

WP 2011-04  
January 2011



# Working Paper

Charles H. Dyson School of Applied Economics and Management  
Cornell University, Ithaca, New York 14853-7801 USA

## MINIMUM WAGE VIOLATION IN SOUTH AFRICA

Haroon Borhat, Ravi Kanbur and Natasha Mayet

It is the Policy of Cornell University actively to support equality of educational and employment opportunity. No person shall be denied admission to any educational program or activity or be denied employment on the basis of any legally prohibited discrimination involving, but not limited to, such factors as race, color, creed, religion, national or ethnic origin, sex, age or handicap. The University is committed to the maintenance of affirmative action programs which will assure the continuation of such equality of opportunity.

## **Minimum Wage Violation in South Africa**

### **Haroon Bhorat**

Development Policy Research Unit  
Robert Leslie Social Science Building, 4th Floor, Upper Campus, Rondebosch  
University of Cape Town  
Cape Town, South Africa  
[haroon.bhorat@uct.ac.za](mailto:haroon.bhorat@uct.ac.za)

### **Ravi Kanbur\***

Cornell University  
309 Warren Hall  
Ithaca, NY 14853-7801, USA  
Phone: 607-255-7966  
Fax: 607-255-9984  
Contact email: [sk145@cornell.edu](mailto:sk145@cornell.edu)

### **Natasha Mayet**

Development Policy Research Unit  
Robert Leslie Social Science Building, 4th Floor, Upper Campus, Rondebosch  
University of Cape Town  
Cape Town, South Africa  
[natasha.mayet@uct.ac.za](mailto:natasha.mayet@uct.ac.za)

September 2010

### **Abstract**

Minimum wage legislation is central in South African policy discourse, with both strong support and strong opposition. The validity of either position depends, however, on the effectiveness of minimum wage enforcement. Using detailed matching of occupational, sectoral and locational codes in the 2007 Labour Force Survey to the gazetted minimum wages, this paper presents, we believe for the first time, estimates of minimum wage violation in South Africa. Our results give considerable cause for concern. Minimum wage violation in South Africa is disturbingly high. We find that 45% of covered workers get paid wages below the legislated minimum, whilst the average depth of shortfall is 36% of the minimum wage. Around this average, violation is most prevalent in the Security, Forestry and Farming Sectors. We hope that the quantifications in this paper will provide a more solid basis for discussion of minimum wage levels and their enforcement in South Africa.

**Key Words:** Minimum Wage Violation, South Africa

**JEL Codes:** J38 O55

---

\* Contact Author

## I. Introduction

Minimum wage legislation is central in South African policy discourse, with both strong support and strong opposition. The situation is similar in many if not most developing countries. As Ronconi (2008) points out, however, it is not the lack of labour regulations in developing countries which is the key issue. Indeed, most developing countries have an extensive web of labour regulations. In South Africa, statutory minimum wages vary by occupation, sector and location, and consequently there are over 36 different wage minima. Hence, it seems that the key issue here is not a lack of legislation but rather a lack of compliance amongst employers, due to imperfect enforcement (Basu, Chau, and Kanbur, 2010).

How well is the minimum wage enforced in South Africa? Despite the economic and political importance of the issue in the country, we do not as yet have a satisfactory quantified answer to the question, leaving room for anecdote and speculation.<sup>1</sup> Evidence on compliance levels in South Africa is perhaps limited due to the difficulty of mapping the statutory minima to their respective sectors, occupations, and locations. This paper constitutes an attempt to undertake such an analysis for South Africa. Our objective is to quantify minimum wage violation in South Africa, with an index of violation that can measure the level, depth and severity of violation. Using detailed matching of occupational, sectoral and locational codes in the 2007 Labour Force Survey to the gazetted minimum wages, this paper presents, we believe for the first time, estimates of minimum wage violation in South Africa.

Our results give considerable cause for concern. Minimum wage violation in South Africa is disturbingly high. We find that 45% of covered workers get paid wages below the legislated minimum, whilst the average depth of shortfall is 36% of the minimum wage. Around this average, violation is most prevalent in the Security, Forestry and Farming Sectors. We hope that the quantifications in this paper will provide a more solid basis for discussion of minimum wage levels and their enforcement in South Africa.

The rest of the paper is structured as follows. Section II below turns to a discussion of minimum wage institutions and wage data in South Africa. Section III uses graphical and numerical methods to quantify violation of minimum wages in South Africa. The final section, Section IV, concludes.

---

<sup>1</sup> There is growing evidence of non-compliance in other developing countries. For example, in Argentina, only half of the workforce receives legally mandated benefits (Ronconi, 2008). Minimum wage non-compliance rates in Kenya reach a disturbingly high estimate of 67 % for higher skilled occupations in urban areas (Andalón and Pagés, 2008). Studies also find substantial non-compliance in other developing countries such as Brazil (Lemos, 2009), Trinidad and Tobago (Strobl and Walsh, 2003) and several Latin American countries (Maloney and Nuñez, 2003).

## II. Minimum Wage Institutions and Data in South Africa

In South Africa, the body responsible for issuing state legislation in sectors it deems vulnerable is the Employment Conditions Commission<sup>2</sup> (ECC). The ECC is a representative body within the Department of Labour (DoL), which was established in 1999 in order to advise the Minister of Labour on appropriate and feasible sectoral wage minima, known as “Sectoral Determinations”. The broad aim of the ECC is to protect vulnerable workers in the South African labour market, that is, sectors in which workers are likely to be exploited, or in which worker organizations and trade unions are absent, and where workers are not appropriately covered by bargaining councils or other wage regulating mechanisms (DoL, 2003). For instance, agricultural and domestic workers form two of the most vulnerable groups within this context in the South African labour market.<sup>3</sup>

The DoL uses a team of labour inspectors whose job is to enforce compliance with these sectoral determinations. Inspections in most cases are triggered by complaints by clients, whilst high risk sectors are identified and targeted through focused blitz inspections. There has been some discussion attributing regional variation in the degree of violation of minimum wage laws, to differences in the numbers and distribution of inspectors within areas, as well as the possibility of the corruption of the inspectorate deployed. Scant and poor quality data in the inspectorate however, renders this a difficult set of propositions to investigate further.

The ECC sectoral determinations set general conditions for employment such as minimum wages, working hours, number of leave days, and termination rules. There are 11 different sectoral determinations set by the ECC. Data restrictions mean that we can consider only 9 of these, specifically Forestry, Agriculture, Contract Cleaning, Taxi Operators, Civil Engineering, Private Security, Domestic Workers, Wholesale and Retail, and Hospitality.<sup>4</sup> (The various sectoral minima are presented in the Appendix). The wage minima are regularly updated for inflation through a formal government gazetting process. Ultimately though, it is important to emphasise that within the South African labour market, no unitary national wage minimum exists.

Labour market data in the post-apartheid period is primarily available from two nationally representative household survey series, the October Household Surveys (OHSs) and the Labour Force Surveys (LFSs)<sup>5</sup>. The OHSs collected labour market and other data annually for the period between 1995 and 1999. The OHS was replaced in

---

<sup>2</sup> The ECC was established in 1999 when it replaced the Wage Board, in accordance with the Basic Conditions of Employment Act (BCEA), No 75 of 1997.

<sup>3</sup> A complete listing of the sectoral determinations for South Africa can be found at the website of the Department of Labour (DoL). Available from: <http://www.labour.gov.za/legislation/sectoral-determinations/sectoral-determination>. [Accessed online September 2009].

<sup>4</sup> In the analysis that follows below, the sectoral determination covering learnerships was excluded due to a lack of information in the LFS pertaining to learners. The sectoral determination applicable to children working in performance arts was also excluded since children are not classified as being part of the working age population (15 to 65 years) in the LFS.

<sup>5</sup> From 2008, the LFSs were replaced by Quarterly Labour Force Surveys (QLFSs).

2000 by the LFS, which until 2007 was conducted biannually. While desirable, comparisons between the OHSs and LFSs are inadvisable, since questions relating to the individual's employment status changed in the cross-over from the OHS to the LFS. Furthermore the LFS provides a far more detailed explanation of what constitutes work, and therefore captures irregular and informal work activities more comprehensively than the OHS (Casale *et al.* 2004). Given these data issues, the analysis of enforcement in the South African labour market below uses data from the September 2007 LFS<sup>6</sup>, the latter being the last September edition of the biannual LFSs<sup>7</sup>.

Sectoral minima issued are specific to the location of the workers. In particular though, the Department of Labour has designated local municipalities to areas A, B, and C for the different sectoral determinations. This demarcation was conducted on the basis of the average household income recorded in the 1996 census for the municipal area concerned. The three areas were as follows:

- A – Average income greater than R24, 000 per annum
- B – Average income between R12, 000 and R24, 000 per annum
- C – Average income less than R12, 000 per annum

Generally, A areas are urban, B areas are semi-urban, and other areas (C) are rural areas. The wages in area A are the highest, followed by area B, while area C and other areas have the lowest wages. It is important to note that the area designations A, B, and C are not the same across different sectoral determinations. For example, some local municipalities classified as Area A for farm workers fall under Area B in the retail sector. In order to assign individuals to area types, it was first necessary to match the geographical information available in the LFS 2007 to the areas listed under the sectoral determinations. For the September 2007 LFS, the local municipalities listed under the various sectoral determinations allowed for allocation of the workers to area A, B, C. It is worth noting that, in the absence of detailed information on area of work in the LFS, it was necessary to assume that the area in which the individual resided was the same as where he/she worked. However, the possibility that individuals work outside of the area in which they live renders this an imperfect measure.

Finally, monthly minima published by the ECC are all based on a 45-hour work week. Workers working longer (or shorter) hours would therefore be paid a higher (or lower) wage than the published average. Consequently, the applicable minimum wages were adjusted according to the hours worked by each individual. Specifically, we derive an adjusted minimum wage ( $w_a^m$ ) as the product of the stipulated minimum wage ( $w^m$ ) and the individual's hours worked ( $h$ ), divided by 45<sup>8</sup>.

---

<sup>6</sup> Unfortunately, the QLFS does not contain information on income and hence estimates for 2008 could not be included in this analysis.

<sup>7</sup> Information on the number of covered workers by magisterial district from the 2000 Income Expenditure Survey (IES) of StatsSA was also used in the mapping process.

<sup>8</sup> The reported 'hours worked' variable is truncated at 84 hours to avoid a situation where this adjustment leads to very high minimum wages for people who work very long hours. This implies truncation at or around the 98<sup>th</sup> or 99<sup>th</sup> percentile of the 'hours worked' variable.

$$w_a^m = \frac{w^m * h}{45}$$

### III. Results

As a point of departure, a graphical approach is used to investigate the distribution of wages around the stipulated minima across the nine sectoral determinations. Kernel density plots<sup>9</sup> are presented below for 2007 of the log of monthly wages for each of the different sectoral determinations. The vertical line represents the natural logarithm of the mean adjusted monthly minimum wage in 2007. Under full compliance one would expect no wages of workers covered by the respective sectoral determinations to lie below the vertical line, causing a single ‘spike’ at this point in the wage distribution.

However, as the basic visual evidence provided in Figure 1 below would seem to suggest, significant spiking at the respective minima is not evident for many of the sector-occupation-area cells under review here. Put differently, this is initial evidence of relatively weak enforcement of sectoral minimum wage laws in South Africa.

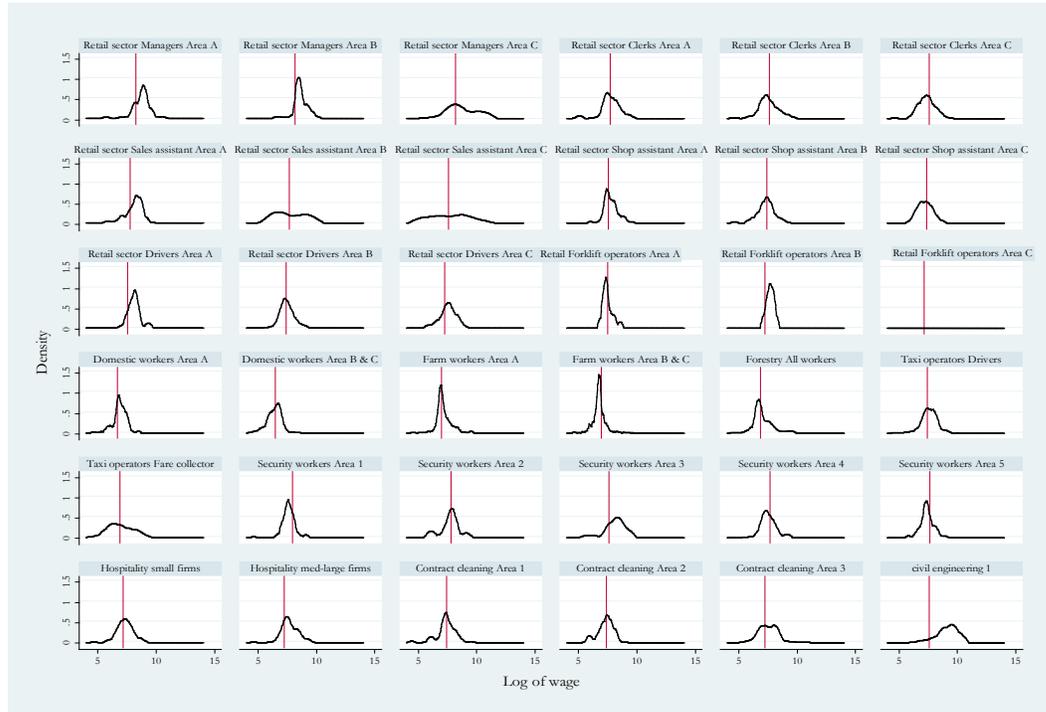
---

<sup>9</sup> The kernel density function approximates the probability density function  $f(x)$  from observations on a random variable  $x$ . The Kernel density approximation of an independently and identically distributed random sample  $(x_1, x_2, \dots, x_n)$  may be expressed by the following equation:

$$\hat{f}_h(x) = \frac{1}{nh} \sum_{i=1}^n K \left[ \frac{x - x_i}{h} \right]$$

where the function  $K$ , which determines the weights, is named the “kernel,” and  $h$  is a smoothing parameter known as the ‘bandwidth’ (Maloney & Nuñez, 2003).

**Figure 1: Kernel Density Estimates of wages, 2007**



Source: Authors’ calculations using LFS September 2007 (StatsSA) and ECC sectoral determinations.

Notes: The vertical line represents the mean minimum wage (logged) in 2007.

As the kernel density estimates of the wage distributions presented above seem to suggest, there is a problem of low enforcement of minimum wages in South Africa, with large proportions of workers in some sectors earning sub-minimum wages. We now attempt to use a more numerical approach in order to measure the lack of enforcement of minimum wage legislation in the South African labour market. We use a family of violation indices introduced in Borhat, Kanbur and Mayet (2010a), which has the following form:

$$V_{\alpha} = E \left\{ \left[ \frac{w^m - w}{w^m} \right]^{\alpha} \right\}$$

where  $w$  denotes wage,  $w^m$  denotes the relevant minimum wage,  $\alpha$  is an index that emphasizes concern on the depth of violation, and  $E$  is the expectation operator with respect to the wage distribution in the sector to which  $w^m$  applies. This family is analogous to the family of poverty indices introduced by Foster, Greer and Thorbecke (1984). When  $\alpha = 0$ , the index collapses to the standard measure of violation—the percentage of covered workers earning sub-minimum wages. When  $\alpha = 1$ , the index captures the depth of violation. As  $\alpha$  increases, more and more weight is put on larger violations. We use  $\alpha = 2$  to capture this perspective, referring to this measure as the severity of violation.

Below we present estimates of  $V_a$  in an attempt at being more rigorous in our measure of compliance with these sectoral minima by employers in South Africa. Using the LFS for September 2007 then,  $V_0$  represents the fraction of individuals earning below the minimum, that is, when  $a = 0$ .  $V_1$ , as noted above, provides a measure of how far below the minima an individual earns, and is a measure of the extent and depth of violation (or lack of compliance) amongst South African employers. Increasing the value of the parameter  $a$  to 2 yields  $V_2$ , the squared wage gap, and this serves, as noted above, as a measure of the severity of violation.

Below reports estimates of  $V_0$ , along with the ratio of  $V_1$  to  $V_0$  for 2007. Whilst  $V_0$  measures the percentage of workers violated, that is, earning below the minimum, the ratio ( $V_1/V_0$ ) allows for the interpretation of  $V_1$ , since it denotes the percentage shortfall of the average wage of violated workers from the minimum wage. Put differently, violated workers in this sample are earning on average ( $V_1/V_0$ ) below the relevant minima.

The estimates in the last row of Table 1 show that in South Africa  $V_0$  was 45 % in 2007. This means that in 2007, 45 % of employees were violated and receiving sub-minimum wages. The estimate for  $V_1$  was 0.16 in 2007, whilst the ratio ( $V_1/V_0$ ) was 0.36, indicating that non-complying employers paid wages that were on average 36 percent short of the legislative minima in that year.

The headline result here is that absolute levels of violation in South Africa are disturbingly high, both in terms of the percentage of individuals violated as well as the distance of the wages of these individuals from the minima. Indeed, in some sectors,  $V_0$  soars to over 65 %, a deeply worrying result. The high estimates for  $V_0$  are reflective of a significant number of employers in South Africa who are violating minimum wage laws across all sectoral determinations. Violation rates vary from a low of 9 % in the Civil engineering sector to a high of 67 % among Security workers.

**Table 1: Estimates of violation in South Africa, 2007**

<b>Sectoral Determination</b>	$V_0$	$V_1$	$V_2$	$V_1/V_0$
<b>Retail Sector</b>				
Managers Area A	0.16	0.04	0.02	0.25
Managers Area B	0.08	0.03	0.02	0.38
Managers Area C	0.36	0.14	0.06	0.39
Clerks Area A	0.42	0.15	0.08	0.36
Clerks Area B	0.56	0.22	0.12	0.39
Clerks Area C	0.56	0.25	0.14	0.45
Sales Assistant Area A	0.26	0.11	0.06	0.42
Sales Assistant Area B	0.51	0.31	0.21	0.61
Sales Assistant Area C	0.32	0.26	0.21	0.81
Shop Assistant Area A	0.41	0.10	0.04	0.24
Shop Assistant Area B	0.53	0.22	0.12	0.42
Shop Assistant Area C	0.54	0.23	0.13	0.43
Drivers Area A	0.17	0.04	0.02	0.24
Drivers Area B	0.49	0.15	0.07	0.31
Drivers Area C	0.23	0.11	0.06	0.48
Forklift operators Area A	0.65	0.15	0.04	0.23
<b>Total Retail Sector</b>	<b>0.39</b>	<b>0.14</b>	<b>0.07</b>	0.36
<b>Domestic workers</b>				
Area A	0.31	0.09	0.04	<b>0.29</b>
Area B & C	0.51	0.19	0.10	<b>0.37</b>
<b>Total Domestic Workers</b>	<b>0.39</b>	<b>0.13</b>	<b>0.06</b>	<b>0.33</b>
<b>Farm Workers</b>				
Area A	0.41	0.10	0.04	<b>0.24</b>
Area B & C	0.65	0.21	0.10	<b>0.32</b>
<b>Total Farm Workers</b>	<b>0.55</b>	<b>0.17</b>	<b>0.07</b>	<b>0.31</b>
<b>Forestry Workers</b>				
	<b>0.53</b>	<b>0.16</b>	<b>0.07</b>	0.30
<b>Taxi workers</b>				
Taxi operators Drivers	0.45	0.18	0.09	0.40
Taxi operators Fare collector	0.64	0.24	0.14	0.38
<b>Total Taxi operators</b>	<b>0.47</b>	<b>0.18</b>	<b>0.09</b>	0.38
<b>Security Workers</b>				
Area 1	0.69	0.29	0.15	0.42
Area 2	0.50	0.23	0.14	0.46
Area 3	0.10	0.08	0.07	0.80
Area 4	0.63	0.25	0.12	0.40
Area 5	0.67	0.28	0.14	0.42
<b>Total Security workers</b>	<b>0.67</b>	<b>0.28</b>	<b>0.14</b>	0.42
<b>Hospitality Workers</b>				
Hospitality small firms	0.37	0.16	0.09	0.43
Hospitality med-large firms	0.25	0.08	0.04	0.32
<b>Total Hospitality Workers</b>	<b>0.29</b>	<b>0.10</b>	<b>0.05</b>	<b>0.34</b>
<b>Contract cleaners</b>				

Area 1	0.50	0.17	0.09	0.34
Area 2	0.52	0.19	0.10	0.37
Area 3	0.35	0.13	0.07	0.37
<b>Total Contract cleaners</b>	<b>0.44</b>	<b>0.16</b>	<b>0.08</b>	0.36
<b>Civil engineering</b>	<b>0.09</b>	<b>0.04</b>	<b>0.02</b>	0.44
<b>Total</b>	<b>0.45</b>	<b>0.16</b>	<b>0.08</b>	<b>0.36</b>

Source: Authors' calculations using LFS September 2007 (StatsSA) and ECC sectoral determinations.

Interestingly, the occupations regarded as possibly the two lowest paid in the South African economy, namely farm workers and household domestic workers, yield differential outcomes for compliance with minimum wage laws. In the latter case the share below the minima, at 39.9 %, is in fact below the national average. In contrast, the estimate for farm workers is significantly higher, as 55 % of all these workers earn below the minimum wage. In addition, our  $V_1$  estimates show a similar discrepancy. Interestingly though, the average distance below the minimum wage, despite the share difference, is very similar in both these occupations.

The Civil engineering results are indicative also of the importance and relevance of measuring not only the share of individual workers below a stipulated minimum ( $V_0$ ) but also the depth of this violation ( $V_1$ ). Hence, whilst the share of these workers below the sector minimum is the lowest in the sample of covered workers, those below the minimum were in fact relatively the worst off: violated Civil engineering employees were 44 % below the stipulated minimum, the highest within the sample. This result in particular, illustrates the importance and policy relevance of this integrated measure of violation. It suggests that when measuring minimum wage enforcement in any individual country setting, it is both the share below the minima and the distance below the minima of the violated, which is critical for understanding the impact of minimum wage policy in an economy.

Finally, consider the measure  $V_2$  which squares the depth of violation before aggregating across violated workers. The absolute numerical value of  $V_2$  does not have a meaning, but its ranking across sectors interesting. Looking across the 9 sectors, while the sectors with the highest and lowest values of  $V_1$  and  $V_2$  are the same, the ranks are different, for example, for Forestry Workers or Contract Cleaners. On the depth of violation ( $V_1$ ) Forestry Workers rank higher, but on severity of violation ( $V_2$ ) the ranks are reversed. And the answer is different yet again for the  $V_0$  measure. Thus the overall degree of violation is high in South Africa, but the nature of the violation—level, depth, severity—varies across sectors.

#### IV. Conclusion

The results in this paper are an important value-added to previous research on enforcement of minimum wages in developing countries, and constitute, as far as the authors are aware, the first attempt to empirically estimate the effect of government

enforcement on compliance with minimum wage legislation in South Africa for its various sectors. Analysis of the minimum wage regulatory environment in South Africa, as measured by the level, depth and severity of violation of minimum wages (violation indices  $V_0$ ,  $V_1$ , and  $V_2$  respectively), reveals that non-compliance levels of employers in the country with minimum wages are disturbingly high, with the overall level of violation reaching nearly 50 percent in 2007. Non-compliance is highest within the Security sector, with worryingly high estimates reaching 80 % in some areas in 2007, followed by the farm and forestry sectors (55 percent and 53 percent respectively). Furthermore, occupation as well as the location of employment matters in the level and depth of violation observed. These quantifications should provide a more solid basis for the South African debate on levels and enforcement of minimum wages.

## Appendix

### Appendix 1: Sectoral Determinations in South Africa

<b>Sectoral Determination</b>	<b>Occupation</b>	<b>Area Types</b>	<b>Hours per week</b>	<b>Firm size</b>
<b>Farm workers</b>	N/A	A and B	N/A	N/A
<b>Domestic workers</b>	N/A	A and B	> 27 hours < 27 hours	N/A N/A
<b>Farm workers</b>	N/A	A and B	N/A	N/A
<b>Taxi workers</b>	Driver	N/A	N/A	N/A
	Fare Collector	N/A	N/A	N/A
<b>Private Security</b>	N/A	A, B, C, D, and E	N/A	N/A
<b>Retail Sector workers</b>	Managers	A, B, and C	N/A	N/A
	Clerks	A, B, and C	N/A	N/A
	Sales Workers	A, B, and C	N/A	N/A
	Shop Assistants	A, B, and C	N/A	N/A
	Drivers	A, B, and C	N/A	N/A
	Forklift Operators	A, B, and C	N/A	N/A
	Security	A, B, and C	N/A	N/A
<b>Contract Cleaners</b>	N/A	1, 2 and 3	N/A	N/A
<b>Forestry workers</b>	N/A	N/A	N/A	N/A
<b>Hospitality workers</b>	N/A	N/A	N/A	Small (<10 employees) Large (>10 employees)
<b>Civil Engineers</b>	N/A	A and B	N/A	N/A

**Appendix 2: Sectoral determinations and adjusted minima**

<b>Sectoral determination</b>	<b>Year published</b>	<b>Area Type</b>	<b>Adjusted minima 2007</b>	
Farm Workers	2002	A	1,041.00	
		B	989.00	
Domestic Workers	2002	A >27 hrs	1,066.83	
		<27hrs	865.54	
		B >27 hrs	756.09	
		<27hrs	613.39	
Private Security	2001	A	2,420.98	
		B	2,217.73	
		C	2,007.10	
		D	1,869.41	
		E	1,676.82	
Taxi	2005	Drivers	1,493.37	
		Taxi fare collector/other	1,045.37	
Retail	2002	Managers	A	3,908.38
			B	3,125.02
			C	2,968.77
		Clerks	A	2,465.58
			B	1,990.52
			C	1,890.99
		Sales	A	2,465.58
			B	1,990.52
			C	1,890.99
		Shop Assistant	A	1,951.04
			B	1,573.01
			C	1,494.36
		Driver	A	1,879.63
			B	1,491.11
			C	1,416.55
		Forklift operator	A	1,770.43
			B	1,402.90
			C	1,332.76
		Security	A	1,663.32
			B	1,583.51
C	1,504.34			
Contract Cleaner	1999	A	1,805.70	
		B	1,805.70	
		C	1,443.00	
Forestry	2006		908.73	
Hospitality	2007	Small firms (<10 employees)	1,345.32	
		Large firms (>10 employees)	1,499.85	
Civil Engineering	2001	A	2,162.55	
		B	2,002.65	

## References

Andalón, A. and Pagés, C. (2008), 'Minimum Wages in Kenya', IZA Discussion Papers 3390, Institute for the Study of Labor (IZA).

Basu, A., Chau, N. and Kanbur, R. (2010), 'Turning a Blind Eye: Costly Enforcement, Credible Commitment, and Minimum Wage Laws', *Economic Journal*, Volume 120, March, pp. 244-269, 2010.

Bhorat, Kanbur, Mayet (2010a) "A Note on Measuring the Depth of Minimum Wage Violation." Processed.

Casale, D., Muller, C., Posel, D. (2004), 'Two Million Net New Jobs. A Reconsideration of the rise in Employment in South Africa, 1995 – 2003,' *South African Journal of Economics*, Vol. 72: 5.

Department of Labour (2003), Report of the Employment Conditions Commission. Department of Labour (DoL), Pretoria.

Foster, J., Greer, J. and Thorbecke, E. (1984). 'A Class of Decomposable Poverty Measures,' *Econometrica*, Vol. 52(3), pp. 761-66.

Lemos, S. (2009), "Minimum wage effects in a developing country," *Labour Economics*, Elsevier, vol. 16(2), pages 224-237.

Maloney, W. and Nunez, J. (2003), Measuring the impact of minimum wages: evidence from Latin America'. In *Law and Employment. Lessons from Latin America and the Caribbean* edited by J. Heckman and C. Pagès. Cambridge, MA: NBER.

Municipal Demarcation Board of South Africa. Available from: <http://www.demarcation.org.za>. [Accessed online September 2009].

Ronconi, L. (2008), 'Enforcement and Compliance with Labour Regulations,' Institute for Research on Labour and Employment, Working Paper, University of California, Berkeley. Available from: [http://www.irle.berkeley.edu/cwed/ronconi/enforcement\\_compliance.pdf](http://www.irle.berkeley.edu/cwed/ronconi/enforcement_compliance.pdf) [Accessed September 2009]

Strobl, E. and Walsh, F. (2003), 'Minimum Wages and Compliance: The Case of Trinidad and Tobago'. *Economic Development and Cultural Change*, 51(2), pp. 427-450

## OTHER A.E.M. WORKING PAPERS

WP No	Title	Fee (if applicable)	Author(s)
2011-03	A Note on Measuring the Depth of Minimum Wage Violation		Bhorat, H., Kanbur, R., Mayet, N.
2011-02	Latin American Urban Development Into the 21st Century: Towards a Renewed Perspective on the City		Rodgers, D., Beall, J., Kanbur, R.
2011-01	The Hidden System Costs of Wind Generation in a Deregulated Electricity Market		Mount, T., S. Maneevitjit, A. Lamadrid, R. Zimmerman, R. Thomas
2010-22	The Implications of Alternative Biofuel Policies on Carbon Leakage		Drabik, D., H. de Gorter, and D. Just
2010-21	How important are sanitary and phytosanitary barriers in international markets for fresh fruit?		Rickard, B. and L. Lei
2010-20	Assessing the utilization of and barriers to farm-to-chef marketing: an empirical assessment from Upstate NY		Schmit, T. and S. Hadcock
2010-19	Evaluating Advertising Strategies for Fruits and Vegetables and the Implications for Obesity in the United States		Liaukonyte, J., Rickard, B., Kaiser, H. and T. Richards
2010-17	Stress Testing for the Poverty Impacts of the Next Crisis		Kanbur, R.
2010-16	Conceptualising Social Security and Income Redistribution		Kanbur, R.
2010-15	Food Stamps, Food Insufficiency and Health of the Elderly		Ranney, C. and M. Gomez
2010-14	The Costs of Increased Localization for a Multiple-Product Food Supply Chain: Dairy in the United States		Nicholson, C.F., Gómez, M.I. and O.H. Gao
2010-13	Wine in your Knapsack?		Conrad, J.M., Gómez, M.I. and A.J. Lamadrid
2010-12	Examining consumer response to commodity-specific and broad-based promotion programs for fruits and vegetables using experimental economics		Rickard, B., Liaukonyte, J., Kaiser, H. and T. Richards

Paper copies are being replaced by electronic Portable Document Files (PDFs). To request PDFs of AEM publications, write to (be sure to include your e-mail address): Publications, Department of Applied Economics and Management, Warren Hall, Cornell University, Ithaca, NY 14853-7801. If a fee is indicated, please include a check or money order made payable to [Cornell University](http://aem.cornell.edu/research/wp.htm) for the amount of your purchase. Visit our Web site (<http://aem.cornell.edu/research/wp.htm>) for a more complete list of recent bulletins.