Trends in the gender wage gap among part-time and full-time workers in post-apartheid South Africa”

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1. Introduction and Context

Reasons for the gender wage gap

1) Gender specific factors:

- Gender differences in skills/qualifications
- Labour market discrimination – job vs wage discrimination

2) Wage structure (unrelated to gender): “the array of prices set for various labour market skills (measured and unmeasured) and the rents received for employment in particular sectors of the economy” (Blau and Khan, 1997:2)

Findings of the literature

1) International literature

- Magnitude of estimated gender wage differential varies
- Gender wage gap has narrowed over time (Blau and Kahn 1992, 1997, 2000, 2007, Hersch 1991, Bernhardt *et al* 1995, Brainerd 2000, Manning and Robinson 2004).
- Decline is typically attributed to women's skills improving relative to those of men, and to declining discrimination against women.

2) South African literature

- Evidence of gender discrimination in wages, especially among Whites and Africans (Hinks 2002, Rospabé 2001 and Grün 2004).
- Ntuli (2007) uses quantile regression – finds a surprising *increase* in the gender wage gap among the African wage employed in the formal sector and in domestic work from 1995 to 2004.
- No research investigating gender wage gap among part-time and full-time wage employed.

2. Objectives

- To use nationally representative household survey data (1995 and 1999 OHS, 2001 and 2006 LFS) to explore the gender wage differential among part-time and full-time wage (salaried) employees in post-apartheid South Africa.

- Consider: a) How has the magnitude of the gap and
  b) the factors contributing to the gap changed over the years.

3. Findings

1) Among both part-time and full-time workers the total gender wage gap is negative in 1995 – i.e. the gender wage gap favours women. This finding may be biased, however, due to an under-sampling of relatively low paid African women employed as domestic workers in this year.

2) The remaining data sets analysed provide consistent evidence of a gender gap in wages among both part-time and full-time workers that persists once observable differences between men and women are accounted for.

3) The decrease in the gender wage gap is more pronounced among those working part-time.

4) Identifying the key factors contributing to the reduction in the gap in these groups over time is complicated by the inability to control for sample selection bias and unobservable differences between men and women that could potentially affect earnings.

5) Nevertheless the decomposition of the change in the gender wage gap over the years suggests that gender discrimination may have declined more among part-time workers than among those working full-time.

6) In addition, the results are not being driven solely by the 2002 extension of the BCEA to the domestic services sector that, inter alia, entitles domestic workers to a minimum wage.

7) These results are robust to the imputation of values for missing earnings information and also for missing values in the various explanatory variables considered.

Figure 1. Distribution of part-time and full-time wage employment by occupation and gender, 1995

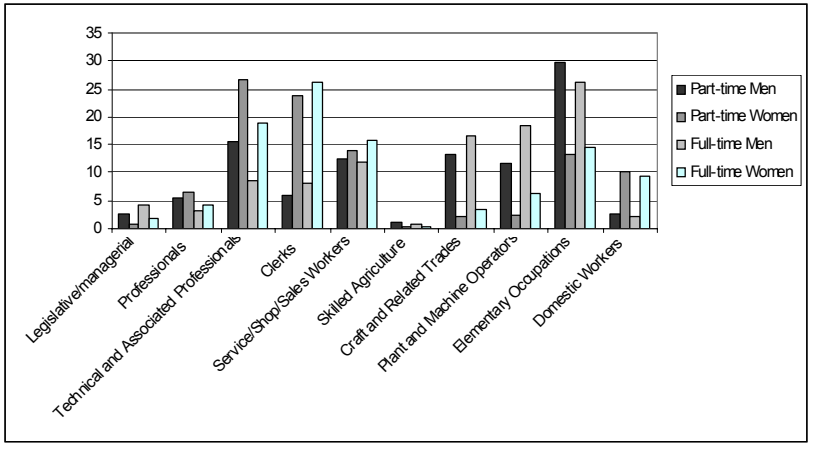

Figure 2. Distribution of part-time and full-time wage employment by occupation and gender, 1999

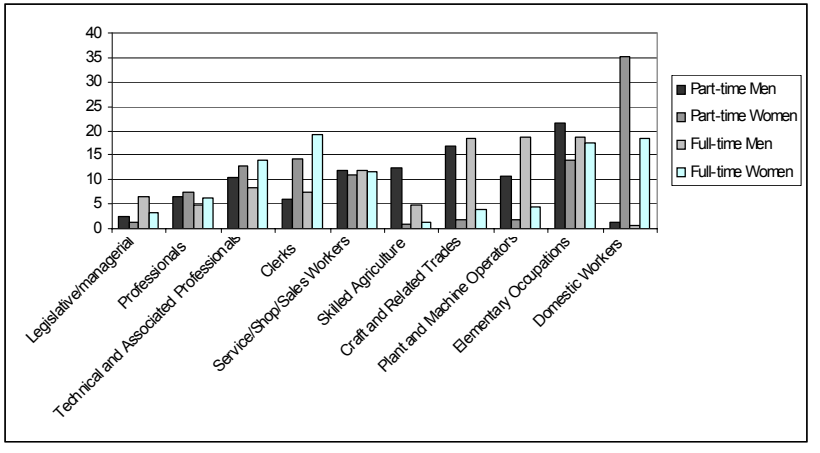

Figure 3. Distribution of part-time and full-time wage employment by occupation, sector and gender, 2001

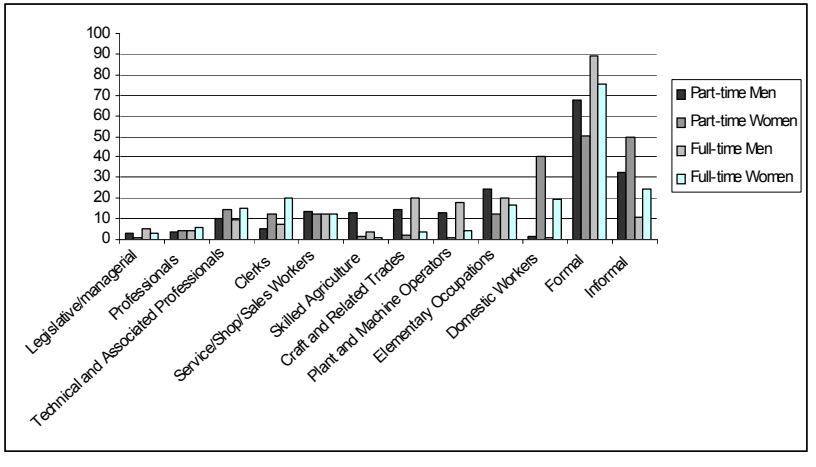

Figure 4. Distribution of part-time and full-time wage employment by occupation, sector and gender, 2006

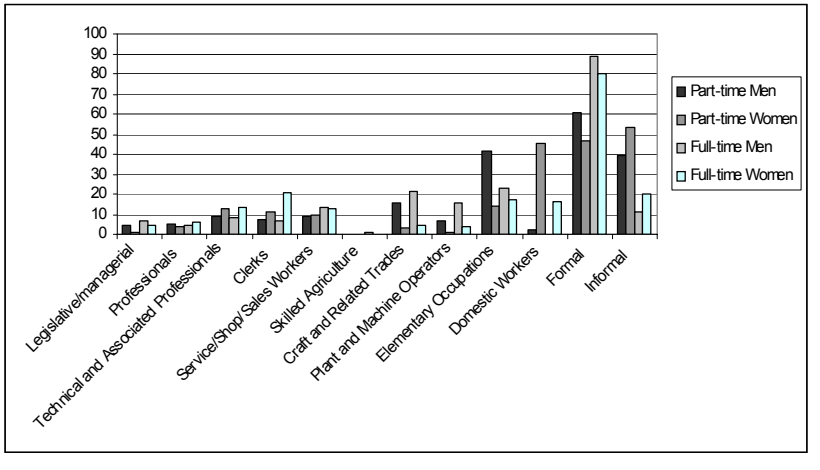

Table 1. Average wages (2000 prices) and working hours among the part-time wage employed by gender, 1995-2006

	1995		1999		2001		2006	
	Men	Women	Men	Women	Men	Women	Men	Women
Monthly wage	2290.45	2337.83	1799.01	1581.88	1884.52	1257.25*	1557.49	1534.79
	(115.77)	(81.98)	(124.19)	(190.19)	(65.84)	(29.89)	(62.60)	(108.55)
Hours worked	22.60	22.56	18.16	19.99 *	19.65	20.62	21.00	21.77
	(0.33)	(0.29)	(0.34)	(0.26)	(0.18)	(0.14)	(0.23)	(0.14)
Hourly wages	28.43	28.71	28.66	20.30*	26.33	15.53*	20.00	16.90
	(2.17)	(1.44)	(1.92)	(1.76)	(0.97)	(0.40)	(0.89)	(1.18)
Hourly wage ratio (%) (Women/Men)	100.98		70.83		58.98		84.50	

Source: OHS 1995, OHS 1999, LFS 2001:2, LFS 2006:2

Notes: Average earnings are in 2000 prices. The sample is restricted to persons older than 15 years with wage employment, who reported non-zero working hours of less than 113 hours a week and for whom earnings information is not missing. The data are weighted. Standard errors are in parentheses.

* indicates that means for men and women are significantly different within each year (using a 95 percent confidence interval).

Table 2. Average wages (2000 prices) and working hours among the full-time wage employed by gender, 1995-2006

	1995		1999		2001		2006	
	Men	Women	Men	Women	Men	Women	Men	Women
Monthly wage	3213.96	2662.63*	3355.72	2463.36*	2967.45	2317.99*	3265.34	2614.20*
	(37.94)	(34.53)	(112.34)	(91.95)	(33.61)	(25.72)	(36.11)	(32.60)
Hours worked	46.25	43.66*	50.00	47.44*	50.03	47.56*	48.09	45.56*
	(0.08)	(0.10)	(0.13)	(0.14)	(0.06)	(0.07)	(0.07)	(0.08)
Hourly wages	16.29	14.25*	16.60	12.80*	14.52	12.08*	16.56	13.92*
	(0.19)	(0.17)	(0.60)	(0.47)	(0.15)	(0.13)	(0.18)	(0.17)
Hourly wage ratio (%) (Women/Men)	87.47		77.10		83.19		84.05	

Source: OHS 1995, OHS 1999, LFS 2001:2, LFS 2006:2

Notes: Average earnings are in 2000 prices. The sample is restricted to persons older than 15 years with wage employment, who reported non-zero working hours of less than 113 hours a week and for whom earnings information is not missing. The data are weighted. Standard errors are in parentheses.

* indicates that means for men and women are significantly different within each year (using a 95 percent confidence interval).

6. Wage estimations and decomposition

- Ordinary Least Squares (OLS) regression is used to estimate separate human capital regressions for men and women. This process is repeated for the part-time and full-time samples.

$$\ln(W_i^M) = \alpha^M + \beta X_i^M + \varepsilon_i \quad (1)$$

$$\ln(W_i^F) = \alpha^F + \beta X_i^F + \varepsilon_i \quad (2)$$

- The Oaxaca-Blinder (OB) decomposition technique is used to identify what portion of any wage gap, estimated at each cross section, is due to differences in observable characteristics, and what portion may be the result of differences in the returns to these characteristics.

$$\overline{\ln(W^M)} - \overline{\ln(W^F)} = \sum_i \hat{\beta}^M (\overline{X}_i^M - \overline{X}_i^F) + \{(\hat{\alpha}^M - \hat{\alpha}^F) + \sum_i \overline{X}_i^F (\hat{\beta}^M - \hat{\beta}^F)\}$$

In order to decompose the change in the gender wage differential from one year to the next, a method developed by Juhn *et al* (1991), is adopted.

To start, the male wage equation in period *t* is written as:

$$W_{Mt} = X_{Mt}\beta_{Mt} + \sigma_t \theta_{Mt} \qquad (3)$$

This distinction in the components of the residual is exploited by Juhn *et al* in their decomposition technique. The gender wage gap in period *t* may then be written as:

$$D_t \equiv W_{Mt} - W_{Ft} = (X_{Mt} - X_{Ft})\beta_{Mt} + (\theta_{Mt} - \theta_{Ft})\sigma_t \qquad (4)$$

- The change in the wage gap from *t* to *t'* may then be written as:

$$D_{t'} - D_t = [(X_{Mt'} - X_{Ft'}) - (X_{Mt} - X_{Ft})]\beta_{Mt'} + (X_{Mt} - X_{Ft})(\beta_{Mt'} - \beta_{Mt}) + [(\theta_{Mt'} - \theta_{Ft'}) - (\theta_{Mt} - \theta_{Ft})]\sigma_{t'} + (\theta_{Mt} - \theta_{Ft})(\sigma_{t'} - \sigma_t) \quad (5)$$

7. Results

Table 3. Decomposition of the gender wage differential, 1995 to 1999 (Part-time wage employed)

	I				II			
	1995		1999		1995		1999	
	Men	Women	Men	Women	Men	Women	Men	Women
Number of observations	843	933	815	1273	768	886	765	1216
R^2	0.30	0.30	0.30	0.41	0.45	0.39	0.45	0.52
Total (unadjusted differential)	-0.035		0.428		-0.037		0.402	
Quantity effect	-0.307 (877)		-0.122 (-28)		-0.253 (683)		0.291 (72)	
Residual gap	0.272 (-777)		0.551 (128)		0.216 (-583)		0.111 (38)	
Change in total differential	0.463				0.439			
Change in quantity effect	0.185 (40)				0.545 (124)			
Change in residual gap	0.278 (60)				-0.105 (-24)			
Observed X's effect	0.183 (40)				0.344 ((78.4)			
Observed prices	0.001(0.2)				0.200 (45.5)			
Gap effect	0.192 (41.5)				-0.107 (-24.4)			
Unobserved prices effect	0.085 (18.3)				0.002 (0.5)			

Table 4. Decomposition of the gender wage differential, 1995 to 1999 (Full-time wage employed)

	I				II			
	1995		1999		1995		1999	
	Men	Women	Men	Women	Men	Women	Men	Women
Number of observations	15861	8220	9901	6881	15098	7827	9209	6470
R^2	0.58	0.52	0.48	0.54	0.72	0.64	0.60	0.66
Total (unadjusted differential)	-0.020		0.245		-0.030		0.239	
Quantity effect	-0.230 (114)		-0.067 (-27)		-0.244 (813)		0.042 (18)	
Residual gap	0.209 (-14)		0.312 (127)		0.214 (-713)		0.196 (82)	
Change in total differential	0.266				0.270			
Change in quantity effect	0.162 (61)				0.287 (106)			
Change in residual gap	0.103 (39)				-0.017 (-6)			
Observed X's effect	0.137 (51.5)				0.304 (112.6)			
Observed prices	0.025 (9.4)				-0.017 (-6.3)			
Gap effect	0.063 (23.7)				-0.050 (-18.5)			
Unobserved prices effect	0.041 (15.4)				0.032 (11.9)			

Table 5. Decomposition of the gender wage differential, 2001 to 2006 (Part-time employed)

	I				II				III			
	2001		2006		2001		2006		2001		2006	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Wom
Number of observations	768	1301	650	1315	697	1208	627	1260	621	1111	619	124
R^2	0.42	0.51	0.29	0.52	0.54	0.63	0.52	0.65	0.61	0.66	0.56	0.6
Total (unadjusted differential)	0.451		0.298		0.457		0.307		0.447		0.296	
Quantity effect	-0.139 (-31)		-0.053 (-18)		0.177 (39)		0.220 (72)		0.166		0.244	
Residual gap	0.591 (131)		0.352 (118)		0.280 (61)		0.087 (28)		0.280		0.052	
Change in total differential	-0.152				-0.149				-0.150			
Change in quantity effect	0.086 (-57)				0.042 (-28)				0.077 (-52)			
Change in residual gap	-0.239 (157)				-0.192 (128)				-0.228 (152)			
Observed X's effect	-0.042 (27.6)				-0.184 (123.5)				-0.221 (147.3)			
Observed prices	0.128 (-84.2)				0.227 (-152.3)				0.299(-199.3)			
Gap effect	-0.187 (123)				-0.175 (117.4)				-0.229 (152.7)			
Unobserved prices	-0.051 (33.6)				-0.017 (11.4)				0.001 (0.7)			

Table 6. Decomposition of the gender wage differential, 2001 to 2006 (Full-time employed)

	I				II				III			
	2001		2006		2001		2006		2001		2006	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Wom
Number of observations	10463	7432	10615	7498	9993	7133	10443	7353	9154	6600	10217	721
R^2	0.54	0.61	0.50	0.55	0.69	0.74	0.62	0.70	0.72	0.77	0.67	0.7
Total (unadjusted differential)	0.209		0.172		0.203		0.159		0.209		0.162	
Quantity effect	-0.097 (-46)		-0.085 (-49)		0.013 (7)		-0.009 (-6)		0.024 (11)		0.015 (9)	
Residual gap	0.306 (146)		0.257 (149)		0.188 (93)		0.169 (106)		0.185 (89)		0.147 (91)	
Change in total differential	-0.037				-0.044				-0.047			
Change in quantity effect	0.012 (32)				-0.024 (55)				-0.009 (19)			
Change in residual gap	-0.049 (132)				-0.020 (45)				-0.038 (81)			
Observed X's effect	0.013 (-35.1)				-0.024 (54.5)				-0.025 (53.2)			
Observed prices	-0.002 (5.4)				0.001 (-2.3)				0.016 (-34.0)			
Gap effect	-0.046 (124.3)				-0.027 (61.4)				-0.042 (89.4)			
Unobserved prices	-0.003 (8.1)				0.007 (-15.9)				0.004 (-8.5)			

8. In summary

- Gender gap in wages is considerably higher among part-time than among full-time workers.
- It is not appropriate to use the 1995 OHS as a base year for comparison when determining how the gender wage gap has changed over the years – under-sampling of domestic workers.
- Difficult to establish the primary source of the decline in the gender wage gap (sample selection bias not accounted for).
- JMP decomposition nevertheless suggests that improvements in gender specific factors have been more pronounced among those who work part-time – specifically the Gap effect, which may reflect changes in discrimination and/or unobservable characteristics is larger among those employed in part-time jobs.
- Suggests that gender discrimination has potentially declined more among part-time than among full-time workers – consistent with employers increasing compliance with labour legislation over the period.

Table 11. Decomposition of the gender wage differential, 2001 to 2006 (Part-time employed- domestic workers excluded)

	I				II				III			
	2001		2006		2001		2006		2001		2006	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Number of observations	751	699	638	682	680	614	615	632	605	547	607	622
R^2	0.42	0.48	0.29	0.54	0.54	0.56	0.51	0.65	0.51	0.64	0.56	0.66
Total (unadjusted differential)	0.019		-0.130		-0.104		-0.204		-0.130		-0.223	
Quantity effect	-0.402 (-2115)		-0.341 (262)		-0.333 (320)		-0.441 (215)		-0.409 (314)		-0.422 (189)	
Residual gap	0.421 (2215)		0.210 (-162)		0.229 (-220)		0.236 (-115)		0.279 (-214)		0.198 (-89)	
Change in total differential	-0.150				-0.100				-0.093			
Change in quantity effect	0.061(-41)				-0.108 (108)				-0.012 (12.9)			
Change in residual gap	-0.211 (141)				0.007 (-7)				-0.080 (86)			
Observed X's effect	-0.047 (31.3)				-0.180 (180)				-0.178 (191.4)			
Observed prices	0.108 (-72)				0.072 (-72)				0.165 (-177.4)			
Gap effect	-0.183 (122)				0.048 (-48)				-0.081 (87.1)			
Unobserved prices	-0.028 (18.6)				-0.040 (40)				0.000 (0)			

Table 12. Decomposition of the gender wage differential, 2001 to 2006 (Full-time employed- domestic workers excluded)

	I				II				III			
	2001		2006		2001		2006		2001		2006	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Number of observations	10412	5677	10590	6066	9944	5393	10418	5933	9106	4938	10192	5823
R^2	0.54	0.56	0.50	0.52	0.68	0.68	0.62	0.65	0.72	0.72	0.67	0.70
Total (unadjusted differential)	-0.069		-0.031		-0.093		-0.051		-0.106		-0.051	
Quantity effect	-0.256 (371)		-0.197 (635)		-0.283 (304)		-0.221 (433)		-0.285 (269)		-0.194 (380)	
Residual gap	0.187 (-271)		0.166 (-535)		0.189 (-204)		0.169 (-333)		0.179 (-169)		0.143 (-180)	
Change in total differential	0.038				0.042				0.054			
Change in quantity effect	0.059 (155)				0.062 (147)				0.091 (168.5)			
Change in residual gap	-0.020 (-55)				-0.020 (-47)				-0.036 (-66)			
Observed X's effect	0.053 (139)				0.034 (80.9)				0.054 (100)			
Observed prices	0.005 (13.1)				0.028 (66.6)				0.036 (66.6)			
Gap effect	-0.019 (-50)				-0.027 (-64)				-0.041 (-75.9)			
Unobserved prices	-0.001 (-2.6)				0.007 (16.6)				0.004 (7.4)			

Source: LFS 2001:2, LFS 2006:2