

Wage trends and inequality in South Africa: A comparative analysis

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Introduction

According to a number of studies, strong positive global economic performance during the 1990s has achieved modest and consistent real wage gains for workers in most of the Organisation for Economic Co-operation and Development (OECD) countries¹. Furthermore, the same studies show that many countries in both Africa and South Asia experienced real wage declines and increasing wage inequality levels during the 1990s. It is argued that rising global wage inequality relates to a change in the wage structure that is demand-driven, emanating from technical changes that have favoured skilled labour in the production process². An analysis of the United States (US) labour market³ concludes that the skills composition of the workforce improved over time, but that the increase in the supply of skills did not keep pace with rising demand.

Some of the trends and patterns found in other countries are also evident in South Africa. McCord and Borat⁴, using the *October Household Survey* (OHS) data in an overview of the South African labour market, show significantly higher levels of wage inequality than in some OECD countries⁵. But, while internationally education and experience are important determinants of earnings differentials, in South Africa factors such as discrimination by race and barriers to mobility (rural/urban, formal/informal) have been associated with larger differentials than the norm⁶.

This paper introduces the data underlying the analyses, and then develops two perspectives. The first examines the wage distribution within and

between different South African worker groups observed between 2001 and 2005 on a descriptive note. The second attempts to quantify the importance of various factors in explaining wage differentials using regression analysis.

Data and descriptive statistics

Many analyses of wage inequality in South Africa begin by considering the quality and type of statistical sources available⁷. The period of wage analysis is important to understand wage trends. This paper uses five rounds of the *Labour Force Survey* (LFS) data from September 2001 to September 2005 to compute basic trends and cross-sectional analyses of wage inequality. The LFS covers almost 30 000 households across the country.

This paper focuses on the evolution of overall monthly median wage changes, the 95th to the 50th percentile ratio, and the share of wages accruing to different worker groups. A number of studies have stressed the importance of supply, demand and skills-biased technical change in the evolution of wage differentials across age, gender, population group, industry and education⁸.

Wage inequality within and between groups of workers

This section outlines wage inequality trends with respect to industry and occupation between the years 2001 and 2005. The trend figures are deflated using the consumer price index, so that all figures are

- 1 The World Bank. 2001. *Meeting employment challenges in the global economy*. Spectrum, Spring. Washington, DC.
- Betcherman, G. 2002. *An overview of labor markets world-wide: key trends and major policy issues*. Social Protection Discussion Paper 0205. Washington, DC: The World Bank.
- 2 Kosters, M. 1998. *Wage trends and inequality: measuring and interpreting*. Washington, DC: The American Enterprise Institute Press.
- 3 *Ibid.*
- 4 McCord, A and Borat, H. 2003. *Employment and labour market trends*. Human Resources Development Review: Education, Employment and Skills in South Africa. Cape Town: Human Sciences Research Council Press and East Lansing: Michigan State University Press.
- 5 *Ibid.*
- 6 Standing, G, Sender, J and Weeks, J. 1996. *Restructuring the labour market: The South African Challenge*. An ILO country review. Geneva: International Labour Office.
- 7 Leibbrandt, M and Woolard, I. 2001. *Labour Market and Household Income Inequality in South Africa*. Johannesburg: DPRU/FES Conference, November.
- Bhorat, H, Lundall, P and Rospabe, S. 2002. *The South African labour market in a globalizing world: Economic and legislative consideration*. Employment Paper 2002/32. University of Cape Town.
- 8 Standing, G, Sender, J and Weeks, J. 1996. *Restructuring the labour market: The South African challenge*. An ILO country review. Geneva: International Labour Office.

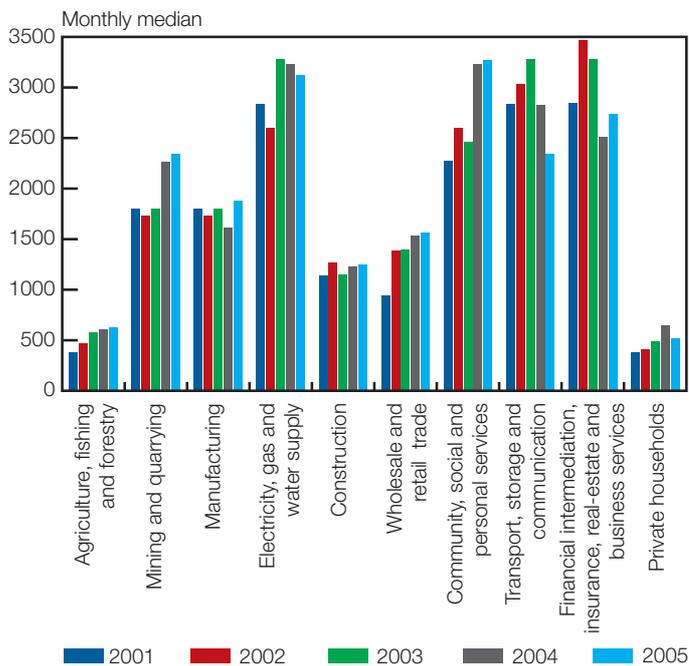
at constant 2000 rand terms. The inequality within and between groups is also analysed where race and gender inequalities are investigated by looking at different industries of employment and occupations. It should be noted that all the figures are calculated using the midpoint methodology derived by Posel and Casale⁹ as explained in the box of the “Determinants of public and private-sector wages” article on page 17.

Figure 2.1 illustrates a generally rising trend in real median wages in most industries between 2001 and 2005. In 2005 the community, social and personal services and the electricity, gas and water supply industries had the highest median wages, followed by the financial intermediation, insurance, real-estate and business services and the transport, storage and communication industries. Private households and the agriculture, fishing and forestry industries had the lowest wages compared to other industries; see Annexe 2.1.

Figure 2.2 shows the trends for monthly median wages by occupation between 2001 and 2005.

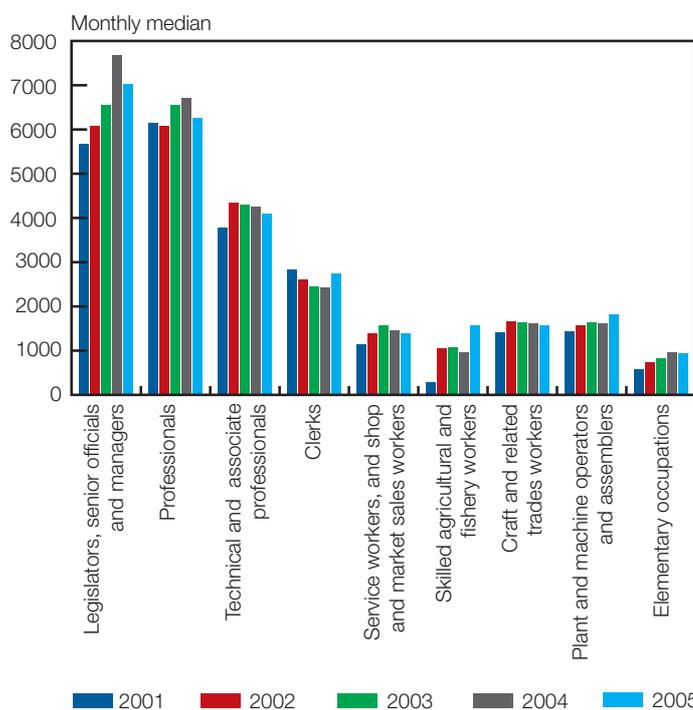
This monthly wage trend is not uniform, displaying increases in some occupations and decreases in others. The graph shows that the higher the level of skills, the higher the monthly wages. For example the wages of the highly skilled occupations, namely legislators, senior officials and managers, professionals and technical and associate professionals are higher than those of other occupations. The legislators, senior officials and managers, on balance, show an increase from a monthly median wage of R5 678 in 2001 to R7 031 in 2005. Elementary occupations and the skilled agricultural and fishery workers have the lowest monthly wages when compared with other occupations. The graph further shows a fairly small absolute increase, but percentage-wise a very significant increase, in the elementary occupations where the monthly median wages increased from R568 in 2001 to R937 in 2005; see Annexe 2.1. This coincides with the extension of minimum wage legislation to industries that were not previously covered.

Figure 2.1 Wages at constant 2000 prices by industry, 2001 – 2005



Source: Statistics South Africa, *Labour Force Survey*, September 2001 – 2005, and own calculations

Figure 2.2 Wages at constant 2000 prices by occupation, 2001 – 2005



Source: Statistics South Africa, *Labour Force Survey*, September 2001 – 2005, and own calculations

9 Posel, D and Casale, D. 2005. Who replies in brackets and what are the implications for earnings estimates? An analysis of earnings data from South Africa. Paper prepared for the Economic Society of South Africa Conference, September.

Table 2.1 indicates the existing wage disparities within different industries. The community, social and personal services industry show the highest monthly median wages equalling R4 180 in 2005 followed by the electricity, gas and water supply with median wages of R4 000. For the same year workers in the agriculture, fishing and forestry industry and those working for private households have the lowest median wages compared to other industries with median monthly wages of R800 and R660, respectively.

The ratio of the 95th to the 50th percentile is used as an indicator showing the extent to which wage inequality within an industry exists. The highest ratio of 8,8 is recorded in the agriculture, fishing and forestry industry. This could be explained by the concentration of a large number of unskilled workers in this industry while some highly-paid, skilled farm managers are employed at the upper end of the distribution. This is followed by financial intermediation, insurance, real-estate and business services industry with a wage inequality ratio of 6,6 and thereafter construction with a wage inequality ratio of 6,3.

Table 2.1 Wage ratios by industry, 2005 (Rand, at current prices)

Industry	Percentiles		
	Monthly median wages (Rand)	95 th percentile (Rand)	95/50 ratio
Agriculture, fishing and forestry	800	7 000	8,8
Mining and quarrying.....	3 000	15 060	5,0
Manufacturing	2 400	13 500	5,6
Electricity, gas and water supply.....	4 000	13 500	3,4
Construction.....	1 600	10 000	6,3
Wholesale and retail trade	2 000	12 000	6,0
Community, social and personal services.....	4 180	13 500	3,2
Transport, storage and communication.....	3 000	13 500	4,5
Financial intermediation, insurance, real-estate and business services	3 500	23 000	6,6
Private households.....	660	970	1,5

Source: Statistics South Africa, *Labour Force Survey*, September 2005, and own calculations

Table 2.2 shows the wage inequality within industries and selected population groups. African monthly median wages are the lowest between and within industries. Wages of Africans in some industries such

as manufacturing and financial intermediation, insurance, real-estate and business services deviate substantially from the median wage. More importantly, the wage inequality between the population groups still persists where Whites' median wages are far above those of their African counterparts in the same industry. This is visible in all the industries except in private households, where there were no white workers recorded in the survey.

Table 2.2 Monthly median wages by industry and population group, 2005 (Rand, at current prices)

Industry	Wages (Rand)	Percentage of electricity, gas, and water supply industry		Whites (Rand)
		Africans (Rand)	Whites (Rand)	
Agriculture, fishing and forestry	800	20	785	5 250
Mining and quarrying.....	3 000	75	2 800	9 500
Manufacturing	2 400	60	2 000	7 000
Electricity, gas and water supply.....	4 000	100	3 000	9 500
Construction.....	1 600	40	1 400	7 500
Wholesale and retail trade.....	2 000	50	1 400	5 000
Community, social and personal services.....	4 180	105	4 000	7 000
Transport, storage and communication.....	3 000	75	2 039	7 000
Financial intermediation, insurance, real-estate and business services	3 500	88	1 960	7 000
Private households.....	660	17	660	-

Source: Statistics South Africa, *Labour Force Survey*, September 2005, and own calculations

The data by occupation in Table 2.3 show that legislators, senior officials and managers had the highest median wages of R9 000 per month, followed by professionals with R8 000 and technical and associate professionals with R5 250 per month. Services workers, and shop and market sales workers and elementary occupations have low median wages of R1 768 and R1 200 per month, respectively. Considering the required levels of skills in each of the occupations, it can be seen that the wages are skills-biased, meaning that occupations that require high levels of skills have higher median wages than those that do not require these skills. It should be noted that the LFS classifies occupational categories in line with the International Standard Classification of Occupations (ISCO) and also according to the South African Standard Classification of Occupations (SASCO).

Table 2.3 Wage ratios by occupation, 2005 (Rand, at current prices)

Occupation	Percentiles		
	Monthly median wages (Rand)	95 th percentile (Rand)	95/50 ratio
Legislators, senior officials and managers	9 000	35 000	3,9
Professionals	8 000	25 000	3,1
Technical and associate professionals	5 250	15 000	2,9
Clerks	3 500	9 500	2,7
Service workers, and shop and market sales workers ...	1 768	8 000	4,5
Skilled agricultural and fishery workers*	2 000	23 000	11,5
Craft and related trades workers	2 000	9 500	4,8
Plant and machine operators and assemblers	2 320	7 000	3,0
Elementary occupations	1 200	4335	3,6

* This occupation category includes farmers who are engaged in subsistence farming

Source: Statistics South Africa, *Labour Force Survey*, September 2005, and own calculations

Table 2.3 shows that skilled agricultural and fishery workers have the highest wage inequality with a ratio of 11,5. This is followed by the craft and related workers industry with a ratio of 4,8. Technical and associate professionals and clerks have the lowest ratios equalling 2,9 and 2,7, respectively. Overall, significant wage inequalities exist within occupations, as may be expected.

It is not surprising that legislators, senior officials and managers, professionals, and technical and associate

professionals command the highest wages according to Table 2.4. This is due to the demand for their skills. Elementary occupations have the lowest monthly median wage, such wage constituting only 15 per cent of professionals' wages. Africans in the occupation category skilled agricultural and fishery workers earn low median wages when compared to the median wages of all population groups. Other studies have found that African wages tend to differ with their White counterparts as a result of the perceived lower quality of tertiary qualifications obtained from historically Black universities¹⁰ compared to those obtained from the previously White universities.

Table 2.5 on the opposite page shows the wage inequality within the African sample and within the White sample. It shows a generally higher inequality within the African group as compared to that of their White counterparts. Africans have a high wage inequality ratio of 4,7 for services workers, and shop and market sales workers, while that of Whites is 3,4. This means that in the category services workers, and shop and market sales workers, Africans in the 95th percentile earns approximately 5 times more than the median African worker. By contrast, a White worker falling in the 95th percentile earn approximately 3 times more than the median White worker. African legislators, senior officials and managers have a wage inequality ratio of 4,6 whereas the Whites in this category have a ratio of 3,7. The reason for the higher inequality among Africans may be due to the fact that many more Africans than Whites are concentrated in lower-paying jobs¹¹. Thus, even though the Whites at the 95th percentile earn more than Africans at this

Table 2.4 Monthly median wages by occupation and population group, 2005 (Rand, at current prices)

Occupation	All population groups combined				
	Wages (Rand)	Percentage of professionals	Africans (Rand)	Whites (Rand)	African female (Rand)
Legislators, senior officials and managers	9 000	113	5 250	9 500	6 000
Professionals	8 000	100	7 000	9 500	7 000
Technical and associate professionals	5 250	66	5 000	7 000	5 000
Clerks	3 500	44	2 700	4 000	3 000
Service workers and shop and market sales workers	1 768	22	1 500	4 000	1 500
Skilled agricultural and fishery workers	2 000	25	800	7 000	1 000
Craft and related trades workers	2 000	25	1 600	5 400	1 700
Plant and machine operators and assemblers	2 320	29	2 000	5 250	2 000
Elementary occupations	1 200	15	960	4 000	1 200

Source: Statistics South Africa, *Labour Force Survey*, September 2005, and own calculations

10 McCord, A and Bhorat, H. 2003. *Employment and labour market trends. Human Resources Development Review: Education, Employment and Skills in South Africa.* Cape Town: Human Sciences Research Council Press and East Lansing: Michigan State University Press.

11 Altman, M. 2005. *Wage trends and dynamics in South Africa. Review of Labour Markets in South Africa.* Pretoria: Human Sciences Research Council.

Table 2.5 Wage ratios within occupations by population group, 2005 (Rand, at current prices)

Occupation	Africans			Whites		
	Monthly median wages (Rand)	95 th percentile	95/50 ratio	Monthly median wages (Rand)	95 th percentile	95/50 ratio
Legislators, senior officials and managers.....	5 250	24 000	4,6	9 500	35 000	3,7
Professionals	7 000	21 195	3,0	9 500	35 000	3,7
Technical and associate professionals	5 000	10 000	2,0	7 000	23 000	3,3
Clerks	2 700	8 000	3,0	4 000	13 500	3,4
Service workers, and shop and market sales workers.....	1 500	7 000	4,7	4 000	13 500	3,4
Skilled agricultural and fishery workers	800	3 385	4,2	7 000	35 000	5,0
Craft and related trades workers	1 600	5 560	3,5	5 400	20 140	3,7
Plant and machine operators and assemblers.....	2 000	6 000	3,0	5 250	23 000	4,4
Elementary occupations	960	3 500	3,6	4 000	15 400	3,9

Source: Statistics South Africa, *Labour Force Survey*, September 2005, and own calculations

percentile, there is greater variation in African wages. The lowest ratio for Africans is 2,0 which is found in the technical and associate professionals occupation and it indicates a very low level of wage inequality.

Regression results

The following model shows a wage function depicting the influence of a set of selected individual characteristics on wages earned.

The model is defined as:

$$\ln(\text{monthly wages}) = \beta_0 + \beta_1(\text{gender}) + \beta_2(\text{population group}) + \beta_3(\text{education}) + \beta_4(\text{experience}) + \beta_5(\text{experience}^2) + \beta_6(\text{industry}) + \beta_7(\text{occupation}) + \beta_8(\text{trade union})$$

Where:

- gender, population group, industry, occupation and trade union membership are all included as sets of dummies; and
- experience is an abbreviation for “potential work experience”, measured by subtracting the age at which the worker would have been expected to complete his/her education from his/her actual age.

Table 2.6 shows the regression results of the model where weighted data from the LFS' worker file is used.

All coefficients are significant at the 5-per-cent level except the ones that are marked with an asterisk (*). The premium¹² is calculated as the anti-log of the coefficient of the explanatory variables expressed as a percentage. For example, the premium for Coloureds in 2001 is calculated as follows: $(e^{0,321} - 1)100 = 37.9$ per cent. The R² statistic indicates the goodness of fit for the model and it shows that in 2001 the R² was 58 per cent and in 2005 it was 49 per cent. This indicates that in 2001, 58 per cent of the level of wages was explained by the chosen explanatory variables and in 2005, 49 per cent of the level of wages was explained by the chosen explanatory variables.

According to the results in Table 2.6 on the following page, gender inequality persists as reflected in the wage premium for males which has increased from 31 per cent in 2001 to 38 per cent in 2005.

African wages are low when compared with those of the other population groups, while the White population group has the highest wage premium. However, it is noticeable that the wage differences declined between 2001 and 2005. Consistent with other studies¹³, an improvement of Africans' post-matric education may be associated with the decline in the White wage premium between the two years. The regression results further show that workers who have completed a postgraduate degree have a higher wage premium than those in other education categories.

¹² See Woolard, I. 2002. *A comparison of wage levels and wage inequality in the public and private sectors, 1995 and 2000*. Cape Town: Development Policy Research Unit. In this article 'wage premium' refers to increased wage associated with a given characteristic.

¹³ Borat, H, Lundall, P and Rospabe, S. 2002. *The South African labour market in a globalizing world: Economic and legislative consideration*. Employment Paper 2002/32. University of Cape Town.

Table 2.6 Regression results for 2001 and 2005

Dependent variable = Log of monthly wages i.e. \ln (monthly wages)

	All formal sectors			
	Coefficients 2001	Premium 2001 (per cent)	Coefficients 2005	Premium 2005 (per cent)
Number of observations	16 592		16 289	
Constant	6,759		6,948	
Female.....	Reference		Reference	
Male.....	0,269	30,9	0,324	38,3
African	Reference		Reference	
Coloured.....	0,321	37,9	0,291	33,8
Indian.....	0,384	46,8	0,274	31,5
White	0,660	93,5	0,520	68,2
Matric	Reference		Reference	
No schooling	-0,852	-57,3	-0,720	-51,3
Some primary	-0,584	-44,2	-0,550	-42,3
Some secondary.....	-0,304	-26,2	-0,368	-30,8
Vocational	0,095	10,0	0,220	24,6
Degree.....	0,338	40,2	0,327	38,7
Postgraduate degree	0,509	66,4	0,770	116,0
Experience				
Experience.....	0,014	1,4	0,013	1,3
Experience ² (x1 000)**	-0,014	-1,382	-0,013	-1,259
Manufacturing	Reference		Reference	
Agriculture, fishing and forestry	-0,656	-48,1	-0,498	-39,2
Mining and quarrying	0,121	12,9	0,242	27,4
Electricity, gas and water supply	0,094	9,9	0,080*	8,3
Construction	-0,101	-9,6	-0,115	-10,9
Wholesale and retail trade.....	-0,282	-24,6	-0,283	-24,6
Transport, storage and communication.....	0,121	12,9	0,066*	6,8
Financial intermediation, insurance, real-estate and business services	0,009*	0,9	0,058*	6,0
Community, social and personal services.....	-0,023*	-2,3	-0,014*	-1,4
Private households	-0,298	-25,8	-0,852	-57,3
Elementary occupations	Reference		Reference	
Legislators, senior officials and managers	0,997	171,0	0,956	160,1
Professionals	0,813	125,5	0,779	117,9
Technical and associate professionals.....	0,532	70,2	0,538	71,3
Clerks	0,415	51,4	0,367	44,3
Service workers, and shop and market sales workers.....	0,201	22,3	0,072	7,5
Skilled agricultural fishery workers.....	0,743	110,2	0,547	72,8
Craft and related trades workers.....	0,286	33,1	0,188	20,7
Plant and machine operators and assemblers ...	0,156	16,9	0,184	20,2
Non-member: Trade union.....	Reference		Reference	
Member: Trade union	0,298	34,7	0,287	33,2
Other statistics				
R ²	0,577		0,490	

* Not significant at the 5-per-cent level

** For interpretation purposes, the coefficient of experience² was multiplied by 1 000Source: Statistics South Africa, *Labour Force Survey*, September 2005, and own calculations

The experience variable is a proxy for the level of experience that a worker has. It measures “potential work experience” by subtracting from the individual’s age the age at which he/she would have been expected to complete his/her education. For example, if a person is 30 years old and has 10 years of schooling, he/she could potentially have been working since the age of 16, giving him/her “potential experience” of 14 years. This variable was used to detect if it affects the level of wage inequality. Experience squared allows for marginal returns to experience over the average working life, in line with human capital theory. Based on this, one can expect the coefficient of potential experience to be positive and the coefficient of experience squared to be negative¹⁴. The experience variable shows small positive values for both 2001 and 2005, suggesting that experience does have an effect on wage inequality.

Table 2.6 shows that agriculture, fishing and forestry, construction, wholesale and retail trade and private households have negative wage premiums. This may be due to the availability of a large number of unskilled workers in these industries. However, the electricity, gas and water supply and transport, storage and communication industries have higher wage premiums than manufacturing. Some authors¹⁵ have argued that firms in the service sector including electricity, gas and water supply and transport, storage and communication reward top-end employees more than other industries. This means that the existence of higher wage premia in the above-mentioned industries is largely a result of skills shortages. Mining and quarrying has a higher wage premium despite it being in the primary sector of the economy, which could be due to the density of union membership in this industry¹⁶. All the other occupations show higher wages than in the elementary occupations, due to the large number of unskilled workers found in the latter sector.

The trade union premium indicates that belonging to a union helps one to get better wages than for those who do not belong to a trade union. Rospabe, however, using the OHS data found that South African trade unions use their significant wage bargaining power to favour mainly African workers’ interests¹⁷.

Conclusion

Real monthly median wages differ significantly between both industries and occupations. The results show that wage inequality persists in South Africa based on gender, race, education, industry and occupation, with education significantly stronger than the other determinants.

Occupational wage analysis shows that wage inequality is more prominent by gender and race, which may be explained in terms of differential accumulation of skills, as well as actual and perceived quality differentials in education. At the same time, industrial wage analyses show that race and gender continue to be factors in wage inequality.

The regression results also confirm that the extent of inequality changed between 2001 and 2005; for instance most wage premia associated with different variables narrowed between these years.

Policy implementation and institutional arrangements have played a significant role in reducing historical wage inequalities between and within different worker groups over the past decade. However, wage inequality persists with dimensions such as gender, schooling, industry, occupation and unionisation requiring continuous policy and institutional adaptation and implementation. The enhanced supply of skilled labour should be the most important factor to reduce wage inequality in the future.

14 Erichsen, G, and Wakeford, J. 2001. *Racial wage discrimination in SA before and after the first democratic election. Working Paper 01/49. Cape Town: Development Policy Research Unit.*

15 McCord, A and Borat, H. 2003. *Employment and labour market trends. Human Resources Development Review: Education, Employment and Skills in South Africa. Cape Town: Human Sciences Research Council Press and East Lansing: Michigan State University Press.*

16 *Ibid.*

17 Rospabe, S. 2001. *Making racial wages relations fair in South Africa: a focus on the role of trade unions. Working Paper 01/48. Cape Town: Development Policy Research Unit.*

Annexe 2.1

Table A Monthly median wages by industry, 2001 – 2005 (Rand, at constant 2000 prices)

Industry	2001	2002	2003	2004	2005
Agriculture, fishing and forestry.....	379	468	573	606	625
Mining and quarrying	1 798	1 734	1 802	2 262	2 344
Manufacturing.....	1 798	1 734	1 802	1 616	1 875
Electricity, gas and water supply.....	2 839	2 601	3 276	3 231	3 125
Construction	1 136	1 266	1 147	1 228	1 250
Wholesale and retail trade.....	946	1 387	1 392	1 535	1 562
Community, social and personal services	2 271	2 601	2 457	3 231	3 265
Transport, storage and communication.....	2 839	3 034	3 276	2 827	2 344
Financial intermediation, insurance, real-estate and business services	2 845	3 468	3 276	2 512	2 734
Private households	379	407	491	646	516

Source: Statistics South Africa, *Labour Force Survey*, September 2001 – 2005, and own calculations

Table B Monthly median wages by occupation, 2001 – 2005 (Rand, at constant 2000 prices)

Occupation	2001	2002	2003	2004	2005
Legislators, senior officials and managers.....	5 678	6 068	6 551	7 674	7 031
Professionals	6 151	6 068	6 551	6 704	6 250
Technical and associate professionals	3 785	4 335	4 299	4 241	4 101
Clerks.....	2 839	2 601	2 457	2 423	2 734
Service workers, and shop and market sales workers	1 136	1 387	1 556	1 454	1 381
Skilled agricultural and fishery workers	284	1 040	1 065	969	1 562
Craft and related trades workers	1 420	1 647	1 638	1 616	1 562
Plant and machine operators and assemblers	1 438	1 560	1 638	1 616	1 812
Elementary occupations	568	737	819	969	937

Source: Statistics South Africa, *Labour Force Survey*, September 2001 – 2005, and own calculations