

Trade Liberalization and Local Labor Market Adjustment in South Africa

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September 10, 2019

Introduction

- ▶ Since its democratic transition in 1994, South Africa has experienced a remarkable political and economic transformation, but employment generation has been relatively weak.
- ▶ As part of its liberalization process, South Africa introduced rapid tariff cuts to liberalize its trade with the rest of the world.
- ▶ While many observers have speculated that rapid trade liberalization could be one factor behind the slow employment growth, no research has examined the impact of tariff cuts on labor market outcomes in South Africa using detailed micro-level data.

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Motivation: The context

- ▶ The context of South Africa is interesting to study the labor market effects of trade reform for many reasons.
 - ▶ It has one of the highest unemployment rates in the world, and this high rate has persisted over time.
 - ▶ It has a relatively high unionization rate within the formal sector, and a sizable informal sector that exists alongside it.
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- ▶ This paper seeks to provide evidence about the effect of trade liberalization, and the associated increase in import competition, on employment and wages by sector in South Africa.
 - ▶ We employ a local labor markets approach, utilizing variation in exposure to tariff cuts at the level of magisterial districts.
- ▶ The analysis employs a newly assembled dataset comprised of labor force surveys drawn from approximately 360 South African magisterial districts between 1994 and 2004.

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Identification strategy

- ▶ We generate a district-level measure of exposure to tariff reductions by combining industry-level variation in the tariff rates and district-level variation in industrial composition at baseline.
- ▶ The identification strategy is a difference-in-difference, comparing districts characterized by varying exposure to tariff cuts over the period of liberalization, conditional on district and year fixed effects and district-specific linear trends.
- ▶ We also control for a range of time-varying individual characteristics that could affect labor market outcomes.

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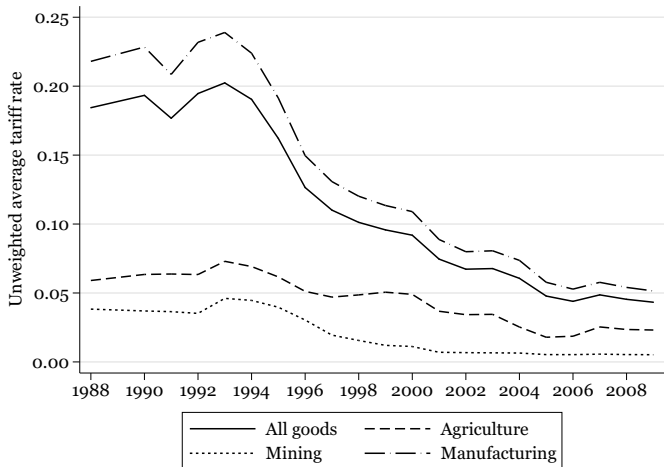
Background on South Africa's Trade Liberalization

- ▶ South Africa pursued a strategy of import substitution industrialization prior to the 1970s, characterized by high tariffs and nontariff barriers.
- ▶ A program of rapid trade liberalization was initiated when the new government came to power in 1994; the pace of liberalization accelerated when South Africa proposed a liberalization regime to the World Trade Organization in 1995, entailing a five-year tariff reduction program.

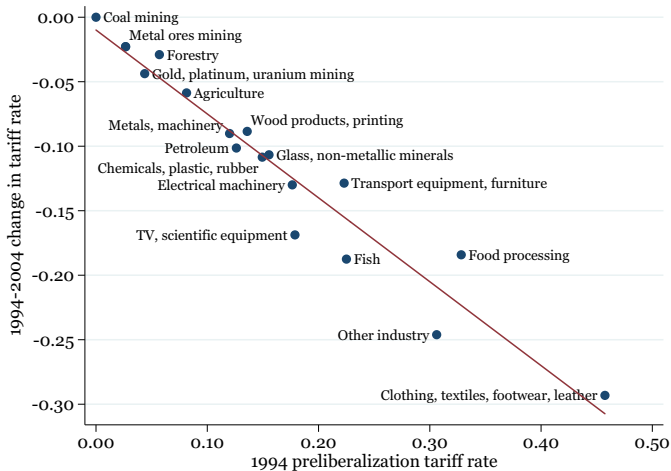
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Nominal Tariffs and Surcharges, 1988–2009



Tariff Changes and Pre-liberalization Tariff Levels



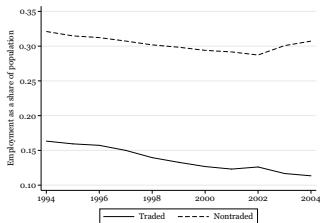
South African labor market

- ▶ South Africa also has a labor market characterized by high and persistent unemployment, and declining employment rates among the prime-age population.
- ▶ The role of trade reform and early deindustrialization in these phenomena has been hypothesized, but largely not substantiated.

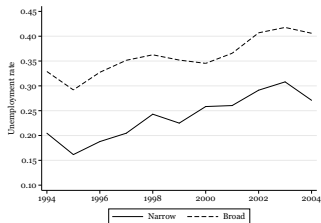
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Employment and unemployment over time



(a) Employment as a Share of Working-Age Population



(b) Unemployment Rate

Data overview

- ▶ We employ two primary sources of data: the labor force survey data from 1994 to 2004, and the district-level tariff measure.
- ▶ The labor force survey, South Africa - Post Apartheid Labour Market Series (PALMS), combines pre-2000 data from October Household Surveys (OHS) and post-2000 data from Labor Force Surveys (LFS) to generate consistent labor market indicators.
- ▶ Tariff data at the 3-digit ISIC Revision 3 industrial classification level is obtained from Edwards (2005).

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Constructing the district-level tariff

- ▶ We construct a district-level tariff measure using information about the baseline composition of industrial employment by sector in the district, as reported in the 1994 October Household Survey (OHS).
- ▶ The district-level measure can be calculated as follows:

$$tariff_{dt} = \sum_i empshare_{id}^{1994} \times tariff_{it}$$

- ▶ Thus the estimated district-level exposure to tariff reductions varies over time, but reflects only ex ante industrial composition prior to the initiation of reform.

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Primary specification

- ▶ The primary specification of interest regresses labor market outcomes at the individual level on the log of the district-level tariff, including district and year fixed effects, district-specific trends and individual-level control variables (age, marital status, gender, years of education and race dummies).

$$y_{jdt} = \alpha + \beta \text{Tariff}_{dt} + \chi_{jdt} + \mu_t + \gamma_d + \delta_d t + \epsilon_{jdt}$$

- ▶ We estimate this specification employing ordinary least squares (OLS), clustering standard errors at the district level.

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Employment, Unemployment, and NILF

Panel A: Employment

	(1) All sectors	(2) Traded	(3) Manufacturing	(4) Mining	(5) Agriculture	(6) Nontraded
District tariff	0.240*** (0.066)	0.188*** (0.053)	0.144*** (0.024)	-0.014 (0.015)	0.057 (0.047)	0.053 (0.043)
N	681683	681683	681683	681683	681683	681683
R^2	0.281	0.133	0.060	0.215	0.163	0.194


Panel B: Unemployment and Not in Labor Force (NILF)

	Narrow unemployment	Discouraged	Broad unemployment	NILF
District tariff	-0.002 (0.058)	-0.092* (0.055)	-0.094* (0.051)	-0.147*** (0.049)
N	681683	681683	681683	681683
R^2	0.064	0.055	0.092	0.336

Formal and Informal Employment

	(1)	(2)	(3)	(4)	(5)	(6)
	All sectors	Traded	Manufacturing	Mining	Agriculture	Nontraded
Panel A: Employment in Formal Sector						
District tariff	0.118** (0.054)	0.068* (0.040)	0.119*** (0.023)	-0.016 (0.015)	-0.036 (0.035)	0.050 (0.040)
N	681683	681683	681683	681683	681683	681683
R^2	0.243	0.147	0.060	0.213	0.190	0.172
Panel B: Employment in Informal Sector						
District tariff	0.123*** (0.046)	0.120*** (0.033)	0.025*** (0.005)	0.002* (0.001)	0.093*** (0.031)	0.003 (0.026)
N	681683	681683	681683	681683	681683	681683
R^2	0.072	0.049	0.009	0.005	0.068	0.055

Interpreting the results

- ▶ We observe a significant decrease in employment, concentrated in manufacturing.
- ▶ There is no shift in agriculture, mining, or non-tradable employment; displaced workers do not substitute into other sectors, nor do they substitute into informal employment.
- ▶ Both broad unemployment and non-participation increase.
- ▶ In separate results, we demonstrate that there is no shift in monthly earnings conditional on employment. 

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Magnitude of the effects

- ▶ Workers in a district exposed to the average reduction in tariffs, a decline of 10.6 percentage points, experienced a 2.6 percentage point decrease in the probability of being employed, corresponding to a 6.2% decrease relative to the outcome mean.
- ▶ This effect is largely driven by a proportional decline in manufacturing employment of nearly 25%.
- ▶ The median district also exhibits an increase in the probability of broad unemployment of 1 percentage point, and an increase in the probability of NILF status of 2 percentage points.

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Calibrating the effects

- ▶ We can employ some simple back-of-the-envelope calculations to calibrate the importance of tariff reductions relative to the overall shifts in district-level employment during this period.
- ▶ Our results suggest that trade liberalization accounts for around half the decrease in tradable sector employment observed by the median district during the 1994–2004 period.
- ▶ Similarly, this shock accounts for 11% of the increase in broad unemployment, and 21% of the increase in discouraged workers.

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Additional results

- ▶ We demonstrate that there is no evidence of cross-migration across districts in response to these shocks; workers are, however, more likely to draw on government transfers. [▶ Migration](#) [▶ Transfers](#)
- ▶ We also examine heterogeneous effects with respect to race and education, hypothesizing that lower-educated workers and black workers may be more vulnerable; there is some evidence of this pattern, but in general the results are noisily estimated. [▶ Results](#)

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Unpacking these results

- ▶ In further exploratory work, we identify structural features of the South African economy that may have rendered adjustment to the trade shocks generated by rapid tariff cuts particularly costly.
 - ▶ High baseline rates of unemployment raised search costs for workers newly displaced by trade costs.
 - ▶ A weak informal sector similarly offered limited opportunities for substitution into occupations characterized by low barriers to entry.
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Policy implications

- ▶ Encouraging more robust growth of informal or small / medium-size enterprises — long a goal of South African policymakers — may be particularly important in a context of rapid trade reform.
- ▶ Government transfers clearly serve as a valuable safety net, but may reduce incentives to re-enter the work force; social safety net programs that additionally incentivize employment may be a more attractive option for middle income countries such as South Africa.
- ▶ Additionally, within-country migration in response to these shocks appears to be minimal (broadly similar to the pattern in rich countries such as the U.S.), suggesting that migration subsidies could be a valuable policy tool.

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Conclusion

- ▶ In this paper, we present the first micro-level evidence of the effects of trade liberalization on labor market outcomes in South Africa.
- ▶ The results suggest that trade liberalization generally had a large negative effect on the manufacturing sector, and displaced workers exited the labor force.
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Monthly earnings

	(1) All sectors	(2) Traded	(3) Manufacturing	(4) Mining	(5) Agriculture	(6) Nontraded
Panel A: Log Monthly Earnings in All Sectors						
District tariff	0.392 (0.358)	0.340 (0.629)	-0.790 (0.859)	0.860 (1.109)	0.367 (1.001)	0.280 (0.412)
N	157167	49737	19768	8689	21280	107430
R^2	0.430	0.515	0.412	0.441	0.421	0.423
Panel B: Log Monthly Earnings in Formal Sector						
District tariff	0.433 (0.339)	-0.060 (0.662)	-0.434 (0.980)	0.635 (1.118)	-0.329 (1.049)	0.556 (0.386)
N	114068	44931	17652	8607	18672	69137
R^2	0.429	0.530	0.392	0.440	0.406	0.375
Panel C: Log Monthly Earnings in Informal Sector						
District tariff	0.171 (0.732)	0.429 (1.471)	0.825 (4.531)	-12.250 (48.600)	-0.039 (1.983)	0.106 (0.807)
N	43099	4806	2116	82	2608	38293
R^2	0.434	0.594	0.631	0.965	0.656	0.434

Migration

	(1) Baseline	(2) Additional individual-level controls	(3) 1995 weights	(4) Excluding missing districts in 1994
District tariff	0.095 (0.096)	0.096 (0.096)	0.090 (0.064)	0.090 (0.099)
N	284146	283940	284146	255362
R^2	0.089	0.095	0.089	0.089

▶ Return

Government transfers

	(1) Disability grant	(2) Old age pension	(3) Child support grant	(4) Care dependency grant	(5) Foster care grant
Panel A: Individual-level transfers					
District tariff	-0.026** (0.012)	-0.017 (0.016)	-0.006 (0.011)	-0.003* (0.002)	0.000 (0.001)
N	257451	259087	259096	259042	259026
R^2	0.023	0.180	0.010	0.004	0.005
Panel B: Household-level transfers					
District tariff	-0.005 (0.088)	-0.185 (0.119)	-0.446* (0.271)	-0.023*** (0.008)	0.009 (0.014)
N	257795	257825	257789	195817	257791
R^2	0.057	0.075	0.155	0.026	0.018

▶ Return

Workers with less than a 8th grade education

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	All	Traded	Manuf.	Mining	Agr.	Nontr.	Narrow Unemp.	Discour. Unemp.	Broad Unemp.	NILF
District tariff	0.276***	0.247***	0.141***	-0.004	0.110	0.029	0.008	-0.109	-0.101	-0.175**
x Black African / Colored	(0.088)	(0.081)	(0.021)	(0.016)	(0.077)	(0.058)	(0.070)	(0.074)	(0.073)	(0.072)
District tariff	-0.108	-0.918	-0.388	-0.150	-0.380	0.811	0.450	0.210	0.660**	-0.552
x White / Asian	(0.742)	(0.561)	(0.392)	(0.168)	(0.425)	(0.592)	(0.286)	(0.196)	(0.279)	(0.795)
N	245050	245050	245050	245050	245050	245050	245050	245050	245050	245050
R^2	0.234	0.180	0.0543	0.293	0.180	0.122	0.0581	0.0648	0.0908	0.286

Workers with 8-11 years of education

	(1) All	(2) Traded	(3) Manuf.	(4) Mining	(5) Agr.	(6) Nontr.	(7) Narrow Unemp.	(8) Discour.	(9) Broad Unemp.	(10) NILF
District tariff x Black African / Colored	0.158** (0.065)	0.148*** (0.048)	0.136*** (0.032)	-0.008 (0.017)	0.020 (0.031)	0.010 (0.050)	-0.029 (0.070)	-0.057 (0.058)	-0.086 (0.056)	-0.073 (0.059)
District tariff x White / Asian	0.198 (0.253)	0.115 (0.177)	0.097 (0.154)	-0.106 (0.122)	0.124** (0.062)	0.083 (0.270)	0.175 (0.122)	-0.073 (0.184)	0.102 (0.235)	-0.300 (0.297)
N	274811	274811	274811	274811	274811	274811	274811	274811	274811	274811
R^2	0.304	0.122	0.0790	0.210	0.109	0.193	0.0801	0.0601	0.118	0.429

Workers with a high school diploma

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	All	Traded	Manuf.	Mining	Agr.	Nontr.	Narrow Unemp.	Discour.	Broad Unemp.	NILF
District tariff	0.237***	0.209***	0.154***	-0.014	0.069***	0.028	-0.021	-0.072	-0.093	-0.144**
x Black African / Colored	(0.069)	(0.047)	(0.032)	(0.019)	(0.024)	(0.071)	(0.077)	(0.066)	(0.074)	(0.070)
District tariff	0.383*	0.406***	0.329**	-0.086*	0.163***	-0.023	-0.038	-0.089	-0.127	-0.256
x White / Asian	(0.203)	(0.142)	(0.127)	(0.048)	(0.051)	(0.215)	(0.085)	(0.130)	(0.171)	(0.200)
N	224196	224196	224196	224196	224196	224196	224196	224196	224196	224196
R^2	0.328	0.0933	0.0676	0.158	0.108	0.236	0.104	0.0759	0.159	0.294

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