Volume 33, Issue 4

Sectoral Aid-for-Trade and Sectoral Exports: A Seemingly Unrelated Regression Analysis

Shankar Ghimire
Maryville College

Debasri Mukherjee
Western Michigan University

Eskander Alvi
Western Michigan University

Abstract

This paper examines the relation between foreign aid that is targeted for export promotion of specific sectors in developing countries and sector specific exports of those countries. Three major sectors are studied - agriculture, manufacturing, and service. A major component of this study is the compilation of sector-wise disaggregated aid-for-trade (AfT) measures for both committed aid and disbursed aid based on aid data and guidelines from OECD's Creditor Reporting System. Our response variable is sectoral exports and primary covariate is sectoral-AfT or SAfT, and since exports in one sector can be correlated with exports in other sectors within a country, a seemingly unrelated regression (SUR) framework is used to capture the interdependence among various sectors in an explicit way, producing efficient estimates. This study analyzes annual export level data of 121 AfT-recipient countries over a period of sixteen years (1995-2010) in the case of commitment aid data and over a period of nine years (2002-2010) in the case of disbursement aid data. The results show that the regression estimates corresponding to sectoral-AfT are positive and statistically significant for all sectors.

1. Introduction

This study focuses on the regression of *sector specific exports* of developing countries on *sectoral aid-for-trade (SAfT)*. We consider three major sectors, namely agriculture, manufacturing, and services; since sectoral exports can very well be correlated with each other, a Seemingly Unrelated Regression (SUR) model proposed by Zellner (1962) is used to produce more efficient estimates. The four major contributions of this paper are: (i) construction of Sectoral aid-for-trade (AfT) or SAfT based on recommendations of the Organization for Economic Cooperation and Development's (OECD) Creditor Reporting System, (ii) separate use of disbursed AfT along with committed AfT, (iii) focus on the association between sectoral AfT and sectoral exports in particular, and (iv) the use of SUR method to capture inter-sectoral correlations.

Systematic discussion of AfT began in 2005 with the formation of a taskforce by the World Trade Organization (WTO) to pinpoint projects that would enhance export performance of developing countries. The committee submitted a report that outlined thirteen major categories of foreign aid that directly impact exports from developing countries. These aid categories range from improvement of trade policies to infrastructure development.[1] One of the major recommendations of the taskforce was to identify comparative advantage at the country level as well as sector level and allocate AfT accordingly to respective sectors (WTO, 2006). Since then various institutional reports have attempted to analyze the effectiveness of AfT; for example, WTO and OECD jointly publish a biennial progress report on the AfT initiative (OECD/WTO (2011)).[2] However, systematic empirical research (at the cross-country level) concentrating on the AfT-export relation for the developing countries is surprisingly limited. Morrissey (2006), Wagner (2003) and Lloyd (2000) focus on the effects of bilateral *aggregate* foreign-aid on bilateral exports, while Cali, Razzaque and te Velde (2008), in a case study, suggest how small and vulnerable Caribbean economies would benefit from AfT by reducing the cost of trading. Pettersson and Johansson (2011), using a broader sample of countries, examine the impacts of total bilateral AfT on total bilateral exports of developing countries. To our knowledge, the present study is the first attempt to analyze the nexus between *sector-wise AfT* and *sector-specific exports* of developing countries, while also capturing sectoral interdependence through the SUR analysis.

2. Data and Measuring Sectoral Aid-for-Trade

This study analyzes annual export data of 121 AfT-recipient developing countries over a period of 16 years (1995-2010), using the 'commitment' data on aid. However, it is recognized that commitment data can deviate from actual distribution of aid. [3] Therefore, we also use aid 'disbursement' data which are available over a period of 9 years (2002-2010). Our conclusions are robust to the use of both types of data, and they are stronger for the aid disbursement data. Although discussion on AfT began with a design to help the least developed countries, there are a number of middle-income countries benefitting as well. As such, this study considers countries categorized as low-income and middle-income by the World Bank.

---

[1] See Appendix A for a complete list of aid categories used for the construction of sectoral aid-for-trade measures.
[2] The reports mainly focus on descriptive statistical analysis, examples, and country-specific case studies.
[3] We are indebted to an anonymous referee for drawing our attention to this important point.

A major contribution of this study is the construction of Sectoral Aid-for-Trade (SAfT) measures, i.e. aid allocated for export promotion and development of agricultural, manufacturing, and service sectors, exclusively. These aid data are available at OECD's Creditor Reporting System (2012) under various categories but our study groups these diverse aid categories together to compose the SAfT measure. In the absence of any clear guidelines regarding their construction, this study proposes three possible measures of SAfT for each sector based on their potential scope: the narrowest measure includes the categories of aid that primarily influence their respective sectors *only*, a slightly broader measure adds aid categories that not only influence the respective sectors directly, but may also affect other sector(s), whereas the broadest measure includes aid categories that are important for exports in general**.** For example, the narrowest SAfT for the agricultural sector includes aid allocated for sub-categories such as agriculture, forestry, and fishery; the narrowest SAfT for the manufacturing sector includes aid allocated to industry, construction, transportation, communication, and energy; and the narrowest SAfT for service sector includes aid allocated to banking and business services, communication, energy, and tourism. The two broader measures of aid for each sector include additional aid categories ranging from trade policies to other infrastructure development. (See appendix A for details on each measure).

The export data are obtained from United Nation's Conference on Trade and Development (UNCTAD, 2012), and the World Development Indicators maintained by the World Bank (2011b). Agricultural exports consist of products such as crops, vegetable, fruit, poultry, dairy, fish, and meat. Manufacturing exports include leather products, textiles, electronics, machineries, transport equipments, and chemicals. Finally, service exports include sectors such as insurance, telecommunications, construction, and tourism.[4] Other control variables included in the analysis are per-capita value-added in corresponding sectors, financial development (using bank private credit to GDP ratio as a proxy), exchange rate, trade openness (using trade freedom as a proxy), and institutional variables, such as control of corruption and regulatory quality. Per-capita value-added and exchange rate are obtained from World Development Indicators (WDI), measure of financial development is obtained from Global Financial Development (GFD), and the institutional variables – control of corruption and regulatory quality - are obtained from Worldwide Governance Indicators (WGI) – all three databases being maintained by the World Bank (2011b, 2011a, 2011c). Finally, trade openness is obtained from Heritage Foundation (2012).

Appendix C presents the descriptive statistics for all the variables used in the analysis. Aid, exports, and value added by each sector are measured in real (2005) US dollar. These variables are reported in their natural log form. Exchange rates represent the value of individual currency per US dollar. The two institutional variables are produced by Kaufmann, Kraay, and Mastruzzi (2010) which measure the quality of institutions in the aid recipient countries. The control of corruption is defined as an index that "captures the perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption". Similarly, the regulatory quality is defined as an index that "captures the perceptions of the ability of the governments to formulate and implement sound policies and regulations that permit and promote private sectors development" (Kaufmann et al., 2010). Both of these variables range

---

[4] Appendix B presents a detailed list of sectors broadly defined for agricultural, manufacturing, and service exports each.

between -2.5 and +2.5, lower values indicating lower quality of institutions and vice versa. The measure for financial development reports the ratio of bank private credit to a country's GDP: the higher the ratio, the easier the availability of financial resources for private investment. Finally, trade openness is measured by trade freedom which incorporates factors such as import quotas, tariffs, voluntary export restraints, and customs restrictions. Additionally, the measure also takes into account export subsidies, government monopolies, government industrial policy, and other direct government interventions. So, this is a measure that captures both import and export openness.

3. Model Specification and Estimation Technique

For any given country, exports in a sector can be correlated with exports in other sectors and these sectoral exports are also likely to be affected by common macroeconomic shocks. The paper, therefore, uses a Seemingly Unrelated Regression (SUR) model as proposed by Zellner (1962) while regressing sectoral exports on SAfT. In our seemingly unrelated system of equations, we have three equations—one for each sector (agriculture, manufacturing, and service), and sector specific exports appear as the response variable for the corresponding equations. Also, for each equation, we have corresponding SAfT and sector-specific value-added as regressors. Additionally, we include some common macroeconomic variables in each equation. As such, sectoral aid and value added by each sector differ across equations in the system of SUR specification, while other control variables remain unchanged throughout the system of equations. The Breusch-Pagan (1980) Test of Independence rejects the null hypothesis of zero correlations across sectoral equations, with p-values around 0.000. Hence, Zellner's (1962) SUR estimation is an appropriate method to apply for the present study enabling us to obtain *efficient* estimates. Two sets of analyses are performed using, (i) SAfT based on 'commitment' data and (ii) SAfT based on 'disbursement' data. The corresponding regression model with α_i as a random effect appears in equation (1) below.

$$X_{it}^k = \lambda + \beta_1 SAfT_{it-1}^k + \beta_2 VA_{it}^k + \beta_3 TO_{it} + \beta_4 FD_{it} + \beta_5 XR_{it} + \beta_6 CC_{it} + \beta_7 RQ_{it} + \alpha_i + \varepsilon_{it}^k \quad (1)$$

Where, X_{it}^k, the response variable in our study represents the log of export of sector k from an aid recipient country *'i'* to the rest of the world at time *'t'*; *k=1, 2, 3* being the three sectors in our study. $SAfT_{it-1}^k$, the main regressor of interest denotes the log of sectoral Aid-for-Trade disbursed or committed to country *'i'* in period *'t-1'*, in sector *'k'*, and ε_{it}^k represents the idiosyncratic error. Other control covariates in the analysis are: the sector specific value added (VA), trade openness (TO), financial development (FD), the real exchange rate of domestic currency vis-à-vis US Dollar (XR), and finally control of corruption (CC) and regulatory quality (RQ) of the exporting country. A detailed explanation of the variables can be found in section 2 and the descriptive statistics is presented in appendix C.

While assessing aid-effectiveness, there is no denying the fact that aid can be endogeneous, because the disbursement-of-aid itself is often determined by the needs and/or the performances of the aid recipient countries.[5] However, it is also well recognized that finding a proper instrument for aid is very difficult and the literature often uses aid-lag to subdue the problem of endogeneity. See Dalgaard, Hansen, and Tarp (2004) where aid-lag has been tested as the best instrument for aid. Also see, for example, Alvi, Mukherjee and Shukralla (2008),

---

[5] We would like to thank an anonymous referee for bringing it to our notice.

Mukherjee and Kizhakethalackal (2013), where aid with one period lag (rather than current period aid) has been used to assess the impact of aid on the corresponding outcome/response variable under scrutiny. Keeping this issue in mind, we use SAfT variable with one period lag, (i.e., current period exports is regressed on one period lagged-aid, rather than current period aid), in order to *subdue* the problem of endogeneity. This is because current period exports are not likely to affect lagged-aid disbursement. However, aid that primarily facilitates production, policy and infrastructure is likely to impact exports with some delay. Nevertheless, there can still be some element of endogeneity and a detailed discussion of such issue, although of crucial importance, is beyond the scope of our study. For a robustness check, we also run our regressions considering aid in the same period as exports (instead of lagged aid) for both commitment and disbursement data, and our main conclusions do not alter – *that we find a high degree of association between sectoral aid-for-trade and sectoral exports*.

4. Empirical Results

The empirical results based on equation (1) are presented in Tables 1 and 2, for commitment aid data and disbursement aid data respectively. In Table 1, for example, the first half of the table presents the estimates based on the narrowest measure of SAfT for each sector; the second half of the table presents the results based on the broadest measure for each sector. The Sectoral-AfTs for all three sectors have positive and highly statistically significant coefficients in all cases. The empirical analysis is also performed using the middle measure, broader SAfT, but is not reported here for brevity; however the results do not differ from those obtained using the other two measures of SAfT.

As mentioned earlier, one of the concerns using commitment aid data is that the results may be biased because of the possibility of shifts in donor-recipient relationship between the time it is committed and when the aid is actually disbursed. In order to address this concern, we present the results obtained by using disbursement aid data in Table 2. The disbursement data produce more encouraging results than commitment data, as expected: the associated regression coefficients of SAfT are larger in most cases and they are all positive and statistically significant.

The coefficients associated with the control variables show somewhat mixed results depending on the measures of aid used; a detailed analysis of these control variables is beyond the scope of this paper. However, we find that the regression coefficients corresponding to Sectoral-AfT and sectoral value added are always positive and statistically significant across sectors, more so for SAfT when the disbursement-aid data are used and this conclusion is robust to the use of different measures of SAfT (narrow versus broad).

5. Discussion

Our analysis concludes that the regression coefficients of sectoral aid on sectoral exports are positive and highly statistically significant, indicating a high degree of *association* between sectoral aid and exports. Our conclusion is robust to several specifications, data and measures. Therefore, sectoral-aid-for-trade should be considered as an important policy variable while analyzing sectoral-exports behavior.

Appendix A: Construction of Sectoral-AfT using aid categories from Creditor Reporting System

	Broadest Measure	Broad Measure	Narrowest Measure
Aid for Agriculture	Transportation and Storage, Communication, Energy, Agriculture, Forestry, Fishing, Trade Policies and Regulations	Transportation and Storage, Agriculture, Forestry Fishing, Trade Policies and Regulations	Agriculture, Forestry, Fishing, Trade Policies and Regulations
Aid for Manufacturing	Transportation and storage, Communication, Energy, Forestry, Industry, Mineral resources and mining, Construction Trade policies and regulations	Transportation and storage, Communication, Energy, Forestry, Industry, Construction Trade policies and regulations	Transportation and storage, Communication, Energy, Industry, Construction Trade policies and regulations
Aid for Service	Transportation and Storage, Communication, Energy, Banking and financial services, Business and other services, Construction, Trade policies and regulations, Tourism	Communication, Energy, Banking and financial services, Business and other services, Construction, Trade policies and regulations, Tourism	Communication, Energy, Banking and financial services, Business and other services, Tourism

Appendix B: Construction of Sectoral Exports (Broadly Defined)

Agricultural Exports:

Food and live animals, Meat and meat preparations, Dairy products and birds' eggs, Fish, crustaceans, mollusks and preparations thereof, Cereals and cereal preparations, Vegetables and fruits, Sugar, sugar preparations and honey, Coffee, tea, cocoa, spices, and manufactures thereof, Feedstuff for animals, etc.

Manufacturing Exports:

Leather, leather manufactures and dressed fur-skins, Rubber manufactures, Cork and wood manufactures, Paper and paper manufactures, Textile yarn and related products, Articles of apparel & clothing accessories, Footwear, Professional and Scientific Instruments, Photo apparatus, optical goods, watches, and clocks, Non-metallic mineral manufactures, Machinery and transport equipment, Specialized machinery, Office machines and automatic data processing machines, Telecommunication and sound recording apparatus, Electrical machinery, apparatus and appliances, Road vehicles

Service Exports:

Communications, Construction, Computer Technology, Travel, Transportation, Insurance, Financial Services, Personal Cultural Recreational Services, Royalties and License Fees, Government Services, and Other Business Services: operational leasing services, other trade related services, technical services, miscellaneous.

Appendix C: Descriptive Statistics

	Variable	Mean	SD	Min	Max
	Agricultural Exports	19.50845	2.375389	12.81487	28.65891
	Manufacturing Exports	20.1782	2.837106	12.6005	28.32308
	Service Exports	20.21768	1.827941	15.04667	25.86493
	A_Commit_Broadest	16.86278	2.25204	8.268145	26.74409
	A_Commit_Broader	16.43975	2.247881	8.70251	25.22548
	A_Commit_Narrowest	15.85316	2.048098	8.699514	24.81379
1995 - 2010 Data	M_Commit_Broadest	16.28462	2.613162	7.529975	27.13799
	M_Commit_Broader	16.25599	2.610733	8.172039	27.13799
	M_Commit_Narrowest	16.16031	2.651477	8.172039	27.13799
	S_Commit_Broadest	16.36827	2.630474	7.296716	26.6331
	S_Commit_Broader	15.73375	2.618952	6.257668	26.57771
	S_Commit_Narrowest	15.66554	2.660367	6.257668	26.57771
	A_Dis_Broadest	17.32406	1.680371	9.994048	21.36265
	A_Dis_Broader	16.98605	1.705622	9.994048	20.67398
	A_Dis_Narrowest	16.21259	1.648419	9.041718	19.93542
2002 - 2010 Data	M_Dis_Broadest	16.95166	1.959554	8.749695	21.6431
	M_Dis_Broader	16.91024	1.960054	8.749695	21.35268
	M_Dis_Narrowest	16.85414	1.984021	8.749695	21.35268
	S_Dis_Broadest	16.97993	2.00308	9.259968	21.39196
	S_Dis_Broader	16.18688	2.059909	8.699514	21.26274
	S_Dis_Narrowest	16.10884	2.085114	6.494451	21.26273
	A_Value_Added	5.42787	0.9243611	1.943325	14.66374
	M_Value_Added	5.137554	1.448738	1.76026	14.06243
	S_Value_Added	6.575188	1.371856	2.792035	15.94872
	Trade Openness	61.52677	16.94953	0	95
	Exchange Rate	4.139435	2.53774	0.3551887	10.81656
	Corruption Control	-0.4893359	0.6305758	-2.489213	1.563225
	Regulatory Quality	-0.4839232	0.711476	-2.448508	1.587131
	Financial Development	26.79322	24.13233	0.190178	165.8018

Abbreviations: A=agriculture, M=manufacturing, S=service, Commit = commitment, Dis = Disbursement

Table:1 Dependent Variables: Sectoral Exports. Aid type: COMMITMENT (Lagged).
Estimation method: SUR. Panel Study. (1995 - 2010)

	Narrowest Measure of SAfT			Broadest Measure of SAfT		
	Agriculture	Manufacturing	Service	Agriculture	Manufacturing	Service
Trade_Openness	-0.0112***	-0.00298**	0.0241***	-0.00217	-0.00318***	0.00752***
	(0.000910)	(0.00129)	(0.00130)	(0.00143)	(0.00114)	(0.00127)
Exchange_Rate	-0.288***	-0.0462***	0.0381***	-0.105***	-0.113***	0.0748***
	(0.00756)	(0.00976)	(0.0101)	(0.0118)	(0.00904)	(0.0101)
Corruption_Control	-0.238***	-1.606***	-2.485***	0.109*	-0.295***	-1.957***
	(0.0411)	(0.0593)	(0.0581)	(0.0648)	(0.0505)	(0.0544)
Regulatory_Quality	0.244***	0.384***	0.852***	-0.333***	-0.400***	0.0484
	(0.0412)	(0.0632)	(0.0575)	(0.0652)	(0.0559)	(0.0562)
Fin_Development	-0.00200**	-0.00552***	-0.00388***	0.00895***	0.00464***	-0.0214***
	(0.000817)	(0.00115)	(0.00122)	(0.00125)	(0.000987)	(0.00114)
Agri_Value_Added	1.285***			1.273***		
	(0.0195)			(0.0286)		
Man_Value_Added		0.977***			1.250***	
		(0.0184)			(0.0166)	
Serv_Value_Added			0.639***			1.085***
			(0.0192)			(0.0207)
A_Com_Narrowest	0.285***					
	(0.00567)					
M_Com_Narrowest		0.341***				
		(0.00648)				
S_Com_Narrowest			0.270***			
			(0.00627)			
A_Com_Broadest				0.252***		
				(0.00885)		
M_Com_Braodest					0.342***	
					(0.00656)	
S_Com_Broadest						0.258***
						(0.00717)
Observations	1815			1815		

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
A = Agricultural AfT, M = Manufacturing AfT, S = Service AfT, Com = Commitment

Table:2 Dependent Variables: Sectoral Exports. Aid type: DISBURSEMENT (Lagged).
Estimation method: SUR. Panel Study. (2002 - 2010)

	Narrowest Measure of SAfT			Broadest Measure of SAfT		
	Agriculture	Manufacturing	Service	Agriculture	Manufacturing	Service
Trade_Openness	0.00285**	-0.0303***	-0.00761***	-0.00815***	-0.0232***	0.0142***
	(0.00114)	(0.00171)	(0.00154)	(0.00193)	(0.00143)	(0.00184)
Exchange_Rate	-0.271***	0.0489***	0.0137	-0.404***	-0.127***	-0.0841***
	(0.00884)	(0.0127)	(0.0118)	(0.0151)	(0.0114)	(0.0141)
Corruption_Control	0.893***	-1.822***	-0.273***	0.747***	-0.605***	-0.808***
	(0.0482)	(0.0716)	(0.0644)	(0.0802)	(0.0610)	(0.0756)
Regulatory_Quality	-2.570***	0.243***	-0.885***	-2.669***	-1.031***	-0.695***
	(0.0584)	(0.0857)	(0.0741)	(0.0874)	(0.0685)	(0.0830)
Fin_Development	0.00481***	0.0179***	0.0134***	0.00381**	0.0113***	0.0118***
	(0.000815)	(0.00125)	(0.00115)	(0.00160)	(0.00121)	(0.00141)
Agri_Value_Added	1.049***			1.460***		
	(0.0262)			(0.0331)		
Man_Value_Added		1.475***			1.265***	
		(0.0239)			(0.0155)	
Serv_Value_Added			1.007***			0.922***
			(0.0216)			(0.0252)
A_Dis_Narrowest	0.536***					
	(0.00783)					
M_Dis_Narrowest		0.430***				
		(0.00931)				
S_Dis_Narrowest			0.465***			
			(0.00879)			
A_Dis_Broadest				0.331***		
				(0.0118)		
M_Dis_Braodest					0.429***	
					(0.00941)	
S_Dis_Broadest						0.285***
						(0.0109)
Observations	968			968		

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
A = Agricultural AfT, M = Manufacturing AfT, S = Service AfT, Dis = Disbursement

References:

Alvi, E., Mukherjee, D. and E. K. Shukralla (2008) "Aid, Policies and Growth in Developing Countries: A New Look at the Empirics" *Southern Economic Journal* **74(3)**, 693-706.

Bruesch, T. and A. Pagan (1980) "The Lagrange Multiplier Test and its Application to Model Specification in Econometrics" *The Review of Economic Studies* **47(1)**, 239-253.

Cali, M., Razzaque , M. and D. te Velde (2011) "Effectiveness of Aid for Trade in Small and Vulnerable Economies" *Economic Paper* **91**.

Dalgaard C.J., Hansen, H. and F. Tarp (2004) "On the empirics of foreign aid and growth" *Economic Journal* **114**, F191-F216.

Heritage Foundation (2012) *Economic Freedom Index* http://www.heritage.org/index/ Accessed May 2012.

Kaufmann, D., Kraay, A. and M. Mastruzzi (2010) "The Worldwide Governance Indicators: Methodology and Analytical Issues" World Bank Policy Research Working Paper No. 5430.

Lloyd, T., McGillivray, M., Morrissey O. and R. Osei (2000) "Does Aid Create Trade?" *European Journal of Development Research* **12(1)**, 107-123.

Morrissey, O. (2006) "Aid or Trade, or Aid and Trade?" *The Australian Economic Review* **39(1),** 78-88.

Mukherjee, D. and E. T. Kizhakethalackal (2013) "The Empirics of Health-aid, Education and Infant Mortality: A Semiparametric Study" *Applied Economics* **45(22)**, 3137-3150.

OECD/WTO (2011) "Aid for Trade at a Glance 2011: Showing Results" http://dx.doi.org/10.1787/9789264117471-en Accessed May 2012.

Organization for Economic Co-operation and Development (2006) "Aid for Trade: Making it Effective" *The Development Dimension,* Paris.

Organization for Economic Co-operation and Development (2012) *Creditor Reporting System.* http://stats.oecd.org/Index.aspx?DatasetCode=CRSNEW Accessed May 2012.

Pettersson, J. and L. Johansson (2011) "Aid, Aid for Trade, and Bilateral Trade: And Empirical Study" *The Journal of International Trade and Economic Development* OI 10(09638199.2011), 613998.

United Nations Conference on Trade and Development (UNCTAD) (2012) *UNCTADSTAT* http://unctadstat.unctad.org/ReportFolders/reportFolders.aspx?sCS_referer=&sCS_ChosenLang=en Accessed May 2012.

Wagner, D. (2003) "Aid and Trade – An Empirical Study" *Journal of the Japanese and International Economics* **17**, 153-173.

World Bank (2011a) *Global Financial Development (GFD)* Washington, D.C. http://databank.worldbank.org/data/views/variableselection/selectvariables.aspx?source=global-financial-development Accessed May 2012.

World Bank (2011b) *World Development Indicators (WDI)* Washington, D.C. http://data.worldbank.org/data-catalog/world-development-indicators Accessed May 2012.

World Bank (2011c) *Worldwide Governance Indicators (WGI)* Washington, D.C. http://databank.worldbank.org/data/views/variableselection/selectvariables.aspx?source=worldwide-governance-indicators Accessed May 2012.

World Trade Organization (2006) "Recommendations of the Task Force on Aid-for-Trade". WT/AFT/1 – 06-3617, Geneva.

Zellner, A. (1962) "An Efficient Method of Estimating Seemingly Unrelated Regressions and Tests for Aggregation Bias" *Journal of the American Statistical Association* **57(98)**, *348 – 36.*