

# **Firm growth, job switching and wages in South Africa**

## **Abstract**

This paper investigates the firm size-earnings profile in South Africa using two new sources of data – the World Bank’s Investment Climate Assessment matched firm and worker data and the Labour Force Survey Panel. It shows that cross sectional estimations that fail to control for individual and firm specific effects overestimate the magnitude of the increase in earnings with firm size. Pooled cross sectional regressions suggest that workers in firms with 50 or more employees earn 25% more than those in firms with 5-9 employees. This falls to 8% once individual characteristics are controlled for. The paper also attempts to exploit the differences in firm size driven by firm growth and job switching to breakdown the firm size premium into employee specific effects, firm specific effects and job match effects.

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## **Section 1. Introduction**

It is well known that large firms pay more (see Oi and Idson, 1999, for a review of the literature). Explanations for this fall into three broad areas: one, large firms are in some way different to small firms; two, workers in large firms have different characteristics, either observable or unobservable, from those in smaller firms; or three, the match between workers and firms differs by firm size. This paper aims to document the firm size wage premium in South Africa using two new data sources – the Labour Force Survey Panel Dataset and the Investment Climate Assessment matched worker-firm data. It also aims to exploit some of the unique aspects of these datasets to investigate whether any of the three explanations for the firm size-wage premium given above can be tested.

A key feature of this paper is the attempt to distinguish whether the firm size effect differs between those workers who switch firms and those that remain in a firm that changes size. In both these cases, the characteristics, both observable and unobservable, of the worker are likely to remain constant. In the case of those that switch firms both the match and the characteristics of the firm will change. For those that stay in the firm, the match between firm and worker will remain constant but firm characteristics may change. In both cases there is likely to be some endogeneity – workers may be forced to switch firm if the firm closes and/or firm performance may be linked to the match between firm and worker and the wage paid. The paper begins to investigate some of these issues.

Understanding the firm size-wage premium, and the reason for the premium, is important for South Africa. Unemployment is a key issue in South Africa and understanding the mechanisms through which people are employed is vital for formulating policy. If large firms pay more because there is a small pool of people that are a suitable match an obvious policy conclusion to increase employment would be to increase the pool of those with suitable characteristics – if this is possible. This is the thinking behind the current emphasis on skills training. However, if large firms pay high wages because they are profitable and employees are able to capture some of these rents, or if wages are high because there are institutional mechanisms that limit employment or bid up wages in large firms, then the policy conclusions are different.

The paper proceeds as follows. The next section presents some descriptive statistics on the transitions between different sized firms in the data. The third section investigates whether the firm size-wage premium exists in South Africa and the magnitude of this relationship. Section 4 examines the differences between those workers that switch firms and those that remain in firms that change size. Shortcomings in the approaches and possible solutions to these are presented in Section 5. Section 6 concludes.

## Section 2. Descriptive Statistics

The data used in this paper comes from two sources. The first is the Labour Force Survey (LFS) Panel dataset. This dataset was designed as a rolling panel that tracked households living in the same dwelling units. Individuals in these households were matched to create the individual panel. The second is the World Bank’s Investment Climate Assessment survey. In this survey workers in individual firms were surveyed so as to obtain matched firm-worker data.

The LFS data clearly shows that those in larger firms earn more. The median value of real earnings for those working in a one person firm is almost a third of those working in a firm with 5-9 employees. Whilst those in a 50 plus employee firm have a median value almost double that of those in 5-9 employee firms.

Table 1. Firm size and real wages – LFS pooled sample

firmsize1	mean	p50	sd	min	max	N
1	869.8708	461.3936	2444.033	0	149837.6	13019
2	1674.286	800	3190.32	16.6395	92634.61	7641
3	2252.735	1200	4322.3	19.9674	191687	5897
4	2723.616	1509.084	5471.535	40.37194	350000	7349
5	3039.819	1778.584	5450.45	33.34846	345752.2	8752
6	3304.133	2196.083	3873.689	59.9022	83371.14	14018
Total	2299.741	1198.044	4212.759	0	350000	56676

The tables below indicate transitions in the size of firms for those that remain employed between two consecutive waves (i.e a six month period). There are over 32,000 observations of people who remain in the same firm but only 649 of those that change jobs. Not surprisingly, for both stayers and movers, it is most common to remain in a

similar sized firm. Across all size categories a change in firm size is more common through movement than through firm growth. For both stayers and movers the most common change in firm size is to a neighbouring category.

Most stayers in firm size categories 1-5 (i.e. firms with employees 1-49) experience an increase in firm size category if the category changes. This is in contrast to movers where a decrease in firm size category is most common for firm size category 4 and above (i.e. from those in firms with 10 or more workers). Although a decline in firm size is more common among movers, given that there are less movers than stayers, the number of people who end up in a smaller firm due to a firm shrinking is greater than the number who move to a smaller firm.

Table 2. Transition matrix – LFS. Stay in same job

firmsize1	firmsize1						Total
	1	2	3	4	5	6	
1	2,227 71.77	419 13.50	103 3.32	102 3.29	110 3.54	142 4.58	3,103 100.00
2	485 16.50	1,261 42.89	422 14.35	272 9.25	177 6.02	323 10.99	2,940 100.00
3	94 2.80	449 13.38	1,153 34.36	743 22.14	426 12.69	491 14.63	3,356 100.00
4	108 2.16	253 5.05	720 14.38	1,876 37.48	1,171 23.39	878 17.54	5,006 100.00
5	96 1.50	209 3.27	377 5.91	1,132 17.73	2,678 41.96	1,891 29.63	6,383 100.00
6	134 1.15	256 2.20	451 3.87	817 7.01	1,964 16.85	8,036 68.93	11,658 100.00
Total	3,144 9.69	2,847 8.77	3,226 9.94	4,942 15.23	6,526 20.11	11,761 36.25	32,446 100.00

Notes: Firm size categories are as follows: 1 – 1 employee; 2 – 2-4 employees; 3 – 5-9 employees; 4 – 10-19 employees; 5 – 20-29 employees; 6 – 50+ employees.

Table 3. Transition matrix – LFS. Move jobs

firmsize1	firmsize1						Total
	1	2	3	4	5	6	
1	78 60.47	18 13.95	6 4.65	14 10.85	6 4.65	7 5.43	129 100.00
2	23 20.35	33 29.20	14 12.39	14 12.39	14 12.39	15 13.27	113 100.00
3	4 4.26	18 19.15	24 25.53	25 26.60	10 10.64	13 13.83	94 100.00
4	7 6.31	11 9.91	21 18.92	36 32.43	17 15.32	19 17.12	111 100.00
5	5 5.56	7 7.78	10 11.11	18 20.00	26 28.89	24 26.67	90 100.00
6	6 5.36	10 8.93	8 7.14	12 10.71	12 10.71	64 57.14	112 100.00
Total	123 18.95	97 14.95	83 12.79	119 18.34	85 13.10	142 21.88	649 100.00

Notes: Firm size categories are as follows: 1 – 1 employee; 2 – 2-4 employees; 3 – 5-9 employees; 4 – 10-19 employees; 5 – 20-29 employees; 6 – 50+ employees.

The next set of tables illustrates how real incomes change with a change in firm size. A striking observation is the large increase in real earnings if the firm grows from 1 employee to 5 or more. A person working for themselves that grows the firm to one that employs 5-9 workers would experience a 21% increase in real earnings. If the firm grows to 50 or more employees this increase would be 52%. This clearly captures the return to entrepreneurship and may also capture the return to capital that the individual has invested in the business. As such it is not directly comparable to a change in firm size where the individual is merely employed as a worker in the firm. A similar result is present for firms that contract to a single employee firm – real incomes decline substantially if a firm is left with a single employee.

Changes in real earnings associated with increases in firm size are much smaller for individuals that start out in firms with more than 1 employee. For example, an increase in firm size from category 3 (5-9 workers) to category 4 (10-19 workers) results in an average increase in real earnings of 3%. This is in fact a smaller increase than for those employed in firms that did not change size. It is worth highlighting that these are changes rather than absolute levels of earnings.

Changes in real wages are much higher for those that switch firms. Movement out of a single employee firm increases real income by between 28 and 55%. Movement out of a 2-4 employee firm to a firm of 10 or more is also associated with a large increase in real earnings. Movement to a smaller firm is most likely to be accompanied by a fall in real earnings. This suggests that these types of movements are non-voluntary.

Table 4. Changes in real income – LFS. Stayers

Lfirmsize1	firmsize1						Total
	1	2	3	4	5	6	
1	0.03	0.05	0.21	0.45	0.41	0.52	0.08
	0.50	0.54	0.86	0.81	0.80	0.96	0.58
	1809	336	92	75	91	80	2483
2	-0.02	0.02	0.06	0.02	-0.01	0.04	0.02
	0.51	0.49	0.45	0.51	0.55	0.62	0.50
	354	883	274	161	98	146	1916
3	-0.24	-0.01	0.06	0.03	0.03	0.04	0.03
	0.64	0.58	0.47	0.46	0.54	0.56	0.51
	67	290	707	413	210	189	1876
4	-0.25	-0.05	0.03	0.03	0.04	0.01	0.02
	0.71	0.51	0.51	0.54	0.50	0.54	0.53
	65	143	383	881	594	367	2433
5	-0.20	-0.01	0.05	0.00	0.01	0.01	0.01
	0.52	0.59	0.57	0.51	0.47	0.50	0.50
	45	107	188	520	1118	789	2767
6	-0.35	-0.05	-0.01	0.01	0.01	0.02	0.01
	0.63	0.53	0.60	0.61	0.46	0.49	0.51
	68	131	187	304	819	3083	4592
Total	-0.01	0.01	0.05	0.03	0.03	0.03	0.03
	0.52	0.52	0.53	0.54	0.50	0.52	0.52
	2408	1890	1831	2354	2930	4654	16067

Notes: Firm size categories are as follows: 1 – 1 employee; 2 – 2-4 employees; 3 – 5-9 employees; 4 – 10-19 employees; 5 – 20-29 employees; 6 – 50+ employees.

Table 5. Changes in real income – LFS. Switchers

Lfirmsize	1	2	3	4	5	6	Total
1	-0.12	0.33	0.54	0.38	0.55	0.28	0.14
	0.83	0.82	0.99	0.76	1.14	0.69	0.89
	158	47	22	37	24	22	310
2	-0.30	0.03	-0.04	0.20	0.57	0.44	0.08
	0.65	0.59	0.73	0.77	1.12	0.95	0.79
	27	44	24	21	17	14	147
3	-0.63	-0.30	0.07	0.04	-0.06	0.03	-0.08
	0.53	0.96	0.82	0.56	0.68	0.58	0.76
	10	25	40	26	21	19	141
4	-0.36	0.06	0.09	-0.03	-0.01	0.06	0.01
	0.58	0.58	0.69	0.58	0.49	0.95	0.65
	5	17	40	59	26	21	168
5	-0.80	-0.40	0.09	0.00	-0.03	0.06	-0.07
	1.06	1.03	0.68	0.89	0.46	0.53	0.72
	12	12	15	25	42	52	158
6	-0.61	-0.43	-0.21	-0.16	0.03	0.05	-0.07
	0.85	0.69	0.52	0.76	0.71	0.66	0.70
	7	17	12	23	35	84	178
Total	-0.22	-0.01	0.11	0.07	0.13	0.10	0.02
	0.82	0.81	0.78	0.72	0.78	0.68	0.78
	219	162	153	191	165	212	1102

Notes: Firm size categories are as follows: 1 – 1 employee; 2 – 2-4 employees; 3 – 5-9 employees; 4 – 10-19 employees; 5 – 20-29 employees; 6 – 50+ employees.

These results do not control for potential differences in characteristics between movers and stayers. In the next section an attempt is made to control for both observable and unobservable worker characteristics.

### Section 3. Results

In order to investigate the relationship between firm size and wages a set of Mincerian earnings functions are estimated. These take the form:

$$\ln w_{ijt} = \beta_1 S_{ijt} + \beta_2 X_{it} + \beta_3 T_{ijt} + \beta_4 Z_{jt} + \mu_i + \varphi_{ij} \quad (1)$$

$w_{ijt}$  is the real wage earned by worker  $i$  in job  $j$  at time  $t$ . The first term on the right-hand-side is the impact of size on individual earnings. The second term ( $X_{it}$ ) is a vector of observable individual characteristics such as education and age. The third term ( $T_{ijt}$ ) depicts the impact of job-specific skills acquired through the length of tenure at the firm. The fourth term ( $Z_{jt}$ ) is a vector of observable firm specific characteristics such as productivity or profitability. The fifth term ( $\mu_i$ ) is an individual-specific effect that

includes the unobservable characteristics of individuals like ability. The sixth term ( $\varphi_{ij}$ ) depicts the impact of the quality of job match. This reflects the fact that individuals with given skills may have different earnings in different jobs due to the quality of 'fit' with the job.

Initial estimations control for only the observable characteristics of workers and firms. In table 7, the matched firm-worker data is used to estimate equation (1). Column (4) controls for observable firm specific and individual specific characteristics as well as sector specific characteristics through a set of sector dummies. As anticipated education (measured as years of completed education) has a positive and potentially increasing impact on earnings. The impact of age is concave – a common finding in cross-sectional data. Workers in firms with higher labour productivity earn more but those in firms with higher capital intensity earn less. Those workers in firms with higher profitability per unit of capital also earn less. These findings are unexpected and deserve further investigation. The coefficients on the job type controls are as expected – managers earn more than supervisors who earn more than production workers.

Both column (3) and (4) include a firm size variable measured as the number of workers within the firm. These both indicate that larger firms pay more. Without controlling for observable firm characteristics (column (3)) the coefficient estimate suggests that a 1 percent increase in firm size results in an increase in wages of 0.11%. After controlling for observable firm characteristics this falls to 0.07%. These results suggest that for a worker in a 100-employee firm wages will be 7% higher than for an observably identical worker in an observably identical 50-employee firm.

Table 6. OLS estimation results. Matched firm and worker data – manufacturing

	(1)	(2)	(3)	(4)
	lmean	lmean	lmean	lmean
Educ	0.164 (36.48)***	0.075 (3.44)***	0.068 (3.06)***	0.059 (2.91)***
EducSq		0.005 (4.07)***	0.005 (3.98)***	-0.000 (0.21)
Age	0.033 (22.31)***	0.042 (4.26)***	0.036 (3.63)***	0.035 (3.65)***
Agesq		-0.000 (0.94)	-0.000 (0.46)	-0.000 (2.07)**
Male	0.156 (6.00)***	0.148 (5.67)***	0.158 (6.06)***	0.086 (3.16)***
llx_2002			0.110 (10.84)***	0.070 (6.27)***
lyl_2002				0.179 (9.57)***
lkl_2002				-0.068 (4.75)***
exportdirect_2002				-0.016 (0.61)
lprofk_2002				-0.060 (5.33)***
Constant	5.382 (67.99)***	5.584 (25.33)***	5.263 (23.41)***	5.334 (15.59)***
Occupation controls				Yes
Sector controls				Yes
Provincial controls				Yes
Observations	3734	3734	3681	2752
R-squared	0.26	0.27	0.29	0.63
Robust t statistics in parentheses				
* significant at 10%; ** significant at 5%; *** significant at 1%				

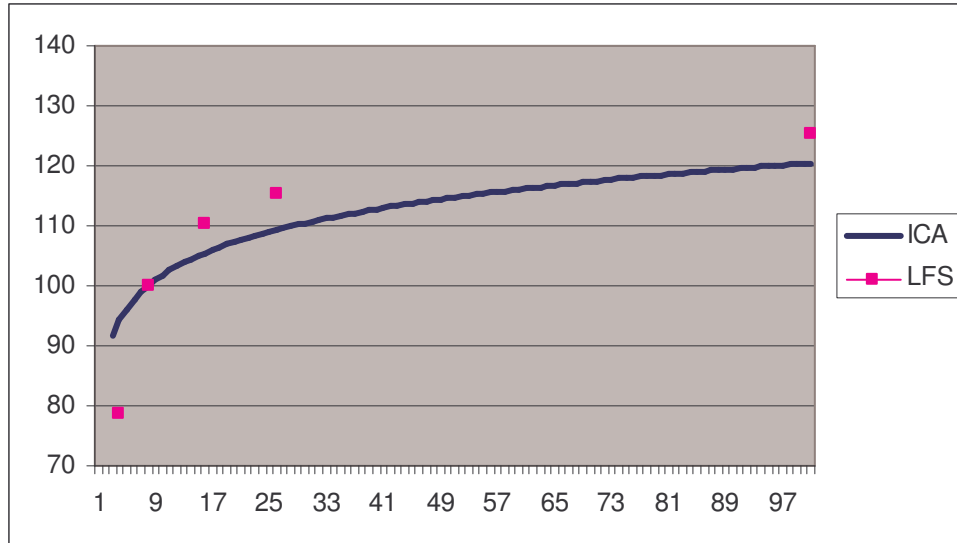
The results using the LFS panel as a pooled cross-section are similar. The impact of education on earnings is convex, the age-earnings profile is concave and males earn more than females. There is also a robust firm-size earnings relationship.

Table 7. LFS – Panel (used as a pooled regression).

	(1)	(2)	(3)	(4)	(5)
	lrmearn	lrmearn	lrmearn	lrmearn	Lrmearn
	Wave 2 & 3 only		No size controls	Manufacturing only	All firms
educ	0.130 (25.33)***	0.025 (1.56)	0.014 (1.47)	-0.001 (0.05)	-0.017 (1.87)*
educsq		0.007 (6.84)***	0.007 (11.89)***	0.008 (8.56)***	0.009 (14.82)***
age	0.020 (12.29)***	0.079 (8.35)***	0.075 (12.51)***	0.072 (8.49)***	0.068 (12.27)***
agesq		-0.001 (6.15)***	-0.001 (9.01)***	-0.001 (5.68)***	-0.001 (8.01)***
male	0.581 (18.81)***	0.571 (18.70)***	0.570 (30.73)***	0.457 (15.51)***	0.463 (26.04)***
wavex3	-0.083 (2.76)***	-0.074 (2.51)**			
wavex1			0.116 (3.81)***	0.000 (.)	0.131 (4.59)***
wavex2			0.074 (2.50)**	0.085 (3.06)***	0.086 (3.12)***
wavex4			-0.040 (1.34)	0.000 (.)	-0.023 (0.81)
wavex5			0.038 (1.22)	0.000 (.)	0.041 (1.37)
wavex6			-0.023 (0.68)	0.000 (.)	-0.013 (0.40)
fmsize1				-0.855 (10.17)***	-0.817 (16.75)***
fmsize2				-0.152 (1.89)*	-0.213 (4.37)***
fmsize4				0.178 (2.63)***	0.103 (2.57)**
fmsize5				0.227 (3.60)***	0.153 (4.17)***
fmsize6				0.268 (4.62)***	0.254 (7.46)***
Constant	5.161 (57.64)***	4.363 (22.41)***	4.420 (36.48)***	4.422 (24.33)***	4.632 (39.68)***
Observations	2953	2953	7882	2886	7702
R-squared	0.27	0.29	0.30	0.40	0.40
Robust t statistics in parentheses					
* significant at 10%; ** significant at 5%; *** significant at 1%					

The predicted firm size-earnings relationships from both these cross-sectional datasets are presented in Figure 1. These are indexed against a 7 employee firm.

Figure 1. Predicted firm size-earnings relationship



Note: Number of employees in the firm is assumed to be the middle of the LFS categories.

#### Section 4. Movers and stayers and controlling for unobservables

The results thus far have not controlled for unobservable characteristics, either of the firms or of the workers. If these are correlated with firm size then the coefficients on the firm size variables will be biased. We will attempt to exploit the panel dimension of the LFS to correct this. A fixed-effects estimation strategy controls for unchanging characteristics of the individual. Among those that stay within the same firm, it will control for the unchanging firm-specific effect, as well as the match if this match is constant. Tables 8 and 9 below provide the estimation results for those in the manufacturing sector and for all firms. Column (1) includes both stayers and movers, column (2) is stayers only, and column (3) is only movers. Due to the nature of the fixed-effects estimation changes in firm size is used to identify the coefficients on the firm size variables.

For manufacturing firms, individuals in single employee firms or those in 2-4 employee firms earn significantly less than individuals in other sized firms. There is little indication

that of differences in earnings between firm size categories for those employed in firms of 5 or more. There is also no significant evidence that there is a firm size wage relationship among either the stayer or movers. Part of the explanation for the lack of a robust finding is the small sample sizes among both these groups.

Table 8. Fixed effects estimation – LFS. Manufacturing workers only

	(1)	(2)	(3)
	All	Stayers	Movers
	lrmearn	Lrmearn	Lrmearn
fmsize1	-0.333 (4.79)***	-0.153 (1.45)	-0.237 (0.39)
fmsize2	-0.114 (2.08)**	-0.006 (0.10)	-0.404 (1.38)
fmsize4	0.013 (0.31)	0.019 (0.47)	-0.443 (1.50)
fmsize5	0.004 (0.10)	0.006 (0.14)	-0.377 (1.07)
fmsize6	-0.006 (0.16)	-0.002 (0.06)	-0.204 (0.73)
wavex1	0.116 (4.94)***	0.086 (3.76)***	-0.128 (0.60)
wavex2	0.056 (2.52)**	0.024 (1.09)	-0.154 (0.72)
wavex4	0.009 (0.41)	-0.030 (1.32)	-0.460 (2.23)**
wavex5	0.100 (3.84)***	0.044 (1.72)*	-0.005 (0.02)
wavex6	0.102 (3.50)***	0.090 (3.14)***	-0.299 (1.27)
Constant	7.372 (195.68)***	7.522 (199.63)***	7.559 (29.09)***
Observations	7713	5980	717
Number of Uq	4892	3702	677
R-squared	0.02	0.02	0.24
Absolute value of t statistics in parentheses			
* significant at 10%; ** significant at 5%; *** significant at 1%			

Among firms in general, there is evidence that wages rise with firm size even after controlling for individual characteristics. Workers in single employee firms earn 27% less than those in a firm employing 5-9 workers. Those in firms of 2-4 workers earn 11% less than the base category (5-9 workers). As firm size increases the wage premium increases to 2.5% for those in 10-19 employee firms, 6% in 20-49 employee firms and 8.3% in 50 plus employee firms.

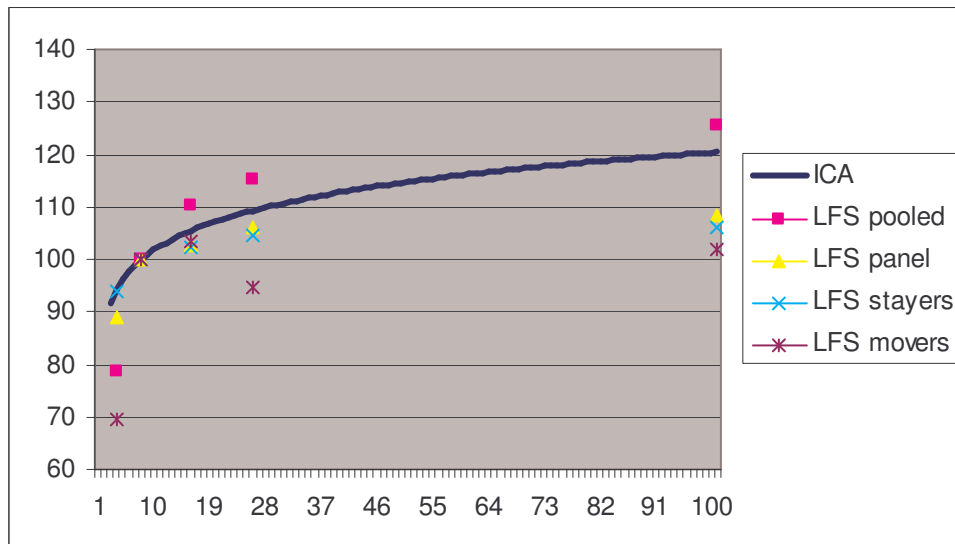
The magnitude of the firm size earnings profile is decreased if the sample is confined to those that stay within a firm and further decreases for the movers. These firm size earnings profiles are show in Figure 2.

Table 9. Fixed effects estimation. All firms

	(1)	(2)	(3)
	lrmearn	lrmearn	lrmearn
	All	Stayers	Movers
fmsize1	-0.269 (17.84)***	-0.153 (9.22)***	-0.404 (4.47)***
fmsize2	-0.112 (8.30)***	-0.062 (4.62)***	-0.305 (3.71)***
fmsize4	0.025 (1.99)**	0.021 (1.77)*	0.034 (0.45)
fmsize5	0.060 (4.55)***	0.046 (3.75)***	-0.052 (0.62)
fmsize6	0.083 (6.20)***	0.062 (5.01)***	0.020 (0.23)
wavex1	0.038 (4.39)***	0.033 (4.02)***	0.129 (1.85)*
wavex2	0.037 (4.59)***	0.030 (3.89)***	0.134 (2.21)**
wavex4	0.011 (1.39)	0.018 (2.31)**	0.077 (1.21)
wavex5	0.099 (10.77)***	0.108 (12.33)***	0.232 (3.28)***
wavex6	0.114 (11.58)***	0.117 (12.35)***	0.242 (3.34)***
Constant	7.100 (630.21)***	7.219 (679.95)***	6.617 (90.82)***
Observations	56675	41936	5973
Number of Uq	30040	22204	5353
R-squared	0.03	0.02	0.08
Absolute value of t statistics in parentheses			
* significant at 10%; ** significant at 5%; *** significant at 1%			

Figure 2 illustrates the over-estimate of the firm size earnings profile obtained using cross-sectional data. Once the possibility of individual specific effects are controlled for the differences in earnings between workers in firms of different sizes is significantly reduced. These results indicate that without controlling for individual characteristics individuals in firms with more than 50 employees earn 25% more than individuals in firms with 5-9 workers. Once individual characteristics are controlled for this fall to 8%. These suggest that the individual characteristics of workers matter, as does the characteristics of the firm, and the match between the firm and worker. All these are likely to vary by firm size, and thus help explain some of the wage premium that large firms pay.

Figure 2. Predicted firm size-earnings relationship



Note: Number of employees in the firm is assumed to be the middle of the LFS categories.

## Section 5. Some shortcomings

Given the preliminary nature of this paper, there are some obvious shortcomings. Some of these will be touched on briefly here and will be more thoroughly dealt with in subsequent versions.

The first issue is the endogeneity between firm outcomes (including size change and survival), earnings and worker characteristics. The estimations above control for the potential relationship between worker characteristics and firm size through the individual

fixed effects however, earnings may also influence firm performance. The nature of this relationship is worth examining in the next version of the paper.

The second issue is the likely relationship between worker characteristics, firm performance and whether workers stay or leave firms. The results suggest that if workers switch firms, they generally see a decline in real earnings. This suggests that these switchers may be involuntary or that individuals are accepting a lower salary but are compensated in other ways, such as shorter or more flexible hours, less commuting or a better work environment. The distinction between switchers and stayers will be examined more thoroughly in the next version of the paper.

The third issue worth examining is the changes in income associated with switching and staying. Currently, the discussion is mostly on income levels rather than changes. Given the panel nature of the dataset the dynamic nature of earnings, and whether these are associated with firm size, can be investigated in more detail.

Lastly, there is clearly an issue of measurement error that may be non-random. It seems likely that individuals will get the size of their firms wrong. It also seems likely that the probability of getting the size wrong will increase with the size of the firm. The extent that this is an issue may be negated somewhat since the largest firm size category is 50 employees and above, a relatively low cut-off. However, this issue is worth investigation.

## **Section 6. Conclusions**

This paper is a preliminary investigation of the nature of the firm size-earnings relationship in South Africa. Using data from two different sources – the Investment Climate Assessment matched firm and worker data, and the Labour Force Survey panel dataset – investigated whether larger firms in South Africa pay more.

The results have shown that using cross-sectional data overestimates the firm size-wage premium. Although a premium exists, once individual and firm characteristics are controlled for the extent of this premium is significantly reduced. In fact the results

suggest that the magnitude of this premium is quite small – workers in firms with 50 or more employees earn 6% more than those in firms with 5-9 employees. This is in contrast to the cross-sectional results which suggest that this difference is about 15%.

The paper has also highlight areas for further research. These include the relationship between switching jobs, earnings and worker characteristics. Another area that requires further investigation is the dynamic nature of earnings and the relationship of these to firm size, firm growth and movements between firms.

### **References**

Oi, W.Y. and T.L. Idson, 1999, “Firm size and wages”, Chapter 33 *Handbook of Labor Economics*, Volume 3, edited by O. Ashenfelter and D. Card, North Holland.