

Trade Reform and Quality Upgrading in South Africa: A Product Level Analysis

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- Introduction
- Contribution
- Objectives
- South Africa Trade Liberalization
- Literature Review
- Methodology
- Results
- Conclusion

- Impact of trade liberalization on product quality is both theoretically and empirically ambiguous (Schumpeter, 1942; Aghion et al., 2005; Amiti and Khandelwal, 2012, Fan and Li, 2012).
- Quality of exports is central to international competitiveness
- South Africa extensively liberalized
- South Africa's average tariff has fallen from around 23% in the early 1990s to 8.2% in 2011
- Pre 2001 and post 2000 tariff structure- MFN, SADC, EU, EFTA

- Trade liberalization channels to quality- competition, variety, quality and learning effects (Lacovone, 2012, Hummels and Klenow, 2005, Fan and Li, 2012)
- Despite this extensive liberalization little research has been done
- What's the effect on quality upgrading of South African export products?

- Most existing studies on tariff liberalization and quality upgrading not done in Africa
- This study adds to this literature by using highly disaggregated trade data using an African data set
- Methodology, dimension and variables
- Majority of recent studies focus on firm-level data (see Fernandes and Paunov, 2011; Topalova and Khandelwal, 2011; Lacovone, 2012)
- The focus is at product level- dimension not extensively exploited in literature

- To ascertain the impact of trade liberalization on product quality upgrading in South African exports.
- Specifically, the study assesses the impact of tariff liberalization on product quality
- The study seeks to determine whether lower import tariffs on HS8 products raises the export unit values of such products.

Trade liberalization in South Africa

- Trade liberalization in South Africa characterized by two periods:
- The pre-democratic era and the post-democratic era
- SACU 1910
- Accession of South Africa to the World Trade Organization in 1995
- Since 2000, regional trade agreements dominates -tariff impact-
SADC, TDCA, EFTA

- Ranges from traditional trade theories, new trade theories and "new new" trade theories
- Eaton- Kortum (2002)
- Dixit and Stiglitz, 1970, Krugman, 1980
- Melitz (2003)- heterogeneous firms trade model
- Introduction of quality in heterogeneous trade models by Johnson (2012), Verhoogen (2008), Baldwin and Harrigan (2011)
- Distance of the product from world technological frontier models (Aghion et al. 2005, Schumpeter, 1942)

- The measurement of product quality is a major challenge in current quality and trade literature (Hallak and Schott, 2010)
- Most empirical trade literature uses the unit value (prices) of products as a measure of product quality
- Fernandes and Paunov, 2011; Bastos and Silva, 2010; Schott, 2004, Kugler and Verhoogen, 2008
- Studies by: Hallak and Schott (2008)
- Hummels and Klenow (2005)
- Ardelean (2011)
- Amit and Khandelwal (2012)
- Bustos and Silva, 2011; Monova and Zhang, 2012; Martin, 2010-firm level

Empirical Specification

- Empirical methodology draws both from existing theoretical models and available data.
- The empirical equation follows specifications from existing studies
- E.g. Amit and Khandelwal, 2012; Baldwin and Harrigan, 2011
- Employs panel data method that exploits variation across the product level-at HS8
- $$Luv_{it} = \beta_0 + \beta_1 Ltariff_{it} + \beta_2 mc_{it} + \gamma_i + \lambda_t + \varepsilon_{it} \quad (1)$$
- Incorporating other variables:-
- $$Luv_{it} = \beta_0 + \beta_1 Ltariff_{it} + \beta_2 mc_{it} + \beta_3 Lgdpcap_SA_t + \beta_4 wexp_g_t + \beta_5 wgdp_g_t + \beta_6 Lfdi_t + \lambda_t + \varepsilon_{it} \quad (2)$$
- Data sources

Empirical Results: Full Sample Results (1988-2009) - Using HS8 Data

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|----------------|-------------------------|-------------------------|-------------------------|--------------------|-------------------------|--------------------|-------------------------|---------------------|---------------------|
| ltariff | 4.166 (114.88)* * | | 4.139 (113.66) ** | 0.268 (4.60)** | 0.630 (17.11)** | 0.116 (2.37)* | 0.620 (16.43)** | 0.448 (11.48)** | 0.454 (6.57)** |
| lagtariff | | 0.473 (18.31)** | 0.21 (8.35)** | | | | | | |
| lmvd | | | | 0.040 (16.14)** | | 0.078 (35.46)** | | | 0.051 (17.45)** |
| mc | | | | | 1.623 (226.39)* * | | 1.623 (224.80)* * | 1.583 (212.13)** | |
| lgdp_SA | | | | | | 0.164 (2.90)** | 0.0024 (0.01) | | 1.204 (14.30)** |
| wexp_g | | | | | | 0.199 (3.26)** | 0.525 (12.08)** | | -0.415 (5.31)** |
| wgdp_g | | | | | | -0.017 (4.15)** | -0.036 (11.64)** | -0.035 (11.73)** | 0.048 (7.55)** |
| lfdid | | | | | | | | | -0.058 (10.44)** |
| Constant | 0.989 (281.21)* * | 1.219 (382.71)* * | 0.978 (259.70) ** | 1.546 (44.72)** | 0.337 (77.80)** | -0.261 (0.57) | 0.394 (1.17) | 0.480 (35.57)** | -7.147 (11.69)** |
| P.F.E | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes |
| Y.F. E | No | No | No | Yes | No | No | No | Yes | No |
| R ² | 0.04 | 0.00 | 0.04 | 0.01 | 0.19 | 0.00 | 0.19 | 0.20 | 0.01 |
| N | 300,146 | 300,145 | 300,145 | 161,142 | 300,146 | 161,142 | 300,146 | 300,146 | 111,663 |

Results explanation

- Columns 1-5 show the estimation of equation 1 above,
- Columns 6-9 show the estimation of equation 2
- Results consistently show positive relationship between tariffs and product quality
- Possible reasons.

Sub-sample results; 1988-2000

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|----------------|---------------------|---------------------|---------------------|--------------------|---------------------|--------------------|--------------------|--------------------|
| ltariff | 3.311 (74.57)** | | 3.302 (74.14)** | 0.357 (5.14)** | 0.662 (14.70)** | 0.478 (7.49)** | 0.357 (5.14)** | 0.212 (2.18)* |
| lagtariff | | 0.249 (8.37)** | 0.084 (2.84)** | | | | | |
| lmv | | | | 0.047 (13.84)** | | 0.047 (13.89)** | 0.047 (13.84)** | 0.056 (12.66)** |
| mc | | | | | 1.508 (156.92)** | | | |
| lgdpcap_SA | | | | | | 1.190 (6.71)** | | 0.701 (1.97)* |
| wexp_g | | | | | | -0.166 (1.88) | | -0.784 (6.88)** |
| wgdp_g | | | | | | -0.075 (9.92)** | -0.035 (4.97)** | 0.117 (5.41)** |
| lfdid | | | | | | | | -0.128 (9.16)** |
| Constant | 1.031 (224.16)** | 1.245 (309.74)** | 1.025 (207.25)** | 1.439 (32.81)** | 0.401 (68.01)** | -7.854 (5.57)** | 1.605 (34.07)** | -1.783 (0.62) |
| P.F.E | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Y.F.E | No | No | No | Yes | No | No | Yes | No |
| R ² | 0.03 | 0.00 | 0.03 | 0.01 | 0.14 | 0.00 | 0.01 | 0.01 |
| N | 204,111 | 204,110 | 204,110 | 110,342 | 204,111 | 110,342 | 110,342 | 66,129 |

Sub-sample results; 2001-2009

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|----------------|---------------------|---------------------|---------------------|--------------------|----------------------|----------------------|---------------------|---------------------|
| ltariff | 2.439 (31.16)** | | 2.439 (31.10)** | 0.450 (2.33)* | 1.657 (20.25)** | 0.390 (2.02)* | 0.450 (2.33)* | 0.552 (2.71)** |
| lagtariff | | 0.069 (1.90) | -0.00185 (0.05) | | | | | |
| lmv | | | | 0.018 (4.34)** | | 0.023 (5.52)** | 0.018 (4.34)** | 0.017 (3.93)** |
| mc | | | | | 0.42453 (31.01)** | | | |
| lgdp_SA | | | | | | 1.607 (23.94)** | | 1.023 (7.22)** |
| wexp_g | | | | | | 0.379 (5.01)** | | 2.287 (16.89)** |
| wgdp_g | | | | | | 0.004 (0.69) | -0.099 (20.47)** | -0.126 (13.53)** |
| lfidid | | | | | | | | 0.086 (7.96)** |
| Constant | 1.108 (249.28)** | 1.214 (388.24)** | 1.108 (239.26)** | 1.531 (27.12)** | 0.918 (121.88)** | -11.341 (21.09)** | 1.699 (29.84)** | -8.270 (8.69)** |
| P.F.E | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Y.F.E | No | No | No | Yes | No | No | Yes | No |
| R ² | 0.01 | 0.00 | 0.01 | 0.03 | 0.02 | 0.02 | 0.03 | 0.03 |
| N | 96,035 | 96,035 | 96,035 | 50,800 | 96,035 | 50,800 | 50,800 | 45,534 |

Sensitivity Analysis

- Our study employs various sensitivity analysis:
- estimation using only time-specific effects
- using lagged tariff
- using different sub-sample periods 1988-2000; 2001-2009.
- classified products into those with high, medium and low initial tariff in 1988 and repeated the above regressions
- Using HS6 digit level data
- The results are robust, showing that tariffs have a positive effect on product quality

Conclusion

- The study investigates the impact of tariff liberalization on export product quality upgrading at the HS8-digit code from 1988 to 2009
- The results indicate that tariff liberalization is associated with a decline in the quality upgrading of South African products.
- Results support the appropriability effect
- Policy recommendation- future trade reforms need to address this failure of South African exporters to upgrade their products.
- Need for case-by-case consideration for further tariff liberalization
- Future studies- use of Input Output Table, use of alternatives product quality measures

THANK YOU
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