Do Trade Agreements Increase Food Trade?

Irfan Mujahid and Matthias Kalkuhl

*Center for Development Research (ZEF), University of Bonn*
*Contact: imujahid@uni-bonn.de*


Copyright 2014 by Mujahid and Kalkuhl. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.
Do Trade Agreements Increase Food Trade?

Iman Maghidi and Matthias Kallbahn
Center for Development Research (ZEF), University of Bonn

Introduction

In addition to multilateral trade agreements under the WTO, the world has an enormous number of regional trade agreements. This study attempts to investigate the contribution of these multilateral and regional trade agreements to strengthening food security at the worldwide level.

An important key factor of food security is physical availability of food at all times in all places. Economic means to access food is meaningless if food is not available. However, Global imbalances occur since high population is not associated with high food production.

Food security at the global level is only possible when food can move freely from areas of surplus to areas of deficit. In the context of food price volatility, in which international trade distortions have been found to be among the main key drivers (Martin and Anderson, 2012; von Braun and Tadmor, 2012; World Bank, 2010), it is highly important to analyze whether trade agreements may contribute to reduce trade distortions and could bring the world to a free flow of food.

Empirical Strategy

Gravity model of international trade is used in the analysis. The model is developed in the large panel data setting and attempted to address some potential problems in the estimation including multilateral trade resistances, zero trade values and endogeneity. The database consists of 162 countries and 188 RTAs around the globe.

Basic formulation

\[ x_{ijt} = \alpha_{it} + \beta_{jt} + \sum_{k} \gamma_{ik} x_{ikt} + \delta_{ijt} RDA_{ijt} + \epsilon_{ijt} \]

Where \( Y_i \) and \( X_j \) are economic sizes represented by GDP of country \( i \) and country \( j \) respectively, \( Z \) is a vector of observable trade costs or promotions, WTO and RTA are dummy variables, \( I \) if the country pair are members of the WTO and whether the two countries are in the same RTA respectively, 0 otherwise.

The regressions include Ordinary Least Squares (OLS) with time invariant and time variant country fixed effects, OLS with bilateral country pair fixed effects, Poisson Pseudo Maximum Likelihood (PPML) and Instrumental Variable estimated using Two Stages Least Squares (2SLS).

Results

Using different specifications, the results show that on average the WTO and RTAs increase trade among the participant countries. However, while RTAs are found to increase food trade, the WTO is found to have negative impacts on food trade.

Conclusions

Food security at the worldwide level is possible when food can move freely from areas of surplus to areas of deficit. Yet, there are still asymmetries in the national and multilateral trade agreements, especially between developed and developing countries.

Only RTAs are found to have succeeded in increasing food trade among the members. However, although on average the WTO has negative implications on food trade, it has facilitated the developing countries more than the developed countries.

Background Information

Trade Agreements

![Graph showing Trade Agreements](image)

Market Access

![Graph showing Market Access](image)

Food Trade

![Graph showing Food Trade](image)

Developed versus developing countries

<table>
<thead>
<tr>
<th>WTO</th>
<th>Total Bilateral</th>
<th>WTO Total Bilateral</th>
</tr>
</thead>
<tbody>
<tr>
<td>WTO</td>
<td>0.104**</td>
<td>0.446***</td>
</tr>
<tr>
<td>WTO</td>
<td>0.0296</td>
<td>0.265***</td>
</tr>
<tr>
<td>WTO</td>
<td>0.0191</td>
<td>0.139</td>
</tr>
<tr>
<td>WTO</td>
<td>0.0431</td>
<td>0.104**</td>
</tr>
</tbody>
</table>

Selected RTAs

AFTA, PTA, COMESA, SACU and EU increase food trade among their member countries.

NAFTA is found to have negative impacts on food trade among its member countries.

Contact:

iman.maghidi@uni-bonn.de

Zentrum für Entwicklungsforschung
Center for Development Research
University of Bonn