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Which African Workers Have Gotten Ahead and by How Much?
The Story of KwaZulu-Natal, South Africa, 1993-98

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I. INTRODUCTION

The problems of low labour market earnings and unemployment are at the forefront of labour market policy discussions in contemporary South Africa. In addition to open unemployment, which is at 33.9% according to the latest figures (Statistics South Africa, 1999), low labor market earnings are due to low hourly wages and inadequate work hours. The stereotypical view of contemporary labour market dynamics is one of very low entrance rates into regular employment and high labour shedding of less skilled workers out of regular employment. This therefore implies a static labour market that is not absorbing the increasing labour supply (Fallon and Lucas, 1998). On the earnings side, real wages in regular employment have stayed constant or increased despite the fall in employment (Fallon and Lucas). This perceived wage rigidity has been at the heart of the debate over the extent to which distortions in the market for regular employment have led to unemployment.

Much analysis of these employment and earnings issues has proceeded through econometric modeling using national survey data. Such studies have revealed the importance of a range of factors including race, gender, education, and location in the determination of both employment and earnings (Hofmeyr, 1999, Hofmeyr and Lucas, 1998, Fallon and Lucas, 1998; Bhorat and Leibbrandt, 1999, and Kingdon and Knight, 2000). In addition to these factors, hours of work, public/private divisions, industry, occupation, union membership and racial and gender discrimination have been shown to be important determinants of earnings (Moll, 1992, 1993, 1996, 1998; Mwabu and Schultz, 1996a, 1996b, 1998; Jensen, 1999, Hofmeyr, 1999, Hofmeyr and Lucas, 1998, Fallon and Lucas, 1998; Bhorat and Leibbrandt, 1999).

Most of these studies make use of survey data from a single year, usually the SALDRU 1993 data or the OHS 1995 data. Therefore, they offer a snapshot view of the operation of the labour market at one point in time. It is for this reason that the authors of such papers are appropriately reluctant to make simple extrapolations from their static analyses to the dynamic earnings and employment issues that we have flagged above. Such dynamic questions require the determination of key factors that operate to move individuals into or out of employment and that lead to changes in real earnings.

Some of the empirical work cited above has attempted to deal with these dynamic questions by comparing two cross-sections of data (Hofmeyr and Lucas, 1998 and

Moll, 1996). However, even here there is a potential problem. If two data sets tell similar stories, there is no way of knowing whether this is because the labour market has operated in a stable fashion between the surveys or whether there has been considerable mobility of people's earnings and employment but these changes all netted out to a very similar aggregate picture. This is a particular concern if policy makers are really interested in knowing which specific individuals or groups are experiencing movement in the labour market and, in particular, who are the winners and losers from the current operation of the labour market.

Clearly, these questions are important in contemporary South Africa. However, panel data sets are required to address such issues and, up until recently, such data have not been available in South Africa. This paper seeks to exploit a newly released panel data set, the KwaZulu-Natal Income Dynamics Study (KIDS), to provide a detailed look at earnings dynamics in recent years for the workers in this province. It will seek to determine which Africans have improved their real labour market earnings and which have fallen behind. By treating individuals who are not employed but are available to work as zero-earning workers, transitions into and out of employment can be included within the ambit of an analysis of earnings changes.

This is not the first paper to be written using the KIDS data; others are Carter and May, 1999a, May, Carter, Haddad, and Maluccio, 2000, and Maluccio, Haddad, and May, 2000. These papers are directed at household-level poverty dynamics and issues of social capital rather than at individuals in the labour market. Even so, there is plenty of evidence in their work that an exploration of labour market dynamics is a useful research avenue. Carter and May (1999a) suggest that there is substantial mobility and increasing inequality but also substantial poverty fixity within the panel.

The centrality of the labour market as a factor undergirding household poverty and inequality in South Africa is well known (Leibbrandt, Bhorat and Woolard , 1999). There is strong evidence that this is as true of KwaZulu-Natal as elsewhere with Carter and May (1999a, 20) concluding that:

> Households with a strong basis in the primary labor market exhibit low downward mobility and modest upward mobility. Overall, the mobility levels observed for households linked into the primary market are more consistent with patterns of transitory poverty, whereas the marginalized, remittance dependent, and secondary labor market households appear to be caught in structurally disadvantageous circumstances.

If these are the outcomes at the household level, then it is certainly important to deliver a detailed interrogation of the extent and nature of earnings mobility within the KwaZulu-Natal labour market. Section II briefly discusses the KIDS data paying particular attention to issues that are relevant to the analysis of the labour market. Section III presents an overview of the earnings change experiences. This analysis is provided in terms of both absolute and relative earnings changes, measured in changes in real Rand. The low-earner experience is also highlighted with a transition matrix tallying the number of workers who fell into low earner status, the number who climbed out of this category, as well as the number who were in the same low or medium-to-high earner designation that they occupied five years previously.

As the first step towards identifying which African workers moved up and which did not, an earnings mobility profile is presented in Section IV. Univariate analyses of such base year characteristics as age, gender, education level, working status, demographic position in the household, occupation, employment position, and trade union membership are presented in terms of mean and median change in real Rand. There is also a brief discussion of the median change in decile position of the earnings distribution. Next, a low earner transition profile is presented using the same characteristics as above. Here, the probabilities of moving out of or into low earner status in 1998 are presented. These profiling techniques help illuminate the link between mobility experiences and the characteristics of the labor market participant.

In seeking to explain which correlates of earnings mobility retain importance, holding other factors constant, a multivariate analysis of earnings dynamics follows in Section V. First, an earnings-change regression equation is estimated. Then a logistic regression is used to identify characteristics of those Africans who move from low-earner status in 1993 to the medium-to-high earner status in 1998. A similar regression follows for those falling into the low-earner labor market outcome and for those who stay within their respective level of earnings. A brief conclusion draws out the key findings of our work.

II. DATA

The KwaZulu-Natal Income Dynamics Survey (KIDS) is one of the first comprehensive household survey panels in Africa and the first in South Africa. The base year data come from the nationally representative SALDRU 1993 survey, with interviews occurring between August and November[1]. This questionnaire provides income data as well as a host of other personal, household, and community level base year indicators. KIDS is designed as a follow up to SALDRU 1993, re-interviewing African and Indian households from the KwaZulu-Natal region. KIDS is equally exhaustive in its treatment of key socio-economic conditions within the household, including income data. The survey was in the field from March to June 1998, and data were publicly released in April 2000.

The tracking method for the 1998 interviews was intended to follow CORE persons over time. Complete description of the tracking methodology can be found in May *et al* (2000). Briefly, the idea was to re-interview members of any current household that contained a CORE person from the 1993 survey, a CORE person being defined as a household head, her adult resident children/nephews/nieces who had resident children of their own, and all respective spouses. Since many people move over time, this involved tracking beyond the physical household.

This re-interview strategy has some advantages and disadvantages that must be borne in mind throughout the analysis. The most striking disadvantage is the loss of follow up for a segment of the population that many deem worthy of intense scrutiny, young school leavers.[2] Since many children leave home in their early twenties, they are lost
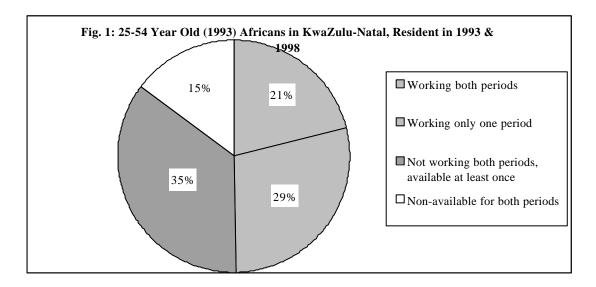
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[1] The SALDRU 1993 survey design was a two-stage sample with clustering and implicit stratification. Our analysis will account for clustering. As the stratification is not explicit, no correction is taken.
[2] The term 'school-leaver' is used as it is in South Africa to denote individuals who complete school, not in the American sense of those who drop out.

from the sample. One obvious advantage is an attempt to avoid selection problems due to attrition of the CORE persons. As we are not focusing on earnings changes stemming from demographically induced entry and exit from the labor market, we restrict our attention to Africans aged 25 to 54 in 1993. Therefore, our study will generally benefit from this system of tracking.

From the 1178 original African households, we extracted data for the persons of interest. Our sample is composed only of those who were resident household members in both years of the survey[3]. Figure 1 splits this group by their employment status during the two interview dates.

For the sake of clarity, a particular lexicon is used consistently throughout the paper. The term "non-available non-worker" refers to those who have no desire to work for pay (at least in the relevant range of current market opportunities). This includes school-goers, retired workers, and unpaid domestic home-workers, among others. The available workforce, on the other hand, refers to those currently employed, searching non-workers, and discouraged non-workers.

Fig. 1: 25-54 Year Old (1993) Africans in KwaZulu-Natal, Resident in 1993 & 1998

- 21%
- 29%
- 35%
- 15%

☐ Working both periods

☐ Working only one period

☐ Not working both periods, available at least once

☐ Non-available for both periods

Throughout the remainder of the analysis, we will be ignoring those who were not available for work in both periods. Instead, the remaining 85 % of those referred to in Figure 1 form the core sample for the remainder of this paper. The use of this dynamic characteristic is to simply exclude those who are not actively interested in engaging in the labor market from earnings dynamics analysis.

Before moving on, a few comments are in order. First, employment dynamics and their relation to earnings dynamics will be explored in future work by Cichello, Fields, and Leibbrandt and is not a main piece of this paper.

Secondly, Figure 1 helps in assessing proper analytical techniques that may be appropriate for earnings dynamics analysis. For example, the depiction of 35 percent of the individuals as not working- and thus zero earners in both periods - is an early

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[3] Resident household members were de facto members who resided in the household 15 days in the previous month and met other requirements designed to exclude domestic help, tenants, and other members not sharing in the household well-being.

warning that using median analysis of earnings changes may be uninformative. Third, the figure reminds us of the benefits of panel data. It is immediately apparent from Figure 1 that over the five year interim obtaining or losing a job was more common than retaining one's job. This can be stated despite the fact that lack of detailed employer information does not allow us to determine how many of the 21 percent employed in both periods are working at the same firm. Thus, there appears to be a large degree of churning in the labor market, which cross sectional data cannot capture. This reminds the analyst that the variability of earnings changes is worthwhile to explore.

Continuing in the defining of terminology, the employed can further be classified as formal or informal employees. The formal employee designation used in this study refers to 1) regular wage employees and 2) professional self-employed persons. Regular wage employment is wage employment that is expected to continue indefinitely. These workers are often referred to as simply the "regular employment" group. Informal workers are those in casual wage employment or other self-employment. Domestic workers employed by a homeowner were reclassified as casual wage employees in the informal sector even if they expect their work to continue indefinitely.[4]

The earnings figures used throughout the analysis are based on 1993 Rand[5]. In addition to cash payments, earnings includes food, housing, and transportation subsidies that are paid by the employer. The earnings for self-employed persons require more assumptions and suffer from the fact that 1998 figures are based on de facto profits of the previous month rather than average monthly profits[6]. This must be borne in mind as we examine who are the winners and losers in terms of change over the period.

Agricultural home production could not be broken out on an individual level and is thus excluded from the personal earnings measure. For the most part, this does not seem to be a major loss as such home production is best thought of as supplementing labor earnings rather than substituting for other labor earnings[7]. Agricultural workers in the labor market are included.

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[4] The October Household Survey classifies permanent and temporary domestic help employed by homeowners as self-employed workers. The 1998 questionnaire did not allow this distinction, but the authors felt the next best option was to group all such workers together in the informal sector under casual employment.
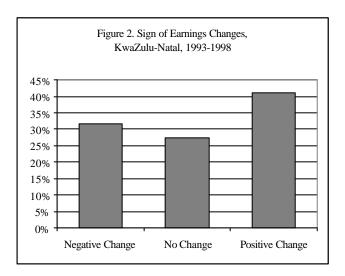
[5] The 1998 earnings data were deflated by 1.410. This was based on the national CPI index for September 1993 and March 1998. These two months contained the interview date of the median household. There was relatively little inflation in the period of interviewing in both years.

[6] Self-employment profits were computed on a per business basis and were given to those engaged in working in the business in a somewhat arbitrary manner. If two persons worked in the business, the profits were split 2:1 in favor of the one listed as most active in the business. Similarly if three persons were in the business, profits were split 4:2:1, with the owner (when listed) getting the largest portion regardless of time spent.

[7] This fact, unusual for Africa, is well documented. See, for example, Carter and May (1998b).

III. THE DISTRIBUTION OF EARNINGS CHANGES

The average real earnings for available Africans in KwaZulu-Natal rose by an impressive 7.0 % per annum from 1993 to 1998. This increase corresponds to a movement in average real earnings from R 397 in 1993 to R 546 in 1998, measured in 1993 Rand. The strong growth was affected but not driven by observations in the tails of the sample distribution. After removing the top and bottom 5 % of income changes from the sample, the calculated average growth rate in real earnings was still 5.4 %[8].

On the other hand, the median change in real earnings over the same time period was zero. Thus, the two most common measures of central tendency paint very different pictures of the typical change in earnings that Africans experienced. Figure 2 helps to explain this conflict[9]. It can be seen that 27 percent of the population experienced no change in real earnings[10]. Substantial portions of the population lie on either side of this group: 32 percent of the population experienced real earnings losses while 41 percent had an increase in real earnings. Thus, more people gained than lost.

Figure 2. Sign of Earnings Changes, KwaZulu-Natal, 1993-1998

Another fact is that the winners gained more on average (R 705) than the losers lost (R 490). A simple decomposition of real earnings change allows one to ascribe 58 % of the growth in average earnings to the fact that the winners gained more than the losers lost and 42 % of the growth in real earnings to the fact that more people gained

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[8] Results are 5.8 % and 5.5 % growth per annum, respectively when trimming 1% and 2.5 % off the end of the change in earnings function.

[9] A kernel density function of the change in earnings is available in the Appendix. It adds little value in this situation due to the large proportion of the population located on one discrete point, 0.

[10] Not surprisingly, this group consists exclusively of 0 earners in both periods. Almost all of them were not working in either period. However, there are some people who were listed as working, but earning no income in one of the two periods (5 listed as working in 1993 & 15 listed as working in 1998).

than lost[11]. Thus, both features of the changed labor market outcomes were important in generating the sizable increase in average earnings.

Low earner transitions

Another way to compare the changes in earnings over time is to examine the number of "socially acceptable" outcomes produced via labor market transactions with reference to transitions across a low-earnings line. The term "socially acceptable" clearly implies a normative judgment and attempts to define a specific cutoff between a socially acceptable level of earnings and one that is not socially acceptable. Any such judgment is subject to intense debate. Our measure of low earnings is tied directly to the notion of poverty and the poverty line as a measure of what level of income allows one to provide for basic needs.

Bhorat and Leibbrandt (1999) calculate that in 1995, given average rates of employment and unemployment within households and given the value of the household poverty line for a household of average size and composition, each employed member is required to earn R650 per month to bring that household's income up to the poverty line. We have followed this precedent and defined the 1993 equivalent, R560, as our low earnings threshold. This R 560 standard was applied to the 1993 earnings to determine the individual's 1993 status of being above or below the line and then again to his or her 1998 real earnings.

Having defined a low earnings line, we then apply the well-established technique of analyzing poverty transitions to the analysis of South African labor market changes. Table 1 below depicts the transition experiences of Africans in KwaZulu-Natal.

Table 1: Low-earnings threshold transitions for KwaZulu-Natal, 1993-1998
(Row percentages in brackets)

1993	1998		
	Above	Below	Total
Above	165 (64%)	91 (36%)	256
Below	151 (20%)	607 (80%)	758
Total	316	698	1014

The terms "escape rate" and "risk rate" are convenient descriptions for analyzing this table and are also used in future low-earner transition analysis in this paper. The escape rate is defined as the probability that an available worker moved out of low earner status in 1998, conditional on being a low earner in 1993. The risk rate is the probability that an available worker fell into low earner status in 1998, conditional on being a medium-to-high earner in 1993.

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[11] $\bar{y}_{tot} = p_+ \bar{y}_+ + p_- \bar{y}_- + (p_0 0) = (\bar{y}_- + \bar{y}_+) * \frac{1}{2}(p_+ + p_-) + (p_+ - p_-) * \frac{1}{2}(\bar{y}_- - \bar{y}) =$

$(\bar{y}_+ - |\bar{y}_-|) * \frac{1}{2}(p_+ + p_-) - (p_+ - p_-) * \frac{1}{2}(\bar{y}_+ + |\bar{y}_-|)$, where a bar signifies an average, +, -, and 0 refer to those with positive, negative, and 0 change in earnings, and p is the proportion of the total population. In noting that $\bar{y}_- = -|\bar{y}_-|$, the interpretation is straightforward with the first term representing the change in average earnings due to the difference in the magnitude of the average gains/losses and the second term representing the change in earnings due to the differential in the proportion of people.

Evident from the table are several extremely important facts. First, most Africans were low earners in 1993 and remained low earners in 1998. Even excluding the group of zero earners in both periods, this cell contains almost exactly twice the number of people as the next largest cell. Second, the escape rate of 20 % dismisses any notion that low earners in one period are invariably destined to stay low earners in the next. Third, the risk rate of 36 % tells that the medium-to-high earners in the labor market are not secure in their position above the low earner line.

Looking at the results from a different perspective, nearly half (48%) of the medium-to-high earners in 1998 were not medium-to-high earners in 1993. Also, there were many more people moving out of low earner status than falling into low earner status. Again, we see that there were more winners than losers. There is also a substantial clump of the population who were not changing from zero earnings, unable to find suitable employment. We also have evidence of a substantial portion of the population who were not zero earners, but are still stuck in the low earner position. Additionally there is evidence of considerable movement- both positive and negative- in earnings. This movement was apparent when comparing individuals' 1993 earnings to their previous 1998 earnings and is found again when comparing both years income to the absolute measure of the real low earnings line.

Variation in changes

Pieces of the previous analysis, such as the 20% escape rate and the 36% risk rate, are suggestive of earnings changes that are large. The question immediately follows, large relative to what? We chose the low earner line as a way to standardize the changes. The low earner line in 1993 Rand was R 560. This figure is well above the average earnings of the available workforce in 1993 (R 397), but well below the average earnings among workers in 1993 (R 698).

Figure 3 gives the kernel density function of earnings changes, excluding the large portion of zero earners in both periods[12]. The x-axis gives the values in terms of our standardized value as well as in 1993 Rand. The density function depicts the large number of extreme earnings changes.

Examining the earnings changes in relation to the low earnings line (R 560 in 1993 rand), we obtain a number of findings. One quarter of the available workforce experienced earnings changes greater than the low earnings line. 41 percent experienced changes at least half that amount and twelve percent of the population experienced changes twice the size of the low earnings line. This extreme volatility in earnings is equally apparent using the mean as the measure of central tendency. The mean absolute value of the change in earnings is R444, which is 79 % of the low earnings line. It is actually greater than the 1993 average earnings of the available workforce. At the same time, 27 percent of the population saw no change in earnings.

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[12] The figure also trims the top and bottom 1 % of change in income experiences
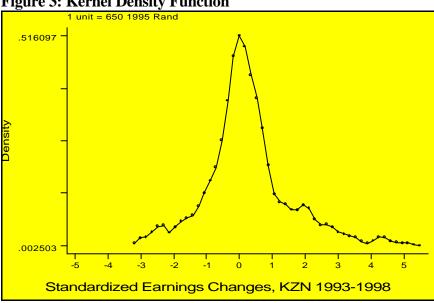
Figure 3: Kernel Density Function

All of these facts present very strong evidence that the earnings experience of the Africans in KwaZulu-Natal has been volatile, with extreme changes in earnings a common feature of the labor market. Earnings instability is a main feature of the labor market. On average, earnings rose, both because there were more winners than losers and because the average gains for the winners were higher than the average losses for the losers.

IV. EARNINGS PROFILE ANALYSIS

Earnings Mobility Profile

Having learned a great deal from the overall measures of earnings change, the next step is to determine which of the African people had higher earnings gains or losses than others. An earnings mobility profile is presented in Table 2. The profile provides the mean and median average gain in real earnings for each of the groups presented. In addition to these weighted values, the table also provides the un-weighted number of observations of each type of person found in the sample, the standard error of the estimated mean, and the bootstrap standard error of the median, with 1,000 repetitions. Both sets of standard errors correctly adjust for the clustered sample design and the sample weights[13].

The first variable in the profile is base year earnings. As base year earnings increase, average earnings changes generally decrease, with the highest earners averaging a substantial *loss* in real earnings. The sole caveat to this is the fact that average growth in real earnings of the extreme low earners is not statistically different from that of the

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[13] In the following discussion, median results are generally neglected as the authors found them to be not especially informative. Statistical significance refers to significance at the .95 level unless otherwise specified.

moderate low earners. The point estimate of gains is actually higher for the moderate low earners (those with ½ to 1 times the low earner line). This pattern of earnings changes decreasing with initial earnings is not as apparent when using the median estimates. However, the sharp decline in earnings for the highest earners of 1993 is solidly reaffirmed.

Looking at initial work status, those who were formal sector employees in 1993 experienced a negative average change in real earnings[14]. All informal sector and non-working categories are estimated to have had positive changes in real earnings that were statistically different from the formal workers. Interestingly, the median estimate of change for formal sector employees is significantly negative. The average earnings change for casual workers is also significantly different (at the 90 percent confidence level or higher) from each of the non-worker categories. Any differences in average change in real earnings among other types of workers are not significant.

Stating the results in another way, it was the non-employed and self-employed who had the largest average change in real earnings. Point estimates for these groups ranged from a growth in real earnings of R 228 to R 361, which is .41 to .65 times the low earner line. The point estimate for searching non-workers was higher than that of discouraged workers and non-available non-workers, but these differences were not statistically significant.

Given the finding reported above that high earners, on average, experienced earnings losses, the poor earnings change performance of formal workers is not altogether surprising. Just 5.6 % of workers in the highest earning category were employed in the informal sector in 1993. Still, 36 % of regular workers fell below the low earner line and 33 % were in the medium earner category in that year. Multivariate analysis in Part V of the paper will help to disentangle the effect of initial earnings from that of initial sector of employment.

Looking at earnings changes by occupational position, we see that self-employed workers registered earnings gains on average, while government employees and private wage employees had earnings losses. Median outcomes, however, were not dramatically different among worker groups. Thus, some workers at the top end of the self-employed group did particularly well relative to the other groups.

The 'missing' category in occupational group and sector of employment is comprised almost entirely of self-employed persons. The self-employed who listed themselves as employed by householders, such as domestic workers and gardeners, have been removed and put mostly into the unskilled occupational group and the other employment sector group. This smaller self-employed group had statistically significantly larger gains in real earnings than semi-skilled workers and also compared to those in the agricultural and other sector employees.

The real story in the sector and occupation categories is how little the average earnings experience differed across these groups. One difference that does stand out is the difference in the variability in earnings changes between agriculture and manufacturing sectors. Despite the higher number of observations, the standard error

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[14] The point estimate is, however, not statistically different from 0 at even the ten percent level.

of the manufacturing sector is substantially higher than for agriculture. The same holds true for the missing category versus agriculture. These features of the bootstrapped standard errors are suggestive of less variation in the underlying distribution of agricultural earnings compared to the earnings in the manufacturing sector and the 'missing' category. Comparisons of the standard errors confirm this hypothesis.

Union workers fared better in average earnings changes than other regular employees. This result was not statistically significant though offering a sizable difference in point estimates. The bad news for union workers was that the point estimate was still negative. On the whole, it appears that union workers were able to better prevent earnings declines than non-union workers.

The only demographic characteristics that gave statistically significant interesting differentials in average earnings changes were urban residency and the 25-to-34 year old age group. Both characteristics were associated with higher average real earnings changes. The post-secondary educated workers had a significantly lower average change in earnings than their less educated counterparts, all of whom were statistically indistinguishable in terms of earnings changes.

On the whole, the univariate analysis presents a picture of a labor market in which the most advantaged lost ground while the least advantaged gained. Those in the best initial positions – the highest earners, regular employees, those in skilled and semi-skilled occupations, government and parastatal employees, and the best-educated – all had average real earnings *declines*, while those in the worst initial positions gained the most. These results stand in stark contrast to the hypothesis of cumulative advantage: it was the least advantaged African workers in KwaZulu-Natal, not the most advantaged, who got ahead the most between 1993 and 1998

Table 2. Earnings Mobility Profile

Variable	Number of obser-vations	Mean standard error	Mean change in earnings	Median change in earnings	Median bootstraps.e.
Total Population	**1014**	**35.0**	**134.7**	**0**	**0**
By 1993 Earnings level					
0	447	40.5	293.2	0	0
< 1/2 low earner line (1993R 1 to 1993R 280)	189	44.6	173.1	-15.0	14.2
1/2 to 1 times low earner line (1993R 280 - 1993R 560)	122	116.6	182.9	3.7	54.9
1 to 2 times low earner line (1993R 560 - 1993R 1119)	132	69.7	-19.9	-63.3	99.6
2 times low earner line (> 1993R 1119)	124	145.6	-377.6	-482.3	128.3
By 1993 Work Status					
Regular employment	377	50.7	-77.1	-77.3	38.3
Casual employment	51	53.8	141.4	0	64.1
Self-employment	151	89.9	228.3	-23.1	18.8
Searching Non-worker	61	87.1	361.2	0	23.7

Discouraged Non-worker	217	48.5	274.8	0	0
Non-available non-worker	157	59.4	268.7	0	3.9
By 1993 Employment Status					
Employed	579	43.3	22.0	-37.2	17.1
Not employed	435	40.9	284.7	0	0
By 1993 Occupational Group (for workers only)					
Missing: mostly self-employed	119	112.7	235.5	-30.0	17.0
Unskilled occupation	217	70.7	15.4	-38.0	32.0
Semi-skilled occupation	194	60.2	-76.5	-36.0	61.1
Skilled occupation	49	166.8	-78.8	-43.7	166.7
By 1993 Sector of Employment (for workers only)					
Missing: mostly self-employed	119	112.7	235.5	-30.0	17.5
Manufacturing	143	112.0	8.6	-98.2	78.6
Agriculture	83	31.3	-14.2	-24.8	28.3
Other	234	57.0	-65.9	-42.6	44.8
By 1993 Occupational Position					
Not employed/Missing	435	40.9	284.7	0	0
Self-employed	153	85.3	230.0	-23.1	19.2
Private employee	336	53.8	-32.3	-60.0	31.9
Gov't/public parastatal employee	90	95.8	-129.8	-28.0	118.7
By 1993 Union Status					
Union member	133	103.6	36.2	-12.7	61.7
Non-union regular employee	244	50.9	-139.0	-102.7	44.2
Not a regular employee	637	39.6	259.8	0	0
By 1993 Urban Resident					
Rural	675	35.2	77.5	0	0
Urban	339	64.1	248.7	0	18.6
By 1993 KwaZulu-Natal Resident					
Natal	156	53.6	100.5	0	5.4
KwaZulu	858	40.1	140.9	0	0
By Gender					
Female	580	36.6	126.7	0	0
Male	434	52.8	145.5	0	2.1
By 1993 Head of Household					
Not a head of household	693	39.4	145.6	0	0
Head of household	321	53.7	111.3	1.8	19.6
By Age in 1993					
25-34	456	48.2	224.7	0	0.2
35-44	354	42.7	58.8	0	0
45-54	204	76.6	65.4	0	1.9

By 1993 Education Level					
No education	144	39.0	91.6	0	0
Some/completed Primary education	423	46.2	141.1	0	0
Some/completed Secondary education	417	58.8	168.5	0	0.2
Post-secondary education	30	153.9	-217.6	-43.7	230.7

Escape/Risk Rate Analysis

It is expected that the characteristics that are associated with higher average increases in earnings will also tend to lead to higher escape rates than the 20% rate averaged by the entire population. Similarly, risk rates lower than the 36 % population rate are expected for these characteristics. Table 3 below provides the risk rates and escape rates for all characteristics reported in the mobility profile above. The table also includes the number of observations (un-weighted) that the data are based on. There are a number of cases where the limited frequency of observations does not allow one to form conclusions with any degree of confidence. These observations are shaded in gray.

Table 3 reveals that those initially earning zero earnings have approximately the same chance of crossing the low earnings threshold as do those with extremely low (but positive) earnings. However, people earning between one-half the low earner line and the low earner line itself in 1993 were more than twice as likely to escape poverty than those below that level, with more than one third of this group moving to medium-to-high earner status in 1998.

Likewise, those above the low earner line but not much above it were more likely to fall back to low earner status than those with higher initial earnings. Yet, a substantial percentage of those earning more than twice the low earner line (27.4 %) fell to low earner status in 1998. Thus, while the relative difference in risk rates acts as expected, the risk of a substantial fall in earnings was exceedingly high for even the most well off African workers.

Searching non-workers had a substantially higher estimated escape rate (25 %) than discouraged and non-available non-workers (16 % for both). This difference was not statistically significant at the 10 percent level, however, due in part to the small sample size of searching non-workers. The searching non-workers' escape rate was very similar to that of regular and self-employed workers (25 % and 26%, respectively). On the other hand, the casual workers lagged behind with just a 16 % escape rate, no better than the discouraged and non-available workers.

Escape rates and risk rates vary with skill level and sector of work. Unskilled workers had a much lower escape rate (16 %, compared to an average escape rate of 20%). The escape rate for the semi-skilled workers was considerably larger (40 %). As with unskilled workers, agricultural workers had below-average escape rates (11%), while the rate for manufacturing workers (30%) was similar to that of other employees (34%). Conditional on starting above the low earnings line, high skilled workers had an extremely low rate of falling into low earner status (13%) while unskilled and semi-skilled workers had considerably higher rates (35 and 40 %, respectively).

Government and parastatal employees had a higher escape rate and lower risk rate than other employees. The government escape rate of 39% surpassed that of the self-employed (26%), private employees (20 %), and non-workers (17 %). Although there are only 14 observations for medium-to-high self-employed earners in 1993, it is worth noting that they had a 73 % risk rate of falling into low earner status while private employees also had a high rate (38 %) compared to government workers (22 %).

Union workers were both more likely to escape poverty than non-union workers (43% vs. 22%) and less likely to fall into low earner status (21% vs. 44%) than non-union workers. The escape rate data are based on only 15 observations of low earning union members in 1993, but nonetheless are significant at the ten percent level.

Demographic factors reveal interesting results that not only corroborate some of the findings in the earnings mobility profile, but also suggest that other demographic factors were systemically associated with differences in earnings change experiences. For instance, given the mobility profile results, it is not surprising that urban residents had both a higher escape rate from low earner status than did rural residents (33% vs. 15%) and a lower risk of falling into low earner status (26% vs. 45%). However, the low earner transition profile also reveals a difference along gender lines. The higher escape rate of males compared to females (29% vs. 15%) was statistically significant at the ten percent level and the lower risk rate of male versus female labor market participants (32% vs. 43%) was significant at the 1 percent level.

The low earner transition profile also tells us more about changes in earnings with age. Not surprisingly, the young workers (25-34) had higher escape rates than the older two groups of workers. It is also apparent that older people (45-54) had a much higher risk rate than the others (54% for 25-34 year olds vs. 29% for 35-44 year olds and 34 % for 25-34 year olds).

The differing earnings changes by education status of the worker are also further clarified. The table shows that higher education levels led to higher escape rates (except for post-secondary completers). The jump for workers with no education compared to those with some primary is significant at the 99 percent level, while the gain for those with some secondary versus some primary education is significant at the 90 percent level. Quite surprisingly, the education level of the worker had no effect on the risk rate of workers falling back into low earner status. Interpretation of this result is not straight forward, but it does appear that those with higher education were afforded more opportunity to get ahead in KwaZulu-Natal.

A final note is that the head of household status had a similarly intriguing relationship whereby they had a clearly higher escape rate than non-heads (31% vs. 17%, significant at the 99 % level), but were not as protected from falling into low earner status. The risk rates were similar (33% for head of household vs. 39% for non-head) and not significantly different from one another.

In summary, the low earner transition profile has verified the univariate relationships discovered in the earnings mobility profile. The importance of initial earnings and initial work status, along with other key employment and demographic characteristics

has been shown. It has also provided evidence of other interesting relationships among employment and demographic variables. In particular, evidence has been produced that worker characteristics associated with increasing escape rates do not necessarily result in lower risk rates. Also, this profile has highlighted the vulnerability for some groups of workers that might not typically be thought of as vulnerable.

Table 3 Probability of leaving or entering low earner status, KwaZulu-Natal, 1993-1998.

Variable	Number of Low Earners in 1993 (un-weighted)	Escape Rate	# Medium-to-High Earners in 1993 (un-weighted)	Risk Rate
Total Population	**758**	**20 %**	**256**	**36 %**
By 1993 Earnings level				
Zero	447	17	n.a.	n.a.
< 1/2 low earner line (1993R 1 to 1993R 280)	189	15	n.a.	n.a.
1/2 to 1 times low earner line (1993R 280 - 1993R 560)	122	36	n.a.	n.a.
1 to 2 times low earner line (1993R 560 - 1993R 1119)	n.a.	n.a.	132	43
2 times low earner line (> 1993R 1119)	n.a.	n.a.	124	27
By 1993 Work Status				
Regular employment	137	25	240	33
Casual employment	49	16	2	50
Self-employment	137	26	14	71
Searching Non-worker	61	25	n.a.	n.a.
Discouraged Non-worker	217	16	n.a.	n.a.
Non-available non-worker	157	16	n.a.	n.a.
1993 Employment Status				
Employed	323	24	256	36
Not employed	435	17	n.a.	n.a.
By 1993 Occupational Group (for workers only)				
Missing: mostly self-employed	107	21	12	75
Unskilled	135	16	82	35
Semi-skilled	77	40	117	40
Skilled	4	50	45	13
By 1993 Sector of Employment (for workers only)				
Missing: mostly self-employed	107	21	12	75
Manufacturing	37	30	106	32
Agriculture	76	11	7	71
Other	103	34	131	33

By 1993 Occupational Position				
Not employed/Missing	435	17	n.a.	n.a.
Self-employed	138	26	15	73
Private employee	167	20	169	38
Gov't/public parastatal employee	18	39	72	22
By 1993 Union Status				
Union member	21	43	112	21
Non-union regular employee	116	22	128	44
By 1993 Urban Resident				
Rural	547	15	128	45
Urban	211	33	128	26
By 1993 KwaZulu-Natal Resident				
Natal	128	16	28	39
KwaZulu	630	21	228	35
By Gender				
Female	499	15	81	43
Male	259	29	175	32
By 1993 Head of Household				
Not a head of household	581	17	112	39
Head of household	177	31	144	33
By Age in 1993				
25-34	365	25	91	34
35-44	239	15	115	29
45-54	154	17	50	54
By 1993 Education Level				
No education	128	10	16	37
Some/completed Primary Education	348	19	75	37
Some/completed Secondary Education	279	25	138	38
Post-secondary education	3	33	27	15

Note: Cells with fewer than 15 observations are shaded.

V. MULTIVARIATE ANALYSIS OF EARNINGS CHANGES

By examining each variable separately, the preceding mobility analysis suggested clear results for the impact of these variables on earnings changes and on risk and escape rates. However, it is important to test whether each of these variables is important other things equal. We do this for earnings changes by estimating a multiple regression and for escape rates and risk rates by estimating logistic regressions. As in the earlier univariate mobility analysis, the estimations take account of the clustered sample design and the sample weights.

Earnings Change Regression

Table 4 presents the results of the earnings change estimations. Starting with initial earnings status, it can be seen that the largest earnings gains are associated with zero earners in the initial period. This is the base category, and the regression coefficients for all other earnings categories are negative. Thus, ceteris paribus, higher initial earnings are associated with greater negative change in earnings. This result is statistically significant at the ten percent level for extreme low earners and significant at the one percent level for the two groups above the low earner line. There is not a statistical difference in earnings changes between extreme low earners and low earners. Thus, even controlling for work status, this block of variables retains the influence suggested in the mobility profile.

In contrast with this, the influence of initial work status appears to dampen with the inclusion of controls. In particular, after controlling for initial earnings, only the self-employed have statistically significant gains relative to the default non-available non-worker. This differential was significant at the ten percent level. (Subsequent testing showed that these gains by the self-employed were also significantly higher than all other work status variables.) That said, the joint hypothesis that, as a block, the work status variables had no impact on earnings change was rejected at just over the five percent level.

The earlier mobility analysis showed that union members are part of the group of higher initial earners that experienced negative earnings change between 1993 and 1998. However, in the regression model, unions status has a significantly positive coefficient implying that, other things equal, union members had a larger gain in earnings than non-union members. Clearly, within the high-earner group, union membership offered some protection of real earnings over this time period.

As in the earlier earnings mobility profile, the variable blocks covering occupational group, sector of employment and occupational position in 1993 do not have significant effects. The differential between semi-skilled and skilled workers is significant at the ten percent level.

Moving on to the demographic variables, the urban coefficient is positive and significant at the one percent level. Therefore, those located in urban areas fared better on average holding all other variables constant. Being a resident of KwaZulu in 1993 also had a positive effect, though smaller than the urban effect and statistically significant at just more than the five percent level. Males and heads of household had significantly larger earnings changes than females and non-heads respectively. The negative effect of age is statistically significant at just over the five percent level. However, age squared (and further polynomials) are not statistically significant. Therefore, other things equal, younger workers had better earnings change experiences than did older workers.

Finally, none of the education dummy variables are significant implying that, holding all else constant, there are not significantly different earnings changes for those with some/completed primary education, some/completed secondary and tertiary education relative to the default of no education. Further hypothesis tests show that all pairwise comparisons between education categories yield insignificant differences. However,

this is not to say that education is not important. The joint hypothesis test on all education coefficients rejects the hypothesis at the one percent level that, as a block, they make no contribution to the model.

To sum up the earnings change regressions: Other things equal, low initial earners had the largest average earnings gains as compared with middle and high initial earners. Other things equal, the demographic groups with the most positive earnings changes are urban dwellers, males, younger workers, and heads of household.

Table 4: Earnings Change Regression

	Coefficient	t Statistic	P Value
1993 Earnings Level			
Zero earners	Default		
< 1/2 low earner line	-394.2153	-1.728	0.089
1/2 to 1 times low earner line	-523.3517	-1.989	0.051
1 to 2 times low earner line	-873.2633	-3.317	0.002
> 2 times low earner line	-1441.116	-4.940	0.000
1993 Work Status			
Regular employment	263.1925	0.993	0.325
Casual employment	242.2244	0.973	0.335
Self-employment	417.3328	1.720	0.091
Searching Non-worker	-39.443	-0.420	0.676
Discouraged Non-worker	-63.12661	-1.233	0.222
Non-available non-worker	Default		
1993 Union Status			
Non-unionised	Default		
Unionised	377.3448	3.439	0.001
1993 Occupational Group			
Missing: mostly self-employed	Default		
Unskilled	-52.80337	-0.315	0.754
Semi-skilled	-112.0624	-0.553	0.582
Skilled	321.5894	1.023	0.311
1993 Sector of Employment			
Missing: mostly self-employed	Default		
Manufacturing	119.8466	0.915	0.364
Agriculture	(dropped)		
Other	-15.35131	-0.169	0.867
1993 Occupational Status			
Private employee	Default		
Gov't/public parastatal employee	35.97309	0.336	0.738
1993 Urban Resident			
Rural	Default		
Urban	259.037	3.368	0.001
1993 KwaZulu-Natal Resident			
Natal	Default		
KwaZulu	119.2833	1.927	0.059
Gender			
Female	Default		
Male	163.2535	2.732	0.008
1993 Head of Household			
Not a head of household	Default		
Head of household	181.6132	2.676	0.010
Age in 1993			
Age	-55.86859	-1.880	0.065
Age Squared	.6241586	1.515	0.135

1993 Education Level			
No education	Default		
Some/completed Primary education	44.21939	0.638	0.526
Some/completed Secondary education	80.51089	1.198	0.236
Post-secondary education	31.7671	0.129	0.898
Constant	1156.591	2.229	0.030

```
Number of obs   =     1014
Number of strata =      1
Number of PSUs   =     60
Population size  =   902928
F( 25,   35) =     6.36
Prob > F      =    0.0000
R-squared     =    0.1243
```

Escape and Risk Logistic Regressions

Having examined the impact of our correlates on earnings changes, we now focus on movements across the low earnings line. Table 5 presents the results of a logistic regression for those who were below the line in 1993. In this case, we have defined one as staying in low earnings and, therefore, the negative coefficient implies a decreased probability of staying in low earnings. Moving out of the low earnings category is what we have called the escape rate in this paper. Table 6 then presents the results for those that were above the line in 1993. In this case, we have defined one as a fall into low earnings and, therefore, a positive coefficient implies an increased probability of falling below the low-earnings line. This implies an increased risk rate, holding other factors constant. In order to compare the roles played by variables in promoting escape and in preventing risk, we discuss the two sets of results jointly.

We start with the demographic variables, as these are seen to be important both in terms of promoting escape and in terms of lowering risk. For the initial low-earners, those with significantly higher probabilities of moving up, other things equal, are urban residents, males, and heads of households. For the initial high-earners, basically the same groups – urban dwellers, males and KwaZulu residents – are the ones with significantly higher probabilities of remaining above the line, other things equal. Note that the KwaZulu variable is not significant in the escape logit and the head of household effect is not significant in the risk logit.

Increasing age raises the possibility of staying below the line. (Both age and age squared are significant at the five percent level with opposite sign. However, as the turning point is outside of the relevant range of ages, this still implies that younger workers were more likely to move out of low earnings than are older workers.) This influence of age does not carry over into the risk analysis as neither of the age variables is significant for the initial high-earners. However, the joint hypothesis test on both age variables rejects the null of no influence at one percent level.

Remembering that none of the education dummy variables were significant in the earnings change regression, the impact of education on the escape and risk logits is particularly interesting. Some/completed primary and some/completed secondary education levels help boost low-earners above the line compared to no education. The post-secondary education variable is not significant. However, the risk analysis

accords with the earlier earnings change regression in that none of the education dummies are significant for the initial high-earners. For the risk logit, the joint hypothesis test on all education dummies rejects the null of no influence at the one percent level.

The union status dummy, that was significant as a positive earnings changer, is not significant for the initial low-earner group. Thus it does not raise the escape probability of low-income workers. This is a reflection of the fact that there are hardly any unionized workers in this sample of 1993 low-earners. Consistent with this is the fact that, for the 1993 high earners, the union dummy is large and significant at the one percent level. Thus, there is a strong correlation between being a member of a union and remaining above the low-earnings line.

In the remaining blocks of labour market variables (work status, occupational groups, sector of employment and occupational status there are no coefficients that are significant relative to the omitted category for either initial low earners or initial high earners. This does not mean that there are no significant blocks of variables or that individual coefficients are not significantly different relative to different defaults. There are two examples, with regard to work status. First, the hypothesis that the block of work status variables is jointly equal to zero is rejected at just over the five percent level. Second, relative to casual workers, self-employed non-professionals have higher escape rates. This is significant at the one percent level.

The final variable block is initial earnings status. There are only three earnings categories that are relevant to those below the low earnings line. It is interesting to note that, once all other effects are controlled for, there are no significant differences between different initial earnings status categories in the rate of moving across the low earnings line. These earnings categories were shown to be statistically significant determinants of earnings changes. In like fashion, there are only two earnings categories that are relevant for those initially above the low-earnings line and the difference between these categories is not a significant factor in remaining above the line, all other factors held constant.

In sum, many variables that were found to be statistically significant in the univariate analysis were insignificant in the multivariate analysis. The major effects, other things equal, are the following. Ceteris paribus, males and urban residents are more likely to move out of poverty and less likely to fall into poverty, heads of household are more likely to move out of poverty, and unionized workers and KwaZulu residents are less likely to fall into poverty.

Table 5: Logit Estimates for 1993 Low Earners

	Coefficient	Z with robust std. Errors	P value
1993 Earnings Level			
Zero earners	Default		
< 1/2 low earner line	1.118095	1.462	0.144
1/2 to 1 times low earner line	.5311444	0.676	0.499
1993 Work Status			
Regular employment	-.2308839	-0.211	0.833
Casual employment	.3890584	0.379	0.705
Self-employment	-1.299883	-1.485	0.137
Searching Non-worker	-.0044377	-0.011	0.991
Discouraged Non-worker	.3550271	1.172	0.241
Non-available non-worker	Default		
1993 Union Status			
Non-unionised	Default		
Unionised	-.9669087	-1.310	0.190
1993 Occupational Group			
Missing: mostly self-employed	Default		
Unskilled	-.006269	-0.008	0.994
Semi-skilled	-.9866701	-1.104	0.270
Skilled	-.658004	-0.256	0.798
1993 Sector of Employment			
Missing: mostly self-employed	Default		
Manufacturing	-.0082298	-0.015	0.988
Other	-.2814354	-0.496	0.620
1993 Occupational Status			
Private employee	Default		
Gov't/public parastatal employee	-.830562	-0.953	0.341
1993 Urban Resident			
Rural	Default		
Urban	-.9944763	-3.216	0.001
1993 KwaZulu-Natal Resident			
Natal	Default		
KwaZulu	-.5935988	-1.522	0.128
Gender			
Female	Default		
Male	-.7589683	-3.088	0.002
1993 Head of Household			
Not a head of household	Default		
Head of household	-1.009489	-4.354	0.000
Age in 1993			
Age	.2732446	2.476	0.013
Age Squared	-.002994	-1.992	0.046
1993 Education Level			
No education	Default		
Some/completed Primary education	-.7060939	-1.892	0.059
Some/completed Secondary education	-.77926	-2.176	0.030
Post-secondary education	-.8672019	-0.830	0.407
Constant	-2.210102	-1.049	0.294

Prob > chi2   = 0.0000
Log likelihood = -316.01259
Pseudo R2   = 0.1652
Standard errors adjusted for clustering on clustnum

Table 6: Logit Estimates for 1993 Medium - and High Earners

	Coefficient	Z with robust std. errors.	Pvalue
1993 Earnings Level			
1 to 2 times low earner line	Default		
> 2 times low earner line	-.0604808	-0.185	0.853
1993 Work Status			
Regular employment	1.183286	0.905	0.365
Casual employment	2.696607	1.274	0.203
Self-employment	Default		
1993 Union Status			
Non-unionised	Default		
Unionised	-1.301993	-3.555	0.000
1993 Occupational Group			
Missing: mostly self-employed	Default		
Unskilled	-1.77471	-0.857	0.391
Semi-skilled	-1.6949	-0.800	0.424
Skilled	-3.744928	-1.474	0.140
1993 Sector of Employment			
Missing: mostly self-employed	Default		
Manufacturing	-.7433956	-0.591	0.555
Other	-.3633173	-0.287	0.774
1993 Occupational Status			
Private employee	Default		
Gov't/public parastatal employee	-.7108356	-1.253	0.210
1993 Urban Resident			
Rural			
Urban	-1.071835	-2.910	0.004
1993 KwaZulu-Natal Resident			
Natal			
KwaZulu	-.916052	-1.813	0.070
Gender			
Female			
Male	-.6936051	-1.696	0.090
1993 Head of Household			
Not a head of household			
Head of household	-.5102918	-1.408	0.159
Age in 1993			
Age	-.2591397	-1.185	0.236
Age Squared	.0042535	1.502	0.133
1993 Education Level			
No education			
Some/completed Primary education	.8376059	1.204	0.228
Some/completed Secondary education	.9753007	1.453	0.146
Post-secondary education	1.237859	0.816	0.415
Constant	6.063068	1.325	0.185
Number of obs = 256 Wald chi2(19) = 41.13 Prob > chi2 = 0.0023 Log likelihood = -130.5844 Pseudo R2 = 0.2161 Standard errors adjusted for clustering			

VI. CONCLUSION

We began this paper by repeating what past researchers have already shown from the available cross-sectional evidence: On the one hand, since 1990 the South African labour market has been marked by rising real wages for a shrinking number of workers engaged in regular employment. On the other hand, prior cross-sectional evidence also suggests that informal sector employees and non-employees progressed little, either in terms of moving into more secure employment positions or into higher earning positions. Before we began this research, these cross-sectional patterns suggested to us a process of cumulative advantage whereby winners in the initial period, such as those with high earnings and stable employment, would see greater gains than the rest of the population.

The recent release of a panel data set for KwaZulu-Natal allows for an interrogation of this picture of the dynamic behaviour of the labour market. This paper focused on the picture that the survey sketches of real earnings changes between 1993 and 1998. If the evidence had suggested very little real earnings change, this would have reinforced the static view of workers and non-workers frozen in their earnings level. There would have been little merit in any more detailed explorations. We therefore began by investigating this issue.

One important finding is that the median earnings change between 1993 and 1998 was zero. The people with zero change are overwhelmingly the 35 percent of working age Africans who had no job, and no earnings, in either period. From this, one might be drawn to conclude that this fixity of earnings argument has merit. Such a view is buttressed by our finding that, among those experiencing earnings change, the vast majority of low earners in 1993 were still low earners in 1998.

However, a more complete analysis of earnings change reveals a very different picture – a picture of substantial churning and non-fixity of earnings in the KwaZulu-Natal labour market. Earnings changes were large and, for a great many people, extreme. One quarter of the available workforce experienced earnings changes greater than the low earnings line. 41 percent experienced changes at least half that amount and twelve percent of the population experienced changes twice the size of the low earnings line. On average, there were more winners than losers and many more people moved out of low earner status than fell into low earner status. Indeed, nearly half (48%) of the medium-to-high earners in 1998 had not been medium-to-high earners in 1993. These are the lucky poor: those who rose out of low earnings. But there is a more negative side too: over one third (36 %) of the medium-to-high earners in 1993 had lost enough income so that they were low earners by 1998.

The rest of the paper then proceeded to examine the correlates of large earnings changes, both positive and negative, and of movements across the low earnings line. By including, as zero-earners both job searchers and discouraged non-workers, in either or both periods, as well as those who were non-participants in one year but were either in employment or looking for employment in the other year, we cast the sample very broadly to capture all individuals who had any involvement with the labour market in either year. The appropriateness of this decision was revealed in the

key finding from both the mobility profile and the multivariate analysis: that the cumulative advantage hypothesis is wrong.

Rather, the ensuing analysis revealed a much more equalizing process. Those who started out the worst in terms of income or employment status are found to have gained the *most* and to have seen substantial real earnings growth on average. Contrariwise, those who started off with better initial employment and earnings positions in 1993 experienced negative earnings changes on average. The process of earnings dynamics in South Africa exhibits both unconditional convergence (without any controls being included, earnings change is inversely related to initial earnings level) and conditional convergence (an inverse relationship even after including various controls).

Our analysis also showed that one group of workers did markedly better than others in achieving real earnings gains or curtailing real earnings losses. Those who were union members in 1993 were able to protect against earnings losses better than other formal sector employees could, and as a result union members were less likely to fall into the low earnings group.

Demographic factors are seen to have played an important role in the univariate and multivariate pictures of earnings changes as well as avoiding and escaping from low earnings. Other things equal, the demographic groups with the most positive earnings changes were urban dwellers, males, younger workers, heads of household and individuals who were resident in KwaZulu (rather than Natal) in 1993.

Most of the demographic variables that were associated with positive earnings changes were also significant in terms of facilitating escape from low earnings and avoiding the risk of falling into low earnings. However, heads of household were more likely to move out of poverty but did not seem to be less susceptible than others to falling into poverty. Similarly, compared to the non-educated, those with some education were found to have had a greater proportion escaping low earnings status but a similar degree of vulnerability of falling into low earner status. On the other hand, KwaZulu residents were less likely to fall into poverty but were not necessarily more successful at escaping.

In interpreting these results, it is important to recognize that these results hold for a particular epoch in South African history. The first survey was conducted in 1993, just as apartheid was ending. There is no way to know whether the changes that we have observed in this paper were one-off adjustments due to the move to a post-apartheid labour market or a signal of persistent churning and high turnover in the labour market. This point is particularly pertinent because the panel covered African individuals and we are therefore comparing a before and after apartheid situation for the particular labour market group that was most negatively affected by apartheid and which therefore was most likely to have experienced a post-apartheid adjustment response. But even if the earnings changes that we have detailed were indeed one off adjustments, it is still interesting to find that they have been so asymmetric for different groups in the labour market and that the lowest-income Africans were the ones whose earnings rose the most.

Throughout the discussion, there have been hints that employment changes have generated the volatile changes in earnings. The large gains in earnings for those starting as non-workers obviously entail employment changes. Yet, the decline for regular workers can be due to movement into non-worker status, due to movement into the informal sector, or simply due to losses in real earnings for those still employed in the regular employment sector. Sorting out the relation between employment dynamics and earnings dynamics will be the focus of future research by the authors.

This paper has clearly destroyed the notion of a static earnings experience and has revealed sizable employment changes as well. The picture of the KwaZulu Natal labour market is one of opportunity and risk for Africans, with sizeable average earnings gains since the end of Apartheid and a long way to go before the benefits are shared by all available workers.

References

Carter, M, & May, J, 1999a. Getting Ahead or Falling Behind? The Dynamics of Poverty in Post-Apartheid South Africa. University of Wisconsin Working Paper.

Bhorat, H and Leibbrandt M. 1999. "Modelling Vulnerability and Low Earnings in the South African Labour Market," *Draft Input Paper Number 8*, AERC/South African Department of Labour Project: Labour Markets, Poverty and Inequality in South Africa

Fallon, P. and R. Lucas. 1998. "South African Labour Markets: Adjustment and Inequalities," *Discussion Paper No. 12*, Informal Discussion Papers on Aspects of the Economy of South African. World Bank Southern African Department. Washington.

Hofmeyr, J. 1999. "Segmentation in the South African Labour Market," *Working Paper No. 15*. South African Network for Economic Research. Potchefstroom.

Hofmeyr, J and Lucas, R. 1998. "The Rise in Union Wage Premia in South Africa," *IED Discussion Paper Series No. 83*. Institute for Economic Development, Boston University.

Jensen, R. 1999. "A Semi-parametric Analysis of African-White Wages Differences in the South African Public and Private Sectors," John F Kennedy School of Government, Harvard University, processed.

Kingdon, G. and Knight, J. 2000. "Are Searching and Non-searching Unemployment Distinct States when Unemployment is High? The Case of South Africa". Unpublished mimeo. University of Oxford.

Leibbrandt, M., Bhorat, H. and I Woolard. 1999. "Household Inequality and the Labour Market in South Africa". Unpublished mimeo. School of Economics. UCT.

Maluccio, J., Haddad, L, & May, J, 2000. Social Capital and Income Generation in South Africa 1993-1998. Centre for Social and Development Studies Working Paper No. 19.

May, J, Carter, M, Haddad, L, and Maluccio, J, 2000. *KwaZulu-Natal Income Dynamics Study (KIDS) 1993-98: A Longitudinal Household Data Set for South African Policy Analysis*. University of Natal – Durban, University of Wisconsin – Madison, and International Food Policy Research Institute.

Moll P. 1992. "The Decline of Discrimination Against Coloured People in South Africa". *Journal of Development Economics*, 37.

Moll, P. 1993. "Industry Wage Differentials and Efficiency Wages" *Journal of Development Economics* 41:214-246.

Moll, P. 1998. "Discrimination is Declining in South Africa but Inequality is not," *Working Paper No. 5*. South African Network for Economic Research. Potchefstroom.

Mwabu, G and Schultz, T. 1996a. "Wage Premia for Education and Location by Gender and Race in South Africa," Unpublished Paper. Yale University. New Haven.

Mwabu, G and Schultz, T. 1996b. "Education Returns Across Quantiles of the Wage Function; Alternative Explanations for the Returns to Education by Race in South Africa". *American Economic Review* 86(2): 335-339.

Mwabu, G and Schultz, T. 1998. "Labour Unions and the Distribution of Wages and Employment in South Africa," *Industrial and Labor Relations Review*, 51(4): 680-703.

Appendix

Figure A.1: Kernel Density Function

Earnings Changes, KwaZulu-Natal 1993-1998