Partial Minimum Wage Compliance

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Overview

- Regional Overview

- Levels of non-compliance

- Partial Compliance as a Response to Minimum Wage Laws: The Case of Agriculture in South Africa

  - Data and Methods

  - Descriptive Statistics

  - Results

- Conclusions

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Background

- Paper originates from two related strands of work:

  1. Estimating the standard impacts of newly introduced minimum wages in South Africa (employment, wages, hours of work etc.)
  2. Work on enforcement and compliance - the fact that many workers in covered sectors continue to earn sub-minimum wages (around 40%)

- So we were interested in how the wage distribution for covered workers changed in response to a MW law

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Minimum Wages in Sub-Saharan Africa (SSA)

- MWs are widespread in SSA

- However, only cover a small proportion of the labour market given that the number of 'formal', wage-earning employees is low

  – Approximately 19% of the labour force are in wage employment, whilst 74% are in agricultural or non-farm self employment

  – In addition, MWs often only apply to specific occupations/sectors

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Paid Employees as a Percentage of Employment Sub-Saharan Africa
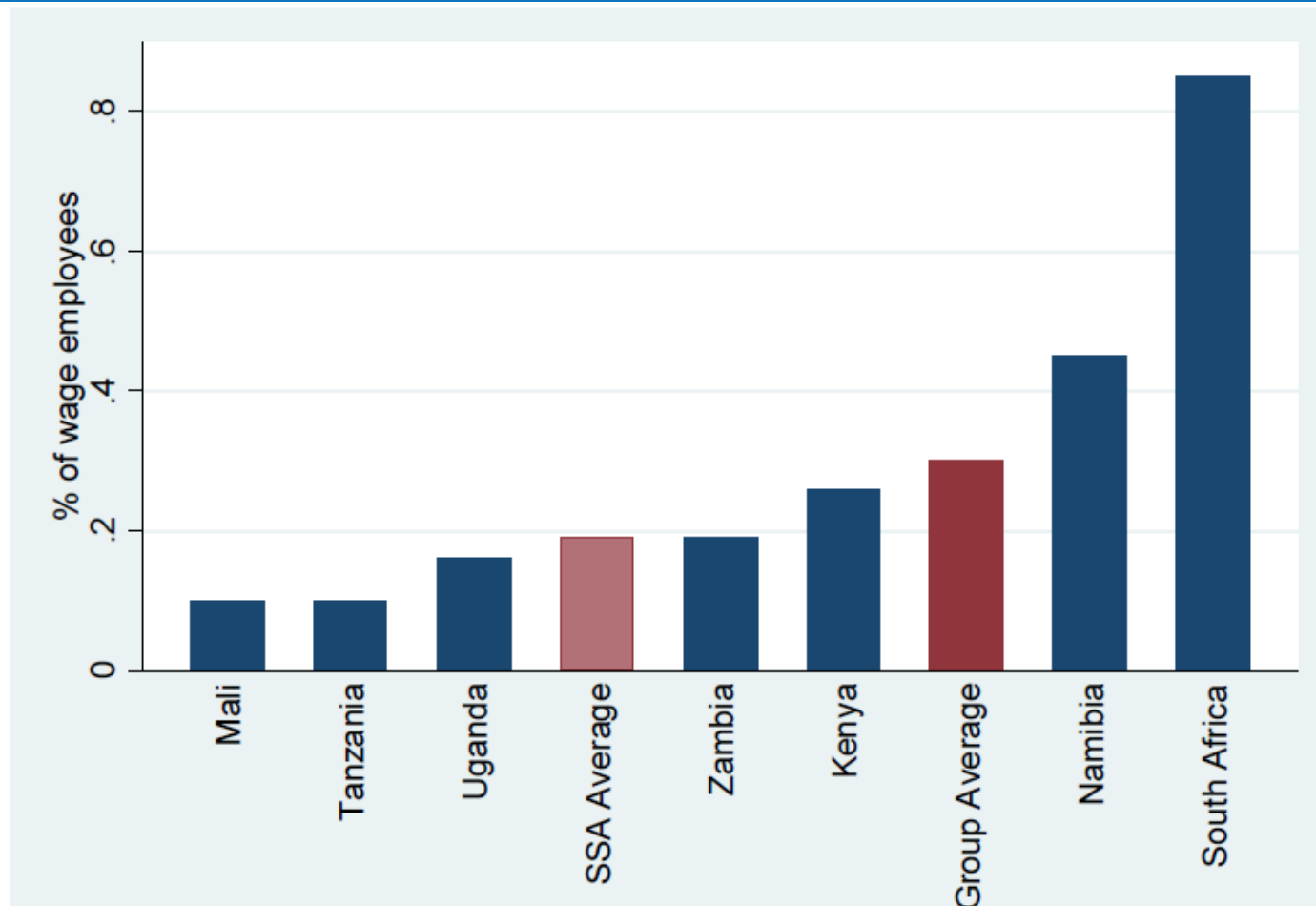
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Monthly Minimum Wages and GDP Per Capita (US$ PPP), Africa
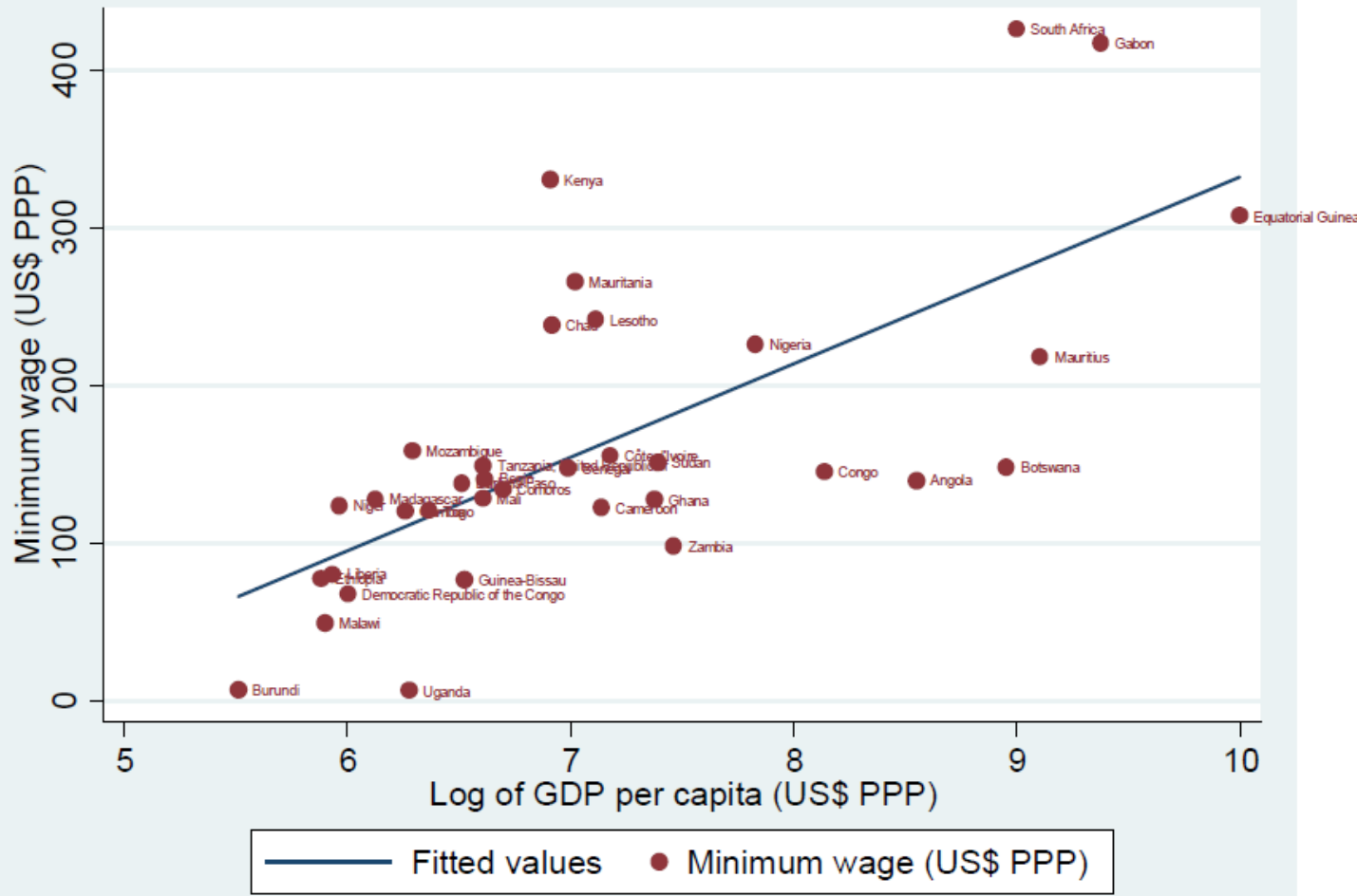
- Minimum wage levels and GDP per capita are positively correlated

- SSA Coefficient: 59.42

- Non-SSA Coefficient: 125.14

- Minimum wage levels are lower and less responsive to GDP increases in SSA compared to non-SSA

Sources: ILO global wage database, World Bank WDI
Note: Sample based on 37 African economies, where the latest available data for each country was utilised.

The complexity of wage schedules

Country	Number of Wage Schedules
Uganda	1
Mali	1
Ghana	1
Malawi	1
Nigeria	2
Botswana	10
Zambia	10
Tanzania	29
Namibia	32
Kenya	55
Ethiopia (public sector)	57
South Africa	124
Average	**27**

Source: ILO Databases (2012 and 2013)

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Global Evidence on Minimum Wage Non-Compliance

- Compliance with labour regulations in developing countries is low
  - Bhorat, Kanbur & Mayet, 2012; Bhorat & Stanwix, 2013; Ronconi, 2010a,2010b; Gindling, 2012; Gindling *et al, 2014;* Rani *et al*, 2014; Linxiang *et al, 2014*)

- It seems that the key issue here is not usually a lack of legislation but rather a lack of compliance.

- We use an Index of Violation to measure non-compliance, which is analogous to the FGT class of poverty measures.

Non-Compliance Rates (V^0)
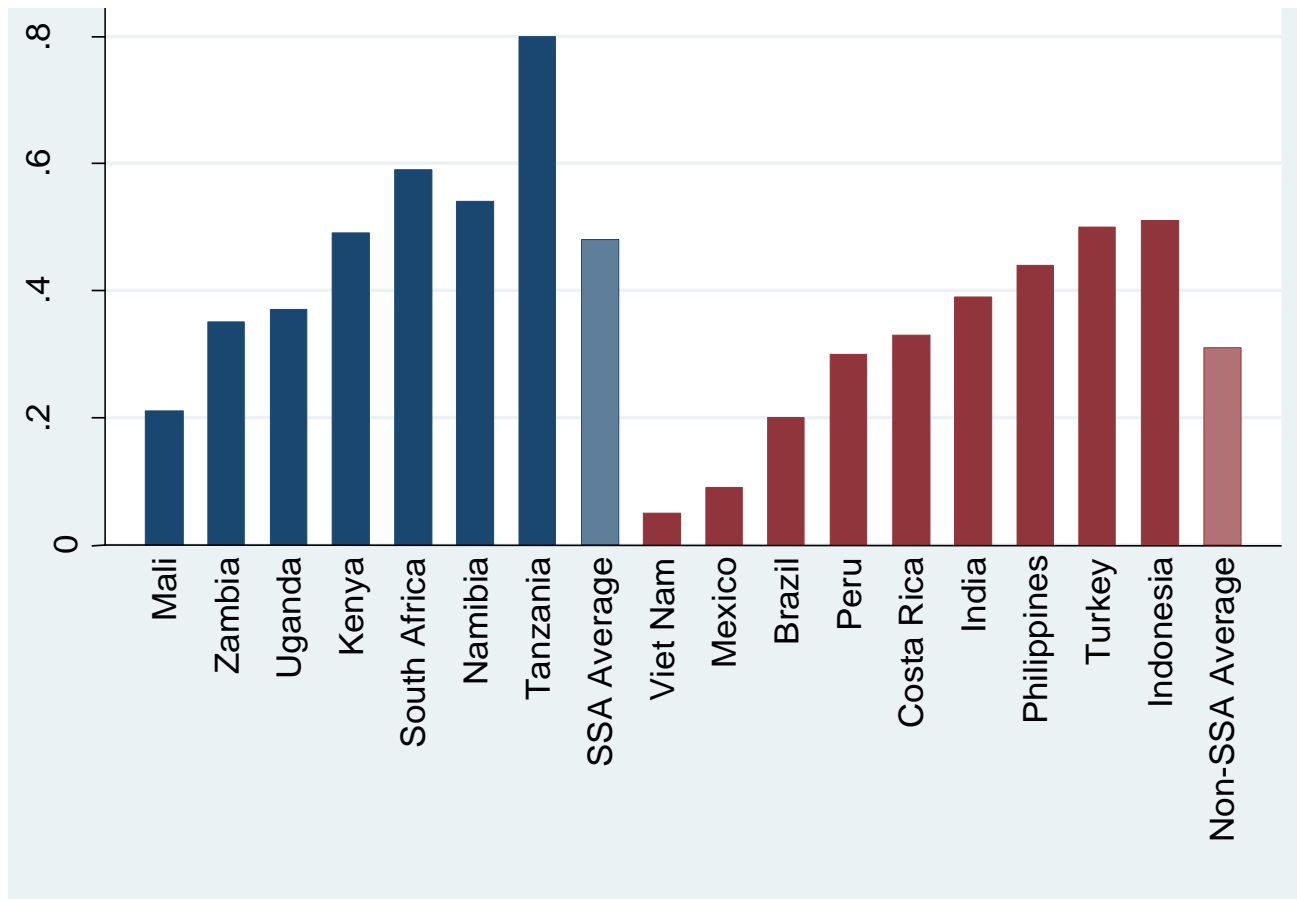
- On average, 58% of workers in SSA earn below the legislated minimum wage on average

- On average, 30% of workers in non-SSA earn below the legislated minimum wage on average

Source: Bhorat et al. (2015) and Rani et al. (2013)

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Depth Of Non-Compliance (Vᴵ)
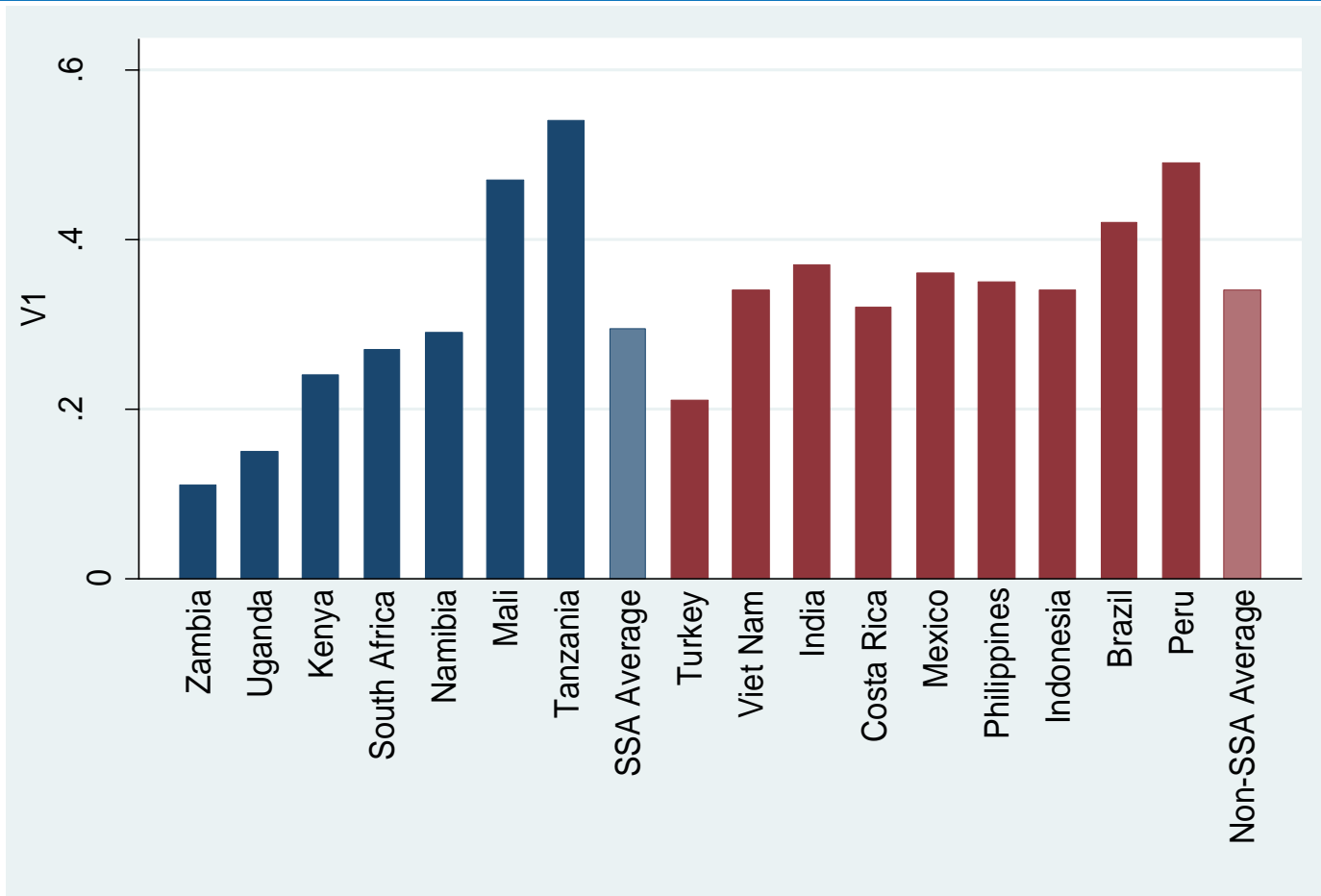
- Depth of non-compliance is lower in SSA on average (0.30) than non-SSA (0.35)

Source: Bhorat et al. (2015) and Rani et al. (2013)

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Non-Compliance: 3 Things to Consider

1. As with income poverty, the extent of violation should be taken into account alongside the **depth of violation**

2. The choice for firms is often not an either/or choice of comply/not comply but one of **partial compliance**

1. Linked to this, one impact of a MW may be to **compress** the wage distribution below the MW. So the law may reduce inequality of wages below the MW even without full compliance.

Research Question

- Theory: Compliance is not binary & non-compliance can be an equilibrium outcome (A&S,1979; Grenier, 1982; Yaniv, 2001; Basu, Chau, Kanbur, 2010)

- In the first part of this paper we develop a model theorising partial compliance, which I will not present here (IZA JoLD)

- Empirical Work: Issues of compliance relatively new.

- We track changes in sub-minimum wage distribution, focus on partial compliance and ask the following question:

  "In an environment of weak enforcement how do employers adjust wages in response to the introduction of a Wm?"

Fines for Violation

Maximum Permissible Fines for Violation (Schedule 2 of the BCEA, 1997 as amended 2014)

No previous violation	R300 per employee
No previous violation in respect of the same provision of the Act	R600 per employee
A previous violation the same year or two violations in respect to the same provision during the past 3 years	R900 per employee
3 previous violations of the same provision within 3 years	R1200 per employee
4 previous violations of the same provision within 3 years	R1500 per employee

Maximum Permissible Fines Involving Underpayment (Schedule 2 of the BCEA, 1997 as amended 2014)

No previous violation	25% of the underpayment, including any interest owing on the amount at the time of the order
A previous violation of the same provision during the past 3 years	50% of the amount due including applicable interest
A previous violation of the same provision within a year, or 2 previous violations, or 2 previous violations of the same provision	75% of the amount due, including applicable interest
3 previous violations of the same provision during the past 3 years	100% of the amount due including applicable interest
3 previous violations of the same provision during the past 3 years	200% of the amount due including applicable interest

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The Agricultural Minimum Wage in South Africa

- Agricultural minimum wage introduced in 2003
- Initial Level at R650 per month Rural; R800 per month Urban)
- Impacts Observed:
  - Rise in Average Wages
  - Significant Drop in Employment
  - Increased Contract Coverage
  - Increase in Hours Worked

    (Bhorat, Kanbur & Stanwix, *American J Agric. Econ*, 2014)

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Data and Empirical Strategy

- Pooled Dataset: 14 waves of the South African Labour Force Survey (LFS)
  - Bi-annual national household survey
  - September 2001-2007
  - 5 waves before the legislation became effective and 9 after
- Includes between 2,000 and 3,300 farmworkers per wave
- Wage differentiated by urban (A) and rural (B)
  - We map workers using occupation and area codes in the LFS
- Econometric Approach:
  - Assess the impact of the minimum wage on absolute and relative levels of compliance – using the V^{α} measure of wage compliance
  - Use two alternative specifications of a difference-in-differences model

Empirical Strategy: Specification 1

$$Y_{ikt} = \beta_0 + \beta_1 POST_t + \beta_2 Farmworker_k + \beta_3 POST_t * Farmworker_k + X_{ijt} + \varepsilon_{ikt}$$

- Y_{ikt} is the outcome of interest (V^1, V^2) for individual i, in group k, in period t,
- $POST_t$ is the time dummy which captures 'before-and-after' effects,
- $Farmworker_k$ is 1 (treatment) or 0 (control)
- X_{ijt} individual controls

- Control group: unskilled or 'elementary' occupations, earning less than Rand10 000/m, aged 15-65, no more than 12 yrs of schooling, union members, and those in another minimum wage sector excluded.
  - E.g.: street vendors, packers, manufacturing and transport labourers, elementary machine operators

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Empirical Strategy: Specification II

$$Y_{ijt} = \theta_0 + \theta POST_t + \theta_2 WG_j + \theta_3 POST_t * WG_j + X_{ijt} + v_{ijt},$$

Again, Y_{ijt} is the outcome of interest (V^1, V^2) for individual i, in district j, in period t. $POST_t$ is the time dummy, and X_{ijt} controls for various worker characteristics.
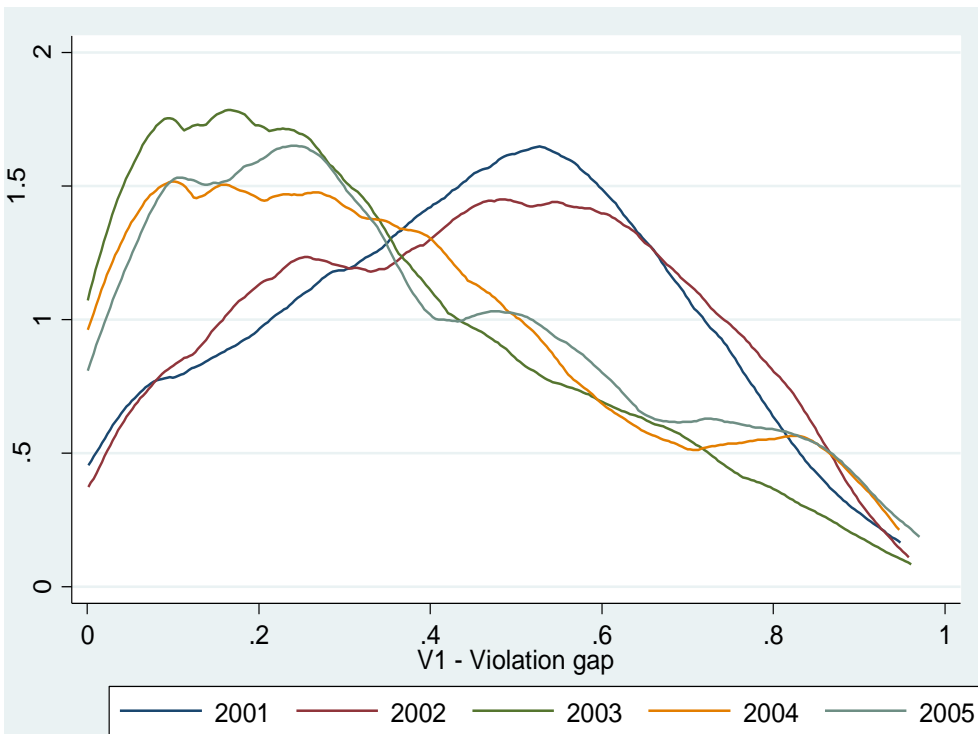
- The wage gap (WG_j) is a constructed variable which identifies cross-sectional variation between District Councils in the pre-law period

$$WG_j = \log\left[minimum(w_j^*)\right] - \log\left[median(w_j')\right],$$
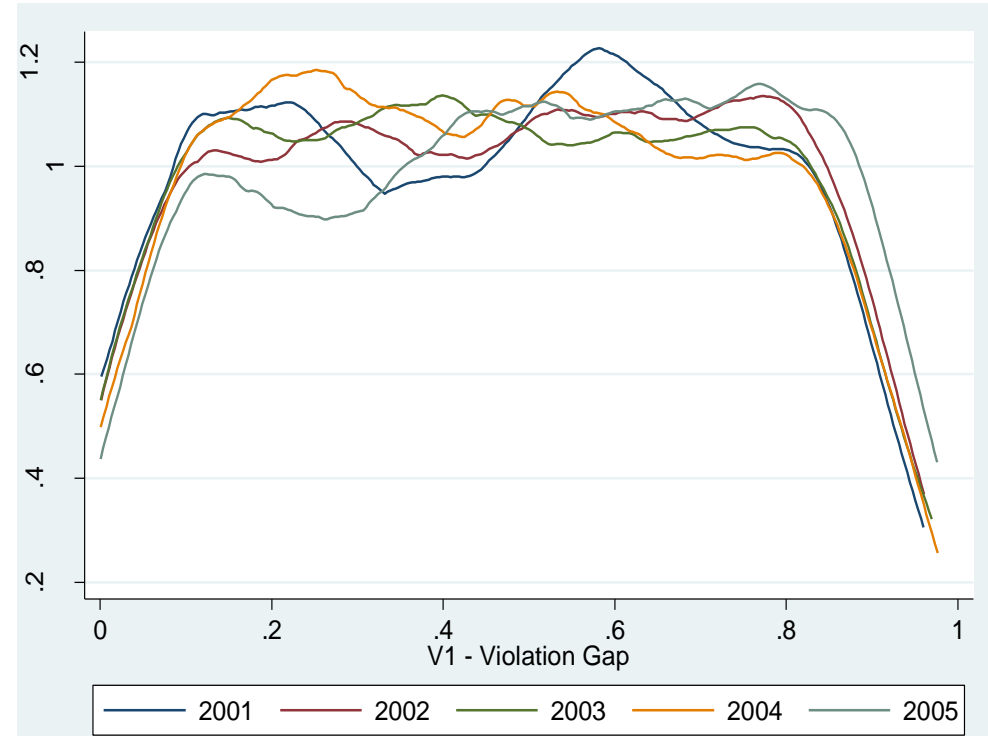
- wj* is the initial minimum wage in district j,
- wj' is the median agricultural worker wage in district j, in the year before the law was introduced (2002)

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Descriptive Statistics (V¹):
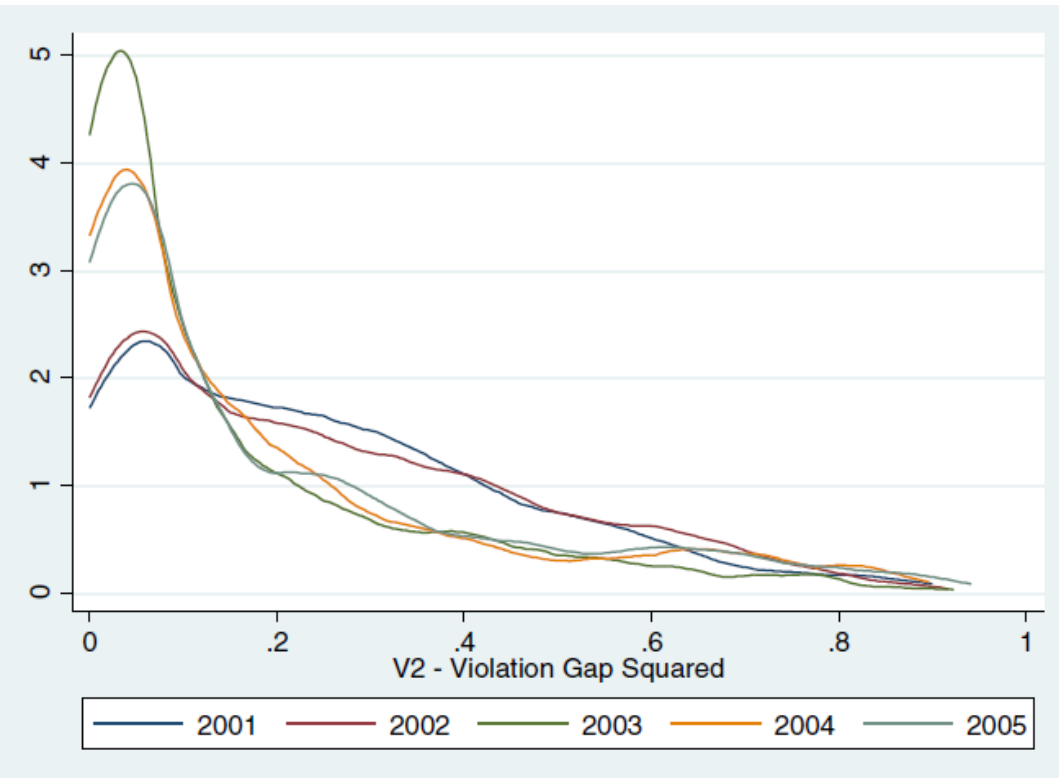## 2001-2005, Farmworkers and Control Group

Note: The figures are kernel density plots of V1 for all farmworkers (Area A and B) and the control group, calculated using the annual minimum wage. Kolmogorov-Smirnov tests for equality of distributions are rejected at the 5% level for each pairwise comparison of waves in the before and after periods in the case of the farmworker k-densities.
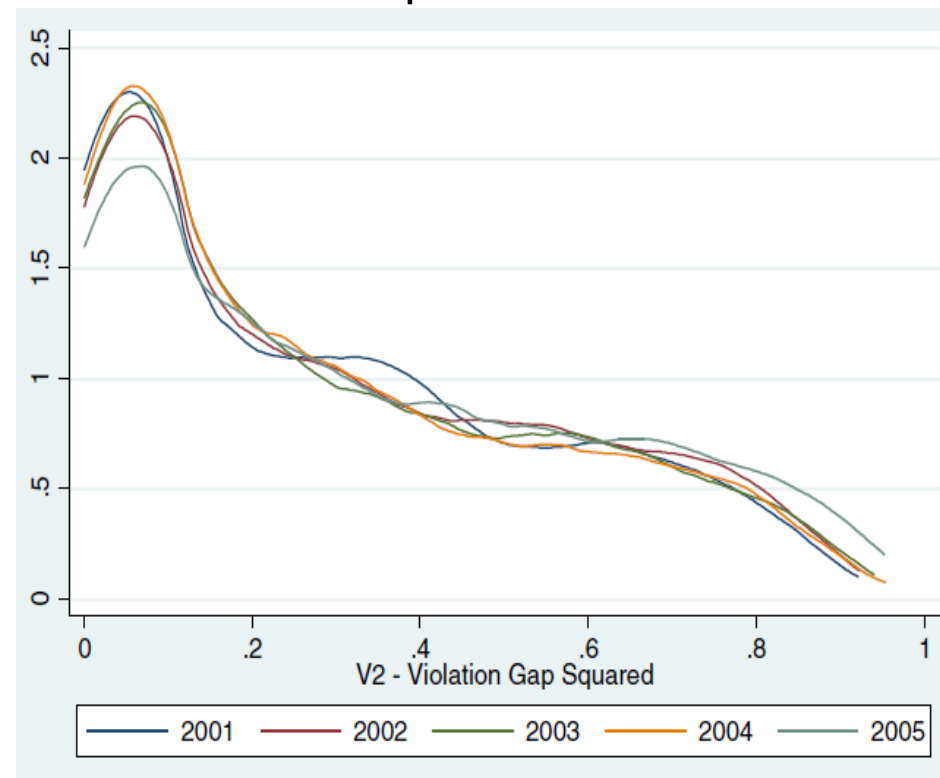
Descriptive Statistics (V²):
2001-2005, Farmworkers and Control Group

Note: The figure is a kernel density plot of V2 for all farmworkers (Area A and B), calculated using the annual minimum wage. Kolmogorov-Smirnov tests for equality of distributions are rejected at the 5% level for each pairwise comparison of waves in the before and after periods.

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Descriptive Statistics:
Index of Minimum Wage Violation (Area A)

Year	V0	V1	V2	V1/V0
2001	0.61	0.20	0.10	0.33
	(0.026)	(0.014)	(0.008)	
2002	0.66	0.22	0.10	0.34
	(0.025)	(0.021)	(0.016)	
2003	0.60	0.15	0.06	0.26
	(0.023)	(0.010)	(0.006)	
2004	0.64	0.17	0.07	0.27
	(0.024)	(0.010)	(0.006)	
2005	0.65	0.19	0.09	0.30
	(0.028)	(0.017)	(0.009)	
2006	0.63	0.18	0.08	0.29
	(0.033)	(0.017)	(0.009)	
2007	0.54	0.16	0.07	0.30
	(0.034)	(0.0174)	(0.009)	

Descriptive Statistics:
Index of Minimum Wage Violation (Area B)

Year	V0	V1	V2	V1/V0
2001	0.82	0.39	0.22	0.48
	(0.014)	(0.010)	(0.008)	
2002	0.83	0.39	0.23	0.48
	(0.012)	(0.011)	(0.009)	
2003	0.75	0.30	0.16	0.40
	(0.014)	(0.011)	(0.008)	
2004	0.72	0.25	0.13	0.35
	(0.014)	(0.009)	(0.006)	
2005	0.65	0.23	0.12	0.36
	(0.019)	(0.010)	(0.007)	
2006	0.65	0.23	0.11	0.35
	(0.020)	(0.011)	(0.008)	
2007	0.67	0.22	0.10	0.32
	(0.020)	(0.010)	(0.006)	

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Results I:
Partial Compliance, Depth of Violation – Treatment vs Control

VARIABLES	V0		V1		V2	
	(1)	(2)	(3)	(4)	(5)	(6)
Farmworker	0.299***	0.399***	0.0116***	0.0730***	-0.00344***	0.0500***
	(0.00575)	(0.00677)	(0.00413)	(0.00506)	(0.00396)	(0.00434)
POST	-0.0246***	0.0123**	-0.0102***	-0.00333	-0.00833**	-0.00355
	(0.00438)	(0.00497)	(0.00365)	(0.00476)	(0.00350)	(0.00408)
Farmworker*POST	-0.00545	-0.0247***	-0.119***	-0.0883***	-0.0975***	-0.0636***
	(0.00741)	(0.00784)	(0.00530)	(0.00592)	(0.00507)	(0.00508)
Controls	NO	YES	NO	YES	NO	YES
Constant	0.450***	0.732***	0.481***	0.552***	0.304***	0.353***
	(0.00371)	(0.0166)	(0.00307)	(0.0273)	(0.00294)	(0.0234)
Observations	84,924	58,186	42,760	26,623	42,760	26,623
R-squared	0.077	0.034	0.034	0.129	0.030	0.106

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Results II:
Partial Compliance, Depth of Violation – Wage Gap

	V1		V2	
VARIABLES	(1)	(2)	(3)	(4)
Wage Gap	0.163***	0.104***	0.159***	0.0106***
	(0.00435)	(0.00701)	(0.00403)	(0.00607)
POST	-0.0517**	-0.0381***	0.0269***	-0.0130***
	(0.00682)	(0.00706)	(0.00632)	(0.00611)
Wage Gap*POST	-0.0680***	-0.0780***	-0.0710***	-0.0789***
	(0.00699)	(0.00865)	(0.00647)	(0.00749)
Controls	NO	YES	NO	YES
Constant	0.339***	0.400***	0.150***	0.173***
	(0.00471)	(0.0407)	(0.00437)	(0.0352)
Observations	21,230	17,299	21,230	17,299
R-squared	0.135	0.216	0.128	0.185

Conclusion:
Partial Compliance in South Africa's Agricultural Sector

- Fraction of workers below minimum wage decreases over time, and directly in response to the law.

- Absolute and relative levels of non-compliance remain high.

- Employers may choose whether and by how much to comply, suggesting a range of feasible responses to the Wm, below the Wm itself.

- Strong evidence of partial compliance.

- A need to develop the theory of partial compliance.

Conclusion:
Partial Compliance in Least Developed Countries

- Our knowledge of compliance and partial compliance is under-developed.
- Measures of V^0 and V^1 globally is a useful entry point.
- More modelling of the determinants of Minimum wage violation essential.
- An important research agenda into the 'production function' of labour inspectors and the nature of enforcement within a country.
- Less about the impact of minimum wages in LICs and more about the interaction between minimum wages, their economic impact and the probability of violation of the law.

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Thank you

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