Interrogating the effects of multilateral and bilateral trade agreements on agricultural sector trade in South Africa

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PRESENTATION OUTLINE

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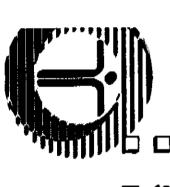☐ CONCLUSIONS

SA's Trade Policy

- SA is one of the founder members of GATT (1947) that created a framework to regulate international trade.

- SA participated in all multilateral negotiation rounds:

  ✓ Geneva (1947 and 1956), Annecy (1949), Torguay (1950), Dillon (1960-61), Kennedy (1962-67), Tokyo (1973-79), Uruguay (1986-93) and Doha (2001).

  ✓ Earlier rounds focused on the promotion of multilateral tariff reductions, excluding agriculture.

  ✓ Agricultural sector trade was placed on the GATT negotiating table during the Uruguay and Doha Rounds.

- SA became a signatory to Marrakech Agreement of GATT in 1994 that established WTO, which became effective in 1995.

- In 1995, SA became a WTO member and committed to the 1986 UR rules and policies that established WTO AoA.

- In 1997, SA became a CG member showing its UR commitment of global agric trade liberalization.

SA's Trade Policy (cont)

- [ ] SA's international and deregulation policy resulted in the following:
  - ✓ Introduction of new Marketing of Agricultural Products Act in 1996.
  - ✓ Removal of export subsidies
  - ✓ Replacement of import permits by import duties
- [ ] At the regional level, SA is a member of SACU and SADC.
- [ ] At bilateral level: SA was accepted as a qualified member of ACP-EU Partnership Agreement (from Lomé to Cotonou), but excluded from non-reciprocal trade preferences available to other ACP.
- [ ] SA and EU concluded a TDCA in 1999 and was implemented with effect from January 2000.
- [ ] SA is also AGOA beneficiary since 2001 and benefit from the US's GSP.
- [ ] SA is currently negotiating FTAs with the US, EFTA, MERCOSUR. It is envisaged that SA will open FTA negotiations China and India.

Trade agreements' offers on agriculture

☐ **UR AoA required WTO member countries to:**

  ✓ Market access

  ✓ Reduce domestic support

  ✓ Reduce export subsidies

  ✓ SPS

☐ **TDCA's main agric features are:**

  ✓ Agricultural tariff phase-down.

  ✓ Agricultural tariff quotas.

  ✓ Wines and Spirits Agreements.

☐ **SADC Trade Protocol**

  ✓ Elimination of import duties (tariffs)

  ✓ Elimination of all NTBs not related to SPS

RESEARCH QUESTIONS

☐ The overall objective of the study is to measure the impacts of existing trade agreements (WTO AoA, EU/SA TDCA and SADC FTA) on the agricultural sector trade of South Africa.

☐ The study attempt to answer the following questions:

✓ To what extend do these trade agreements affect SA's agricultural trade, as compared to other trade determinants?

✓ Since their inception, are these trade agreements significantly improving agricultural trade be SA and its trading partners?

✓ If yes, how? Did they led to the attraction of SA's agricultural exports to the trading partners or vice versa?

✓ Which trade agreement is more significant than the other in terms of improving agricultural trade potentials between SA and its counterparts?

The Model

☐ Given the nature of this study and the types of research questions that need to be addressed, the study will apply a gravity trade model because of the following reasons:

  ❖ Firstly, the gravity equation makes use of raw data without reliance on prior estimation of various elasticities, etc.

  ❖ Secondly, gravity equation can readily exploit panel data, and thereby capture dynamic aspects of trade policy impacts.

  ❖ Lastly, gravity equation singles out distance between countries as a significant explanatory variable, which is desirable given South Africa's location relative to its main trading partners.

☐ Gravity models could be estimated using various types of data, i.e. cross-section, time-series and panel data, depending on the type of research question to be addressed and are applicable to both static or dynamic modeling.

☐ They can use various combinations of macro-economic variables, such as GDP and populations with geographic distance, etc; to predict or forecast trade potentials. Hence, gravity equations have extensively been used in the empirical literature on international trade.

Dynamic gravity equations

$$\ln Y_{ijt} + \alpha_i + \sum_{p=1}^{n} \lambda_{jt} \ln Y_{ijt-p} + \beta_1 \ln GDPPC_{it} + \beta_2 \ln GDPPC_{jt} + \beta_3 REER_{it} + \gamma_n Z_{ijt} + \eta_{ij} + \varepsilon_{ijt} \text{------(1)}$$

$$\ln Y_{ijt} + \alpha_i + \sum_{p=1}^{n} \lambda_{jt} \ln Y_{ijt-p} + \beta_1 \ln GDPPC_{ijt} + \beta_3 REER_{it} + \gamma_n Z_{ijt} + \eta_{ij} + \varepsilon_{ijt} \text{------------(2)}$$

- $\ln Y_{ijt}$ in equation 1 represent the logarithms of real total agricultural exports from country i (in all cases "i" denotes South Africa) to country j (in all cases "j" denotes SA's trading partner) in year t and real total agricultural imports from country j to i in year t as well as their p-year lags.

- In equation 2, it represent the logarithm of the real bilateral trade (sum of total agricultural exports and imports) between country i and country j in year t, as well as their p-year lags.

- $GDPPC_{it}$ and $GDPPC_{jt}$ represent the logarithms of the real per capita gross domestic products for countries i and j in year t respectively.

- $GDPPC_{ijt}$ is the logarithm of the product of the countries' real per capita gross domestic products (i and j) in year t.

- $REER_{it}$ represents the real effective exchange rate of SA Rand to the base year 2000;

- Z_{ijt} represent dummy variables for trade agreements (i.e. SADC FTA, EU-SA FTA and WTO) and have been interacted the with GDPPC.

- η_{ij} represent time-invariant variables such as distance, common language, etc.

- Symbols γ, β and λ represent the coefficients associated with the above explanatory variable; and

- α and ε_{ijt} represent the constant and random error term respectively.

- Y and GDPPC values are expressed in constant 2000 US$.

Data

- [ ] The study used secondary data of panel nature, i.e. it includes both time-series and cross-sectional dimensions:
  - ✓ SA's agricultural trading partners, i.e. countries, were the cross-sectional units.
  - ✓ Time series dimensions were the years from 1990 to 2004.

- [ ] Time series data would be collected from the following sources:
  - ✓ Annual agricultural imports and exports values would be obtained from the database of Trade and Investment Policy Strategies (TIPS).
  - ✓ GDPPCs were obtained from the World Development Indicators database of the World Bank, International Financial Statistics Database of the International Monetary Fund (IMF) as well as from UN Statistical Database.
  - ✓ REER were obtained from the SA Reserve Bank.

- [ ] Other sources that would be explored for comparison purposes are:
  - ✓ National Statistical Agencies and Central Banks of the countries in question
  - ✓ International Trade Commission (ITC)
  - ✓ Eurostat of the European Commission
  - ✓ Food and Agriculture Organization (FAO)
  - ✓ Embassies of the concerned countries in South Africa.

EMPIRICAL RESULTS

☐ ADF test confirmed the stationarity of the variables, i.e. no pooled unit roots.

☐ AIC determined 3 lags for exports & trade and 2 lags for imports.

☐ Should the data be pooled or not?

✓ Chow test procedure was used to test the poolability of the panel data across the cross sections, i.e. same intercept for all cross sections.

✓ Null hypothesis was rejected meaning pooled OLS was inappropriate due to the uniqueness of the intercept for each cross section.

☐ How to treat time invariant unobservable heterogeneity across the cross sections?

✓ Hausman's test was used to test for fixed or random effects.

✓ Fixed effects or the "within estimator" was found to be appropriate.

White Heteroskedadasticity-Consistent Standard Errors and Covariance were imposed in order control heteroskedasticity.

There was no proof of serial correlation.

Variables	Trade Flows		
	Exports	Imports	Trade
lnY_{ijt-1}	0.340* (0.026)	0.373* (0.032)	0.412* (0.040)
lnY_{ijt-2}	0.094* (0.016)	0.059** (0.023)	0.068* (0.026)
lnY_{ijt-3}	0.016 (0.012)	-	0.058* (0.017)
$lnGDPPC_{it}$	6.229* (0.258)	10.668* (0.345)	-
$lnGDPPC_{jt}$	0.323* (0.081)	0.373* (0.050)	-
$lnGDPPC_{ijt}$	-	-	0.718* (0.042)
$REER_t$	0.0004*** (0.0002)	0.0040* (0.0003)	0.0004*** (0.0002)
$SADCFTA_{ijt}$	-0.031* (0.002)	-0.022* (0.005)	0.004* (0.001)
$EUSATDCA_{ijt}$	-0.0003 (0.0011)	-0.015* (0.002)	0.012* (0.001)
WTO_{ijt}	0.012* (0.002)	0.030* (0.002)	0.026* (0.002)
Observations	1428	1664	1308
Cross-Sections	119	128	109
R^2	0.999	0.997	0.999
p-value	0.005 (0.031)	-0.010 (0.027)	0.007 (0.034)

CONCLUSIONS

- Significant positive lagged dependent variables emphasized the importance of dynamics in trade.

- Income and exchange played significant positive roles in determining trade flows between SA and its trading partners.

- Implementation of SADC FTA led to a decline in agric imp and exp between SA and other SADC countries, but improved general trade.

- Implementation of EU-SA TDCA also led to a decline in agric imports between SA and EU countries, but improved trade in general. However, impacts on exports was insignificant.

- Implementation of WTO UR AoA led to a significant increase in all agric trade flows.

- WTO agreement played a more significant important role in influencing agricultural imports and exports between SA and its counterparts than SADC FTA and EU-SA TDCA.