the majority of type II youths used formal search.

However, it is noteworthy that the better educational attainments and (presumably) ability to search, does not translate into access to jobs. Although the situation for type I youths is worse (none of them were employed) only 18% of type II youth had any work. This is consistent with the pattern reported in Table 5, and is suggestive of a very significant shortage of jobs that cuts across human capital and search modes. The fact that even people with matrics seem unable to get jobs suggests that the degree of labour market slack and underutilisation is very high.

4. Conclusions

The results presented in this paper are based on simple cross tabulations, and still have to be tested with multivariate analysis. Certain key variables that may offer further explanation of job search across gender and generation have not yet been included. Moreover, the sample is a relatively small one and is drawn from one small peri-urban area. For these reasons, the results should be treated with some caution.

Nevertheless, the results are suggestive. Firstly, they support the notion that unemployment is a complex phenomenon in South Africa, and its measurement and diagnosis needs to take into account this complexity. Secondly, the paper presents what appears to be striking evidence that endogenous distortions stratify the labour market in a manner consistent with the theory set out in Section 2. This is consistent with the view that unemployment may be to a large extent endogenous.

Finally, it is important to emphasise, that while the paper has highlight the potential importance of *endogenous* factors operating at the household, community, and local labour market level, this does not mean that 'macro' issues are unimportant. On the contrary, because joblessness created by macro problems become 'locked in' by such endogenous factors, the urgency of discovering policies to create jobs is re-emphasised. In other words it may well be that the solution to unemployment remains a macro-economic one. However, before such a judgement can be made about the appropriate mix between macroeconomic and microeconomic policy, the endogenous feedback mechanisms need to be better understood. The paper suggests that both theoretical development and disaggregated statistical approaches that take into account actual labour market processes, are required.

Appendix: Duncan Village survey methodology

A.1 Duncan Village

Duncan Village belongs to the greater Amatole District Municipality in the Eastern Cape (see Map 1). It is a peri-urban township, which according to 1996 Census data had a population of 56 657 people who fall under the Buffalo City local municipality. The East London Transitional Local Council (East London TLC) reported an estimate of 409 035 people living in the greater East London area in 1996; of which Duncan Village accounted for 13%. Duncan Village is situated on the East Bank of the Buffalo River and lies between the river and the M3 North West Expressway. The East London CBD is also situated on the East Bank (it costs R2.70 to take a taxi from Duncan Village into the CBD), whereas the manufacturing and heavy industry areas of East London are more or less situated on the West Bank, which is further away.

Duncan Village itself has attracted much attention from urban anthropology and sociological studies. The main reasons for which are that East London is situated between the former Transkei and Ciskei homeland areas. There has been much debate and growing literature documenting the dynamics of rural/urban divides and hybrids in Duncan Village [15] that are in many ways not dissimilar to the process of urban implosion experienced by most South African township areas since the movement towards democracy.

A.2 Empirical strategy

Two competing objectives informed the design of the survey. Firstly, although the survey could obviously not be statistically representative of South Africa, appropriate survey design could provide a dataset that gives a fair representation of the local labour market. This has obvious benefits if an understanding of labour market processes is the goal. The second objective was to generate data that allowed the main questions, those surrounding job search, to be probed in sufficient detail. This trade-off is a real one and raises both sampling and questionnaire design concern. For any given research budget, there is a tradeoff between sample size and questionnaire detail. This research is premised on the belief that, because of the complex interaction between labour market failure and endogenous factors, labour market processes in South Africa are extremely complex, and that very detailed questionnaires are needed to even begin to probe this complexity. The Duncan Village survey is therefore virtually a corner solution in this regard: the questionnaires were as detailed as they could be given the one-visit interview format and the finite patience of the typical interviewee. Fortunately, resources were sufficient to allow a reasonable sample size (160 household), and efforts were made to ensure that the

[15] For a detailed history of the debate and literature stemming from Duncan Village see Bank (2002).

sample selected was representative of the area (Section 2.3). Nevertheless there are areas (reported below) where the small sample size constrains the generality of inferences. For example, there are too few poorly educated individuals in the dataset to allow an accurate estimation of returns to education.

Secondly, even if detail is chosen over sample size, questions remain concerning the balance and focus of the questionnaire. For example, having a very lengthy section on job search in the questionnaire would imply that some other area would have to be explored less fully. *Ex ante,* it is not possible to know which of these areas is important for the main question. Too great a focus on what appears to be the most important variables may be self-defeating. As a consequence, a tradeoff between focus (on questions obviously related to job search) and breadth was struck.

Finally, because of the inherent complexity of the situation, and because of the necessary compromises described above, considerable ambiguity remained as to the status of many individuals in the database. For example, even though the survey deliberately set out to explore the issues creating ambiguity around the question of unemployment, a considerable number of cases defied classification. This creates another tradeoff of the sort explained above. For example, in classifying whether people are unemployed or otherwise generates (as discussed) a large number of ambiguous cases. Dropping all ambiguous cases, and comparing (as is done in Table 2) only those who are *unambiguously* unemployed (in the sense that they earn no labour income and are searching for work) with the *fully* employed, is a much more useful basis for inferring differences between the two states, but would likely lead to very biased estimates of labour force participation and unemployment rates. In section 3, the strategy was to use *pure categories* when inferring differences, but to attempt to classify all individuals when estimate aggregate statistics.

A.3 Survey Procedure

The survey made use of a probability proportional to sample (PPS) sampling technique.[16] The technique utilises a two-stage cluster sample that yields a sample that is implicitly stratified by location and housing type. The first stage of the sampling process entails

[16] The technique is documented in Levey and Lemeshow (1999) and was used in the Khayelitsha / Mitchells Plain (KMP) 2000 survey. The sampling methodology of which was designed by Mathew Welch of the Data First Resource Center at the University of Cape Town (see Crankshaw, Welch and Butcher: 2001). Both Mathew Welch and Lynn Woolfrey (of Data First Research Unit) assisted with gathering the baseline sample information for the Duncan Village 2004 survey. As too did Dudley Horner of SALDRU who supplied us with hands-on experience and advice with regard to the day-to-day running of the survey. The Duncan Village survey was conducted as close as possible to that of the KMP 2000 survey, the only difference being the smaller sample size, a different questionnaire and some minor changes that were made as result of missing or unavailable information and cost constraints.

selecting clusters of households and the second stage made use of the systematic sampling of households. The first stage requiring a defined set of sampling frames that represent geographic boundaries that divided the Duncan Village population into identifiable clusters. As per the Kayalitsha/Mitchells Plain (KMP) 2000 survey, the Duncan Village Survey made use of Enumeration Areas that are developed and used by Population Census. These Enumeration Areas are loosely defined as being neighbourhoods with between 50-200 households and are designed to be homogenous with respect to housing type (KMP Survey Report and Baseline Information, 2000: 5). We opted to make use of Enumeration Areas that were used by Statistics South Africa in the 1996 census.[17]

We accessed the 1996 Population Census database at two levels. Firstly to get baseline population information about Duncan Village and secondly to use Enumeration Area information needed to select clusters of households that would be surveyed as per the PPS technique. We surveyed 11 of the 211 Enumeration Areas.

A.4 Questionnaire

The questionnaire was jointly designed by the authors, and was an amended version of a questionnaire used in the pilot study conducted 6 months prior to the Duncan Village 2004 survey in the township area east of Grahamstown, commonly known as Joza. The Duncan Village 2004 survey questionnaire followed the insights of current literature documenting the validity of types of data. Both household proxy data and individual information was probed. The questionnaire was broken up into two sections: Firstly a section in which proxy data was gathered using one respondent from each household. The questions focussed on socio-economic and community/family orientated factors. In most cases, the respondent was the household head (the process was self-selecting as the head was nominated by each respective family/household that was visited). Secondly, the remaining section of the questionnaire was strictly face-to-face interviews conducted with active job searchers.

Over and above this, both datasets (individual and household/proxy) were generated using a mixture of qualitative and quantitative interview techniques. The main motivations for gathering the two types of data were: Firstly to generate a dataset that is comparable with other datasets that tend to emphasise the ambiguities associated with the categorisation of labour market participants in mainstream surveys. Secondly, (and systemically) to probe information that may not have been forthcoming in other studies.[18] In achieving this, the

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17 These Enumeration Areas are drawn up as per order of the Chief Directorate of Demography. The directorate is responsible for developing and maintaining the GIS system that allows Census surveyors to develop accurate maps for the five-yearly census (Statistics South Africa, 2001: 42-44). Unfortunately access to the Census 2001 data was restricted as a result of new laws that forbid the supply of information at an Enumeration Area level (Statistics South Africa Confidentiality and Disclosure Act 17.1). We therefore opted to make use of 1996 Census data and maintained continuity by ensuring that all our workings and maps were as per 1996 data.

18 Infopoll's online guide to questionnaire design (2001) verifies that questionnaires should be

questionnaire was designed with a series of categorical questions that provided respondents with vast lists of possible answers, as well as a series of open-ended questions.[19]

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designed in a way that encompasses both qualitative and quantitative questions to record statistical answers that allowed for a deeper empirical analysis. The use of qualitative questions often generates a wealth of information that may not be related to the study. Whereas other studies and disciplines may view this as a drawback, one of the primary aims of the Duncan Village 2004 survey was to find new forms of information as well as gather information. The results of the survey thus being both informative as well as exploratory in the sense that the survey offers an alternative method-test to mainstream schools of thought – but in no way aims to replace mainstream survey techniques as it aims to compliment them (see Narayan *et al.*, 1999:15 – 16).

[19] See Anker, Khan and Gupta, 1987.

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