

Do liberal trade policies promote trade openness?

Turan Subasat

Department of Economics, Izmir University of Economics, Izmir, Turkey and Department of Economics and International Development, The University of Bath, Bath, UK

Although trade liberalization and trade openness are assumed to be strongly associated with each other and often used interchangeably, the empirical evidence has not been forthcoming. This article is an attempt to fill this gap. By investigating the link between trade openness and trade restrictions, it argues that while a negative link between various types of trade restrictions and trade openness is evident, the relationship is weak, statistically not always significant and there is no clear evidence that the removal of trade restrictions (trade-liberalization) invariably leads to improved trade openness.

Keywords: Trade policy; openness; liberalization

Introduction

Trade policy debates involve three related but distinct issues. The first is whether import-substitution and export-promotion policies are substitutes or are complements. The second is whether trade openness¹ and/or the promotion of exports leads to superior economic performance. The third is whether trade openness is necessarily associated with trade-liberalization² and a reduction in the role of the state. This article is concerned with the last of these, that is, whether trade openness requires trade liberalization as it is often assumed.

Despite the relatively recent development experiences of a number of Asian countries which adopted a wide range of interventionist policies to promote trade, liberal trade policies and trade openness are still assumed to be strongly linked, and many authors use these terms interchangeably. Trade liberalization is often perceived as the ultimate way to promote international trade. It is a common practice in this literature for researchers to estimate a regression between exports and economic performance and interpret the results as evidence for the benefits of trade liberalization. Similarly, many researchers estimate correlations between alternative measures of trade policies and economic performance by making an implicit assumption about the link between trade policies and trade performance.

David Dollar (1992), for example, in his widely quoted paper, created an index of trade liberalization by comparing actual and expected average prices for 95 developing countries and used this index in a simple regression to argue that more liberal economies grow faster. Dollar's work has been criticized for its theoretical weaknesses and empirical inconsistencies³ but what is interesting is that although there is a very strong correlation between his index and economic performance, there is no correlation between the index and trade performance (Subasat 2003).

Several arguments have been produced as to why trade liberalization promotes economic growth. Amongst the most common are increasing specialization and efficient resource allocation, greater competition, an increase in the flow of knowledge and investment, technological progress, a faster rate of capital accumulation, technical progress, a reduction in transaction costs

*Email: ecsts@bath.ac.uk

and rent seeking. Even if the above arguments are assumed to be accurate, such benefits are unlikely to materialize if trade liberalization does not lead to higher trade openness. Therefore even if trade openness leads to superior economic performance, whether trade liberalization leads to superior trade performance still needs to be proven (Dean et al. 1994; Pritchett 1996).

Theoretically a link between liberal trade policies and trade openness is expected from neo-liberal as well as heterodox perspectives, but for different reasons and to different degrees. The neo-liberal narrative derives from the traditional comparative advantage trade theory. In this two-sector model, starting from a protectionist position, the liberalization of trade will increase exports and imports by allowing specialization based on comparative advantage. In this view trade liberalization and export-promotion are synonymous, and not only that trade openness requires trade liberalization but also that trade liberalization necessarily results in trade openness.

It may be odd to assume that liberalization of a country's own imports, that is, reducing its protectionist policies, will increase its exports. A crucial assumption of this theory is the full employment of all resources which implies that exports and import-substituting production compete over limited resources. Therefore it would be impossible to increase exports without reducing the import-substituting production. Resources must be removed from relatively unproductive sectors and be employed in sectors where comparative advantage exists. As trade liberalization and international competition eliminates uncompetitive sectors, price adjustments ensure that sectors with comparative advantage prevail. In this view import-substitution is an inward looking policy with state intervention whereas export-promotion is an outward looking policy requiring liberal trade policies. These two policies are mutually exclusive and conflicting policies that policy makers must choose between and, liberal and outward looking policies are superior to interventionist and inward looking policies.

Heterodox perspectives offer a wider range of trade policies in which it is plausible that outward orientation can be achieved via liberal and/or non-liberal trade policies.⁴ In this view there is no *direct* and one way causal link between trade-liberalization and trade performance. Therefore, measuring the impact of actual trade on economic performance is a valid exercise but the same cannot be said for trade policy. The only meaningful exercise would be to investigate the impact of trade policy on trade performance, since the main impact of trade-liberalization on economic performance is transmitted through its impacts on trade openness. Therefore the question becomes whether trade-liberalization promotes trade openness and whether trade openness promotes economic growth. These two questions should be answered separately. From this point of view, any attempt to regress the measures of trade-liberalization on economic growth is inappropriate. The separation of outward-orientation from trade-liberalization also requires a separation of their different measures. In other words the incidence-based policy measures such as tariff and non-tariff barriers should be separated from outcome-based openness measures such as trade intensity.

From the heterodox perspective a somewhat weaker positive correlation between liberal trade policies and trade openness is expected, not because trade-liberalization inevitably leads to trade openness but both trade policies and trade openness are determined by overall economic performance. For example, the 'stage of development theory of comparative advantage' argues that as economic development takes place and markets become more efficient, this well-functioning economy facilitates greater penetration into world markets. As countries become internationally more competitive, they tend to adopt a more neutral policy stance with respect to trade (Yaghmaian 1994). Moreover countries tend to respond to internal and external shocks by introducing more interventionist policies. For example, a decline in exports may require more interventionist policies. Although a positive correlation between trade openness and trade liberalization is not surprising, the causality may be from trade performance to trade liberalization.

Despite a large empirical literature, the impacts of trade on economic performance remain controversial.⁵ The relationship between liberal trade policies and trade performance, however, has not been adequately researched. As Santos-Paulino (2005, 791) argues '[i]t is assumed *ex ante*, rather than tested, that 'more liberalised economies' experience faster growth of exports, and hence, faster economic growth'. Indeed only a very limited number of researchers have investigated the link between trade liberalization and growth of exports and no one has investigated the link between trade policies and trade openness.

Krueger (1978) econometrically tested the impact of trade liberalization (measured by the real effective exchange rate) on exports and concluded that lower real effective exchange rates had a positive impact on non-traditional exports (traditional exports were unaffected) and real exchange rate changes were more important than trade liberalization. Balassa (1982), however, divided countries into four categories in terms of their trade regimes and argued that countries with more liberal trade regimes experienced faster exports growth rates. Harrigan and Mosley (1991) argued that liberalization and exports are positively related. Greenaway and Sapford (1993, 1994) adopted time-series analysis and argued that there is limited evidence on how trade liberalization influences output growth via export expansion. Bleaney (1999) estimated an export demand function for 10 Latin American countries and found a positive link between liberalization and exports. In a series of articles Santos-Paulino (2002a, 2002b, 2004, 2005) and Santos-Paulino and Thirlwall (2004a and 2004b) confirmed that trade liberalization has a significant impact on export and import performance in a selection of developing countries. They argued, however, that trade liberalization has worsened the balance of payments, because imports have increased more rapidly than exports. The same point is reiterated by Morrissey (2005).

Trade policy and trade performance

This article aims to contribute to this very limited literature by investigating whether more liberal economies are also more open. This can be done by estimating a regression between trade intensity (a measure of trade openness) and alternative measures of trade barriers such as tariffs, non-tariff barriers and parallel market premium. If trade barriers are a major deterrent to trade openness, a negative and statistically highly significant correlation would be expected. Trade intensity, however, is determined not only by trade policies but also by structural characteristics of countries, such as the size of domestic markets, natural endowments and distance to the major export markets. Therefore such structural characteristics should be taken into account and trade intensity should be adjusted.

Earlier literature used a number of measures to account for the structural characteristics of countries. Heitger (1987) adjusted trade intensity for market size and took the residuals from the regression as the 'openness' index. In a similar regression, Subasat (2002) used the share of manufacturing value-added in total national value-added, the ratio of oil and mineral trade to total gross domestic product (GDP), transport cost and population. Skipton and Lawson (2005) adjusted trade intensity with the working age population, geographic size, the extent of coastline, whether the countries are landlocked and a distance adjusted demand scalar as a measure of a country's relative proximity to the concentration of world demand.

This article expands the above work by adding a number of new variables which increase the explanatory power of the trade intensity regression. The following regression is estimated separately for export intensity (share of exports in GDP), import intensity (share of imports in GDP) and trade intensity (share of exports and imports in GDP). The residuals from the regressions are saved as the trade openness or structurally adjusted trade intensity (SATI) indexes. A second set of regressions between the SATI indexes and alternative measures of trade barriers are estimated to establish whether trade barriers significantly reduce trade openness.

$$\text{Trade Intensity} = f(\text{population} + \text{GDPpc} + \text{land area} + \text{transport cost} + \text{coastline} + \text{tourism} + \text{oil} + \text{manufacture} + X/M + \text{FDI} + \text{dummy variables})$$

where *Population*, *GDPpc* and *land area*: *population* denotes total population, *GDPpc* denotes per capita gross domestic product and *land area* denotes land area in square kilometres. These variables are used as measures of market size which is important for economies of scale. Countries that have large domestic markets tend to have lower trade intensity, because their companies can make use of economies of scale to grow rapidly. Companies in small economies, however, need external markets to expand. Thus the larger an economy is, the smaller will its share be of exports in total GDP.

Transport cost and coastline

The transport costs involved in trading are an important determinant of a country's export orientation. In structural terms, long distances to export markets and poor physical infrastructure restrain the ability to trade. To capture these aspects of trade the average cif/fob ratio of the three major export markets of each country is therefore used. This is obtained from the International Monetary Fund's (IMF's) *Direction of Trade Statistics*. Exporting countries report their free on board value (fob) to their trade partners and importing countries report the value of imports which include carriage, insurance and freight (cif). The divergence in price between them is a measure of transport cost. Unfortunately the available data are not very reliable. Therefore, transport cost is calculated only for 1995 and it is assumed that relative transport cost would not radically change between the countries during the time period used. *Coastline* denotes the total coastline of countries in kilometers and is an alternative measure of transport cost. Landlocked countries with zero coastline are expected to have higher transport cost.

Tourism

This denotes the share of international tourism receipts in total GDP. Countries that are endowed with natural beauty and historical heritage attract significant numbers of tourists which increase their trade openness.

Oil

This denotes the ratio of oil and mineral trade (exports and imports) to total GDP. It can be argued that for large producers of raw materials such as oil and minerals, a certain degree of trade is not a policy option but is inevitable. The same is true for raw material-importing countries. For a country that is just self-sufficient in terms of raw materials, trade becomes more of a policy option.⁶

Manufacture

This is the share of manufacturing value-added in total national value-added. This variable measures the structural change in an economy according to the 'stage of development' theory. This theory argues that a country's ability to export depends on its ability to produce commodities that are internationally competitive. Thus, one might expect a prosperous economy with a strong manufacturing sector to be relatively more open. Before the share of manufacturing in total value-added was selected as a variable in this regression, separate regressions were estimated for the share of agriculture and services in total value-added. They were negatively correlated with trade

intensity, indicating that low-income agricultural commodity producers and high-income countries⁷ tend to have lower trade intensity. However, in this case these variables were omitted because their coefficients were insignificant.

X/M (Net exports)

This denotes the ratio between exports and imports. It is an interesting variable which is proven to be highly significant and may capture a number of structural and policy influences such as a wide range of external income sources (that is, income from abroad – compensation of employees and property income, foreign borrowing and aid), policies to push exports (export subsidies and real exchange rate policies), as well as external shocks which may cause trade imbalances.

FDI (foreign direct investment)

Countries that attract more foreign direct investment tend to be more open in terms of trade for two reasons. Firstly, multinational companies (MNCs) may import their inputs and export their products. Secondly, MNCs may prefer more open countries in order to import and export more freely.

Dummies

To account for country specifics a wide range of dummy variables are included in the regression: income group dummy variables for low income, lower middle income, upper middle income and high income countries; regional dummy variables for Sub-Saharan Africa, Latin America, Transition Countries, East Asia; dummy variables for countries with similar types of exports such as manufactured commodity exporters, high technology commodity exporters, agricultural commodity exporters; year dummy variables for 1990, 1995, 2000, 2001 and 2002; and country dummy variables for Australia, Belgium, Hong Kong, Nigeria, Malaysia.

The regression results are presented in Table 1. One hundred and twenty countries (see Table A in the Appendix) and six years (1985, 1990, 1995, 2000, 2001 and 2002) are included in unbalanced pooled data. The years are selected based on the availability of trade restrictions data. The results for the dummy variables, which are mostly significant, are excluded from the table.⁸ Apart from transport costs, the coefficients are significant and they explain up to 86 % of trade openness. Most coefficients have the expected signs. Population, land area, and transport costs are negatively correlated with all the measures of trade openness, and coastline, tourism, manufacture and FDI are all positively correlated. The oil variable is positively correlated with all the measures of trade openness but it is highly significant for export intensity whereas insignificant for import intensity. Per capita GDP is positively correlated with export intensity but negatively correlated with import intensity which implies that as countries develop they tend to export relatively more and import relatively less. This may have implications for the net exports variable (X/M) which is also positively correlated with export intensity and negatively correlated with import intensity.⁹ A multicollinearity may be suspected for these two variables. The correlation matrix of the above variables and the variables of trade restriction is presented in Table 2. The correlation coefficients (including the correlation coefficient between per capita GDP and net exports) are relatively low for most of the variables but even when they are high (such as 67 % correlation between land area and population) they are not a matter of concern. Although due to multicollinearity some coefficients may become insignificant, this will have no impact on the residuals that are saved from these regressions as SATI index. It is beyond the scope of this study to fully discuss these results as the independent variables are included in the above regression only to achieve a more accurate SATI index.

Table 1. Regressions to calculate structurally adjusted trade intensity indexes.

	X/GDP	M/GDP	X+M/GDP
Constant	-2.42 [-2.08] **	-3.44 [-1.59]	-3.87 [-1.45]
Population	-0.14 [-6.14] *	-0.15 [-6.07] *	-0.14 [-6.14] *
GDP pc	0.03 [1.74] **	-0.07 [-3.55] *	-0.02 [-1.06]
Land area	-0.05 [-4.72] *	-0.05 [-4.61] *	-0.05 [-4.69] *
Transport cost	-0.02 [-1.24]	-0.02 [-1.26]	-0.02 [-1.24]
Coastline	0.01 [4.14] *	0.01 [3.96] *	0.01 [4.05] *
Tourism	0.08 [8.24] *	0.07 [8.07] *	0.07 [7.50] *
Oil	0.19 [11.8] *	0.01 [0.79]	0.08 [5.51] *
Manufacture	0.06 [2.52] **	0.06 [2.43] **	0.06 [2.39] **
X/M	0.91 [20.8] *	-0.09 [-2.06] **	0.34 [7.96] *
FDI	0.09 [9.36] *	0.09 [9.39] *	0.09 [9.33] *
R-bar-sq	0.862	0.811	0.823
F-test	109.40 *	75.24 *	81.25 *
DW	2.10	2.11	2.10
DF	629	629	629
Normality	3.166	5.68	5.46
Heteros	1.72	1.54	1.91
RESET	2.98	3.26	3.05

Notes: *significant at the 1% level; **significant at the 10% level.

The dependent variables are export intensity, import intensity and trade intensity. Variables are in logarithmic form. Figures in parentheses are t-statistics. DF: degree of freedom. One hundred and twenty countries (see Table A in the Appendix) and six years (1985, 1990, 1995, 2000, 2001 and 2002) are included in unbalanced pooled data. The regressions pass all diagnostic tests (functional form, normality and heteroscedasticity).
Sources: World Bank (2003) and UNCTAD (2004).

Trade restriction measures could also be included in these regressions but separate regressions are preferred for two reasons. First, a number of different combinations of trade restriction measures will be included in the second regression, as including these measures in the first regression would overcrowd the results table. Secondly, limited data is available for some of the trade restriction variables and this will not only reduce the degree of freedom but it may also distort the relationship between trade intensity and the other variables in the first regression. Nevertheless, the trade restriction variables were included in the first regression to check the consistency of the results. Although these results are not reported here, the consistency of results is confirmed.

Table 2. List of trade restriction measures.

1	Tax	Revenue from taxes on international trade as a percentage of exports plus imports.
2	Tariff	Mean tariff rate.
3	SD	Standard deviation of tariff rates.
4	PM	Difference between official exchange rate and parallel market rate.
5	T&T	Composite index of 1 and 2
6	T&T&SD	Composite index of 1, 2 and 3
7	Hidden Barriers (HB)	Hidden import barriers – no barriers other than published tariffs and quotas.
8	Import cost (IC)	Costs of importing
9	HB & IC	Regulatory Trade Barriers. (Composite index of 7 and 8)

Table 3. Matrix of bivariate correlations among the set of explanatory variables

	XGDP	MGDP	XMGDP	Popu	Land	Coastline	Tour	Trans	Oil	Manu	GDP pc	X/M	FDI	Tax	Tariff	SD	T&T	T&T&SD	HB	IC	HB & IC
MGDP	0.92	1																			
XMGDP	0.98	0.98	1																		
Popu	-0.55	-0.58	-0.66	1																	
Land	-0.60	-0.66	-0.64	0.67	1																
Coastline	-0.09	-0.16	-0.13	0.22	0.15	1															
Tour	0.50	0.59	0.55	-0.48	-0.38	-0.11	1														
Trans	-0.13	-0.06	-0.09	-0.10	0.15	-0.11	0.09	1													
Oil	-0.24	-0.35	-0.29	0.09	0.40	0.04	-0.19	0.13	1												
Manu	0.02	-0.03	-0.01	0.19	0.03	-0.00	-0.10	-0.25	-0.20	1											
GDPpc	0.26	0.06	0.16	-0.17	-0.16	0.05	-0.08	-0.51	-0.17	0.27	1										
X/M	0.31	0.10	0.21	0.09	-0.01	0.10	0.03	0.20	-0.13	0.04	-0.22	1									
FDI	0.54	0.57	0.57	-0.39	-0.32	-0.15	0.49	-0.02	-0.16	-0.11	0.13	-0.03	1								
Tax	-0.37	-0.28	-0.33	0.14	0.21	-0.04	-0.07	0.33	0.34	-0.31	-0.67	0.12	-0.22	1							
Tariff	-0.41	-0.38	-0.40	0.21	0.34	-0.05	-0.12	0.17	0.31	0.13	-0.39	0.02	-0.36	0.56	1						
SD	-0.27	-0.26	-0.27	0.10	0.31	0.06	-0.07	0.18	0.26	0.18	-0.28	0.01	-0.38	0.30	0.77	1					
T&T	-0.30	-0.21	-0.26	0.12	0.13	0.03	-0.06	0.26	0.26	-0.35	-0.68	0.18	-0.27	0.81	0.49	-0.29	1				
T&T&SD	-0.22	-0.14	-0.19	0.12	0.10	0.05	-0.05	0.26	0.20	-0.24	-0.64	0.21	-0.30	0.73	0.53	0.46	-0.90	1			
HB	-0.35	-0.24	-0.30	0.25	0.24	0.02	-0.07	0.47	0.29	-0.13	-0.75	0.15	-0.23	0.60	0.41	0.25	-0.48	-0.41	1		
IC	-0.05	-0.08	-0.06	-0.03	0.10	-0.13	0.01	0.17	0.22	-0.26	-0.22	0.15	-0.03	0.26	0.12	0.08	-0.21	-0.18	-0.16	1	
HB & IC	-0.38	-0.28	-0.33	0.21	0.27	-0.03	-0.08	0.50	0.35	-0.23	-0.80	0.19	-0.23	0.69	0.45	0.27	-0.60	-0.51	-0.92	-0.44	1
PM	-0.11	-0.12	-0.12	0.17	0.09	0.08	-0.21	0.04	0.07	0.00	-0.19	0.13	-0.14	0.13	0.13	0.09	-0.26	-0.33	-0.09	-0.01	-0.09

Notes: XGDP: share of exports in GDP, MGDP: share of imports in GDP, XMGDP: share of exports and imports in GDP; Popu: total population, Land: total land area in square kilometers, Coastline: total coastline in kilometers, Tour: International tourism receipts % of total exports, Trans: transport cost, Oil: the ratio of oil and mineral trade to total GDP, Manu: share of manufacturing value-added in total national value-added, GDP pc: per capita GDP, X/M: ratio of exports to imports (net exports), FDI: foreign direct investment, Tax: revenue from taxes on international trade as a percentage of exports plus imports, Tariff: mean tariff rate, SD: standard deviation of tariff rates, PM: difference between official exchange rate and parallel market rate, T&T: composite index of Tax and Tariff, T&T&SD: composite index of Tax, Tariff and PM, HB: hidden import barriers, IC: costs of importing, HB & IC: composite index of HB and IC. It should be noted that there is a negative correlation between the actual data and the ratings as, for example, high (low). International trade tax revenues as a percentage of the trade sector are given low (high) ratings. For consistency, the signs of the coefficients for the ratings were changed.

In the second stage a number of regressions between SATI indexes and the following trade restriction measures are estimated:

The trade restrictions data comes from Gwartney and Lawson (2005) the *Economic Freedom of the World* report published by the Fraser Institute. The economic freedom index uses 38 different components to rate 120 countries on a zero-to-ten basis. The index ranks countries under five general headings: size of government, legal structure and security of property rights, access to sound money, freedom to trade internationally, and regulation of credit, labour and business. The 'Freedom to Trade Internationally' section is divided into a further five categories: taxes on international trade (revenue from taxes on international trade as a percentage of exports plus imports, mean tariff rate and standard deviation of tariff rates); regulatory trade barriers (hidden import barriers, costs of importing); actual size of trade sector compared to expected size; difference between the official exchange rate and the parallel-market rate; international capital market controls (access to foreign capital markets and foreign access to domestic capital markets, restrictions on the freedom of citizens to engage in capital market exchange with foreigners). The data is available for 120 countries (see Table A in the Appendix) and for the following years: 1970, 1975, 1980, 1985, 1990, 1995, 2000, 2001 and 2002.

Despite its wide use in academic publications, this index has been subject to many criticisms. It becomes particularly vulnerable as 38 different indicators are aggregated into a single index. This article will not discuss these weaknesses. To minimize such problems the original data is used when it is available. *Taxes on international trade* and *regulatory trade barriers* are the most relevant variables for this work. The data for *regulatory trade barriers* is unavailable for the years before the year 2000. The *difference between the official exchange rate and parallel-market rate* is also included in some of the regressions. *Actual size of trade sector compared to expected size* is similar to our SATI index but excludes many important variables. Most of the variables are in a rated form on a 0-10 basis, 0 signifying the highest level of trade barriers and 10 signifying the lowest level of trade barriers. The actual data as well as the ratings is available for *revenue from taxes*, *mean tariff rate* and *standard deviation of tariff rates*. As the rating of categories involves a degree of arbitrariness the actual data is preferred for these variables. The actual data for the rest of the variables is unavailable. And therefore their ratings are used. The composite indexes of some of the variables based on the ratings are also employed. These are T&T (tax and tariff), T&T&SD (tax, tariff and standard deviation) and HB & IC (hidden barriers and import cost).

Multicollinearity between the trade restriction variables and the independent variables that were used in the first regression could potentially be a matter of concern. Table 2 shows, however, that a strong correlation exists only for per capita GDP which is negatively correlated with most trade restriction variables. This implies that high income countries are more liberal in supporting the 'stage of development theory of comparative advantage' mentioned earlier. Such strong correlations however can make some of the coefficients insignificant in the second set of regressions. To solve this potential problem the trade restriction variables were adjusted with per capita GDP by estimating a regression between trade restriction variables and per capita GDP, and saving the residuals as 'adjusted trade restriction' indexes. These new variables were then used in the second regression. These results are not reported as they were not significantly different than the results presented here.

The results are presented in Table 3.¹⁰ The regressions pass all the diagnostic tests. Tax, tariff and PM have a statistically significant and negative impact on trade openness, whereas SD, HB, MC do not seem to have any significant impact on trade openness. When tax, tariff, SD and PM are included in the same regression, they all become insignificant. The composite index of tax and tariff (T&T) is significant but when SD (T&T&SD) is included in the composite index, it becomes insignificant. The composite index of hidden barriers and import cost (HB & MC) is also insignificant.

Table 4. Regression results for Structurally Adjusted Trade Intensity (SATI) and restrictive trade policies.

	1	2	3	4	5	6	7	8	9	10	11
Constant	0.01 1.41 -0.02* -3.27	0.03 2.11 -0.01** -2.22	0.02 1.01	-0.17* -3.27	-0.10 -1.01 -0.003 -0.39 -0.006 -0.42 -0.003 -0.25 -0.05 -1.27	-0.06** -2.53	-0.04 -1.45	0.07 1.09	-0.07 -1.63	-0.04 -0.57	-0.10 -0.91
Tax											
Tariff											
SD			-0.01 -1.58								
PM				-0.07* -3.25							
T&T						-0.03* -2.79					
T&T&SD							-0.02 -1.62				
HB								0.036 0.94		0.02 0.57	
MC									-0.04** -1.90	-0.04** -1.97	
HB & MC											0.05 1.01 0.003
R-bar-sq	0.016 10.67*	0.008 4.92*	0.005 2.48	0.01 10.58	0.010 1.15	0.013 7.76*	0.006 2.62	0.002 0.89	0.011 3.60**	0.012 1.96	
F test											
D-W	2.12 625	2.10 608	2.02 460	2.10 628	2.07 429	2.09 577	2.01 427	2.06 333	2.06 305	2.07 307	2.05 305
DoF											
Normality	4.54	5.71	3.13	2.59	1.89	2.94	1.07	3.22	2.31	2.33	2.94
Heteros	0.16	0.75	1.52	1.93	1.65	0.53	1.50	0.83	0.75	0.79	0.12
RESET	0.30	0.17	0.00	0.22	0.00	0.27	0.12	0.33	0.20	3.56	0.17

Table 4. (continued).

Independent variable: SATI – calculated with export intensity											
	1	2	3	4	5	6	7	8	9	10	11
Constant	0.01 1.44	0.03** 2.06	0.01 0.93	-0.16* -3.08	-0.06 -0.67	-0.06** -2.50	-0.04 -1.47	0.08 1.28	-0.06 -1.39	-0.02 -0.29	-0.07 -0.69
Tax	-0.02* -3.21				-0.00 -0.54						
Tariff		-0.01** -2.18			-0.00 -0.30						
SD			-0.01 -1.47		-0.00 -0.27						
PM				-0.07* -3.06	-0.03 -0.90						
T&T						-0.03* -2.75					
T&T&SD							-0.02** -1.65				
HB								0.04 1.13		0.02 0.74	
MC									-0.03 -1.66	-0.04 -1.77	
HB & MC											-0.04 -0.78
R-bar-sq	0.016 10.32*	0.007 4.76**	0.004 2.15	0.014 9.37*	0.008 0.88	0.012 7.57*	0.006 2.72**	0.003 1.27	0.008 2.74**	0.010 2.03	0.002 0.622
F test	2.13	2.11	2.04	2.11	2.09	2.10	2.02	2.06	2.07	1.649	2.05
D-W	626	609	460	629	429	578	427	333	305	304	305
DoF	4.23	5.52	3.45	3.29	2.02	2.95	1.11	2.45	1.91	1.75	2.44
Normality	0.67	0.79	1.66	0.25	1.72	0.57	1.70	0.39	0.26	0.73	1.68
Heteros	0.169	0.08	0.00	0.03	0.00	0.41	0.12	1.43	1.33	2.38	0.39
RESET											

Notes: * significant at the 1% level; ** significant at the 10% level. Dependent variables are structurally adjusted export intensity, structurally adjusted import intensity and structurally adjusted trade intensity. Variables are in logarithmic form. Figures in parentheses are t-statistics. DF: degree of freedom. One hundred and twenty countries (see Table A in the Appendix) and six years (1985, 1990, 1995, 2000, 2001 and 2002) are included in unbalanced pooled data. The regressions pass all diagnostic tests (functional form, normality and heteroscedasticity). It should be noted that there is a negative correlation between the actual data and the ratings as, for example, high (low) International trade tax revenues as a percentage of trade sector are given low (high) ratings. For consistency, the signs of the coefficients for the ratings were changed. Therefore, a negative sign indicates a negative correlation between interventionist trade policies and trade openness. Source: Gwartney and Lawson, 2005.

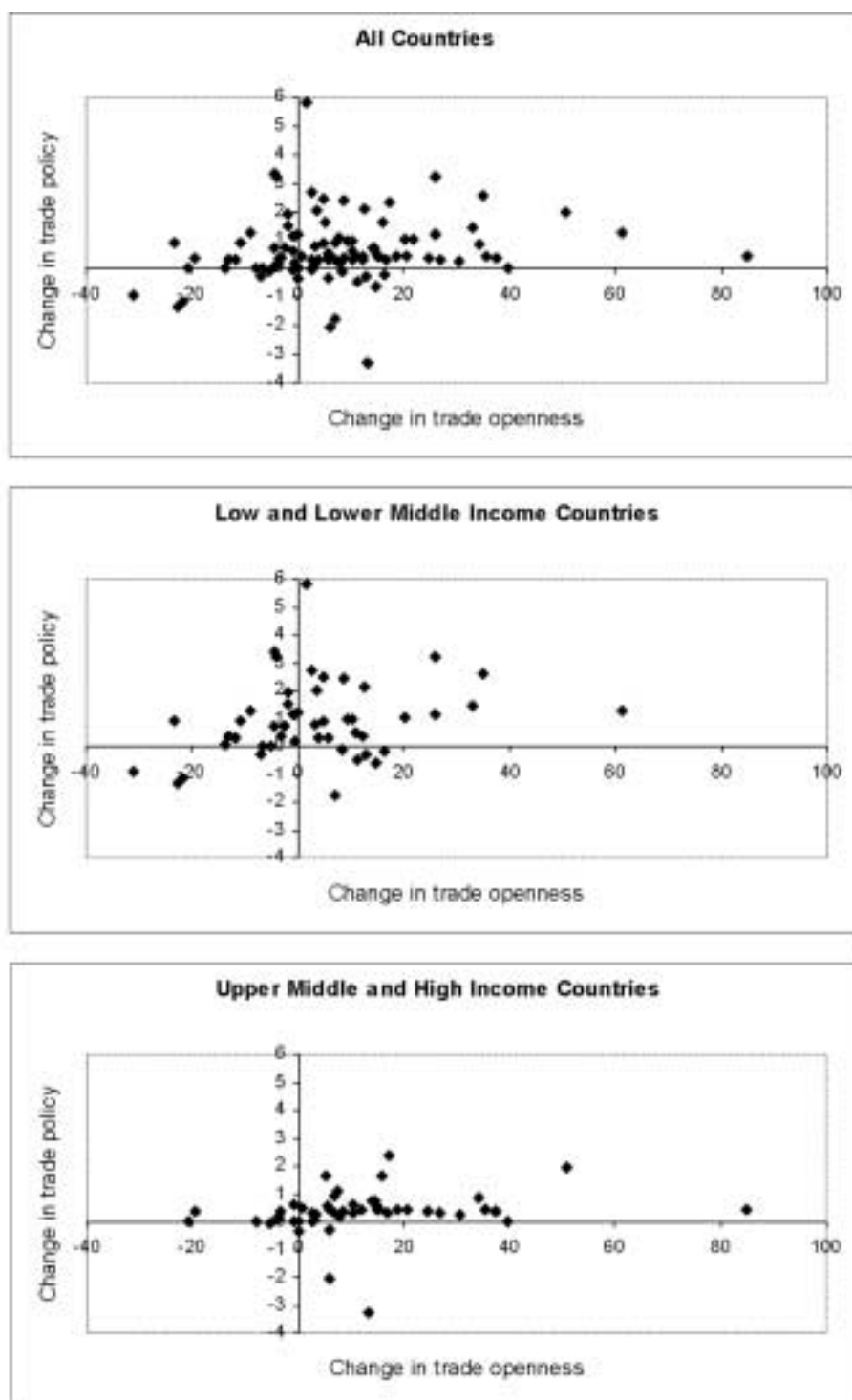
The results do not offer evidence for a robust link between trade liberalization and superior trade performance. Firstly, the trade restriction variables explain at most 1% of trade openness. Therefore their negative impact on openness is nowhere as great as that which is attributed to them in the literature. The liberalization of trade by removing these restrictions will contribute only marginally to trade openness. Secondly, as discussed earlier, a correlation does not prove causality. A superior trade performance may lead to the liberalization of trade and difficulties with trade performance may lead to more protectionist policies. The empirical work provides some evidence for this interpretation. First, there is a very strong correlation between per capita GDP and relatively more liberal trade policies, and secondly per capita GDP is positively correlated with export intensity and negatively correlated with import intensity. This implies that as countries become economically stronger, they tend to export more and need to adopt less protectionist policies. Low income countries tend to face more external shocks and problems as they largely produce primary and agricultural commodities.

The above results are supported by Figures 1 and 2 where change in trade policy (measured by a composite index of tax and tariff) and change in trade openness (measured by trade intensity) for a number of countries are plotted on scatter diagrams. A positive value in 'change in trade policy' implies liberalization of trade policy and a positive value in 'change in trade openness' implies an increase in the share of trade in total GDP. A positive relationship would be expected if trade openness is associated with trade-liberalization. Figure 1 uses the changes in trade policy scores and trade openness between 1995 and 2000 and is constructed for 'all countries', 'low and lower middle income countries', and 'upper middle and high income countries'.¹¹ The number of countries is determined by the availability of data. The figures indicate that although most countries liberalized their trade between 1995 and 2000, there is no obvious relationship between the two variables.

Figure 1 shows that the possibilities for liberalization for upper middle and high income countries are limited as they often have relatively more liberal trade policies. The experiences of the low and lower-middle income countries are diverse. Although 37 out of 48 countries liberalized their trade policies, only 21 out of 37 countries increased their trade openness. 16 countries experienced a reduction in their openness despite liberalization. Senegal, for example, liberalized its trade policies significantly, from 2.2 to 5.6, in a short period of time but experienced a fall in its openness by 5% point. Zambia also liberalized its trade, from 6.2 to 7.1, but experienced a massive 23% fall in its trade. On the other hand Morocco, Ecuador, Cameroon, Madagascar, Russia and Sierra Leone were able to increase their trade significantly despite introducing more interventionist policies. There is no obvious link between the variables even for countries that liberalized their trade and increased their trade openness. Rwanda liberalized its trade policies very significantly, from 1.7 to 7.5, but only increased its trade from 31 to 33% while Turkey was able to increase its trade from 44 to 56% although liberalization was relatively minor, from 8.6 to 8.9.

These figures, although of great consequence, may be slightly misleading as they include countries that are already highly open and highly liberal where further openness and liberalization is less likely. Therefore Figure 2 is based on the least open and the least liberal countries where opportunities for further openness and liberalization are more likely. Figure 2.1 presents the least open 20 countries, Figure 2.2 presents the least liberal 20 countries and Figure 2.3 presents the relatively less open and less liberal 20 countries out of 75 countries for which data is available. A longer time period, between 1990 and 2000, is used. The results confirm the findings of Figure 1.

Although most countries experienced trade liberalization and trade openness between 1990 and 2000, there is no obvious relationship between trade openness and trade liberalization. In the case of the least open countries there is a statistically insignificant positive correlation between trade liberalization and trade openness. If Ghana (an outlier) is excluded from the sample the correlation remains insignificant but becomes negative. There is a positive correlation between



Note: a positive value in "change in trade policy" means liberalisation of trade policy.

Figure 1. Trade-liberalization and Trade Openness



Figure 2.1. Trade-liberalisation and trade openness for the least open twenty countries



Figure 2.2. Trade-liberalisation and trade openness for the least liberal twenty countries

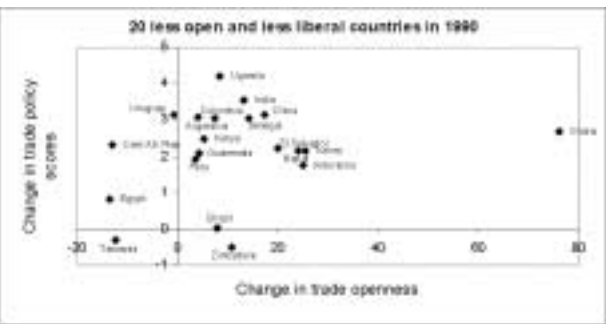


Figure 2.3. Trade-liberalization and Trade Openness for the less open and less Liberal twenty countries

liberalization and trade openness for the least liberal countries. Although the correlation is statistically significant it is fairly low and confirms the findings of Table 3. Finally there is a positive but insignificant correlation between the two variables (with and without Ghana) for the relatively less open and less liberal 20 countries.

Conclusion

Trade liberalization and trade expansion are assumed to be strongly associated with each other and often used interchangeably, but the empirical evidence has not been forthcoming. This article is an attempt to fill this gap by investigating the link between trade openness and trade restrictions.

Although this article establishes a negative link between various types of trade restrictions and trade openness, the relationship is weak, statistically not always significant and there is no clear evidence that the removal of trade restrictions (trade liberalization) invariably leads to improved trade openness. The evidence reveals a diversity of experiences. Trade openness is not uniformly, universally or unambiguously linked to trade liberalization. Some countries have liberalized their trade and experienced a higher level of trade openness, and some other countries experienced a reduction in their trade openness. This signifies that if countries liberalize their trade prematurely they may end up with a lower level of trade openness and potentially economic devastation.

Under certain circumstances trade liberalization may indeed lead to trade expansion. This however cannot be generalized. Countries would be well advised to adopt pragmatic trade policies based on their country specific circumstances. In particular, countries should be cautious in adopting radical and rapid liberalization policies. Even when policy makers feel that protectionist policies are no longer needed, liberalization policies should be implemented gradually and vigilantly. This will allow the reversal of the policies, if necessary, relatively easily and with a relatively lower cost.

It is also important to note that trade-liberalization is not the only policy option for countries that would like to expand trade. A pragmatic combination of import-substitution, export-promotion and trade-liberalization policies can be considered to boost trade. Most countries developed their competitiveness behind protective barriers, and have subsequently either promoted exports or allowed free trade. This implies that no single trade policy will be beneficial to all countries operating under different conditions.

Notes

1. It should be noted that 'openness' is a broader concept and need not be highly correlated with trade orientation as it includes openness to technology, foreign direct investment, ideas, and so on. See Rodrik (1999) for a discussion of the openness concept.
2. Trade liberalization in this study is defined as the removal of barriers to free trade such as tariffs, quotas and exchange controls. This definition should be separated from the 'neutrality of incentives' or 'reduction in the degree of anti-export bias' which does not require a reduction in protectionist policies.
3. See Falvey and Gemmell (1999), Hanaki (2000) and Baldwin (2000), Rodrigues and Rodrik (2000), Subasat (2003).
4. For a comprehensive discussion of alternative trade policies see Liang (1992), Milner (1995), McKay and Milner (1997), Greenaway et al. (1997), Greenaway (1998), Greenaway et al. (1998), Milner and Morrissey (1999).
5. See Santos-Paulino (2002a and 2002b) and Subasat (2002) for a comprehensive survey of this literature.
6. There is a potential limitation with this variable as it presumes that oil exports and imports have the same effect on trade intensity. This may not be the case; for example, for low-income countries that receive substantial aid which can be used to import oil.
7. Where the share of services is relatively higher.
8. It is important to be aware of potential multicollinearity problems with the dummy variables which can make some of the coefficients insignificant. This is not a matter of concern as it will have no impact on the residuals that are saved from these regressions which will be used as SATI index. The income group dummy variables are all insignificant and have negative signs. Apart from the East Asia dummy which has a positive sign, the regional dummy variables are highly significant. Transition countries have a positive sign. Sub-Saharan Africa and Latin America have negative signs. The dummy variable for agricultural commodity exporters is insignificant with a negative sign. The dummy variable for manufactured commodity exporters is significant with a negative sign and for high technology commodity exporters it is significant with a positive sign. Except for 1990, year dummy variables are all significant and positive. Country dummy variables for Australia, Belgium, Hong Kong, Nigeria and Malaysia are all significant with positive signs.
9. A related issue is whether trade liberalization causes balance of payment problems by stimulating more imports than exports. A number of recent articles produced empirical evidence in support of this argument. See Santos-Paulino and Thirlwall (2004a) and Morrissey (2005).

10. These results could potentially be improved in a dynamic panel framework such as the one used by Greenaway et al. (2002).
11. World Bank classification.

References

- Balassa, B. 1982. *Development strategies in semi-industrial economies*. New York and London: Oxford University Press.
- Baldwin, R.E. 2000. Trade and growth: still disagreement about the relationships. Economics Department Working Paper No. 264. OECD, Paris.
- Bleaney, M. 1999. Trade reform, macroeconomic performance and export growth in ten Latin American Countries, 1979-95. *Journal of International Trade and Economic Development* 8, no. 1: 89-105.
- Dean, J.M., S. Desai, and J. Riedel. 1994. Trade policy reform in developing countries since 1985: a review of the evidence. World Bank Discussion Papers, No. 267, Washington, DC.
- Dollar, D. 1992. Outward-oriented developing economies really do grow more rapidly: evidence from 95 LDCs, 1976-1985. *Economic Development and Cultural Change* 40, no. 3: 523-544.
- Falvey, R. and N. Gemmell. 1999. Factor endowments, nontradables prices and measures of openness. *Journal of Development Economics* 58: 101-122.
- Gwartney, J., and R. Lawson. 2005. *Economic freedom of the world: 2005 annual report*. Vancouver: The Fraser Institute.
- Greenaway, D., W. Morgan and P. Wright. 1997. Trade liberalisation and growth in developing countries: some new evidence. *World Development* 25, issue 11: 1885-1892.
- Greenaway, D., W. Morgan, and P. Wright. 2002. Trade liberalisation and growth in developing countries. *Journal of Development Economics* 67: 229-244.
- Greenaway, D., and D. Sapsford. 1993. Exports, growth and liberalisation: an evaluation, *Journal of Policy Modelling* 16, no. 2: 165-186.
- Greenaway, D., and D. Sapsford. 1994. What does liberalisation do for exports and growth? *Weltwirtschaftliches Archiv* 130, no. 1: 152-174.
- Greenaway, D. 1998. Does trade liberalisation promote economic development? *Scottish Journal of Political Economy* 45 issue (5): 491-511.
- Greenaway, D., C. W. Morgan and P. Wright. 1998. Trade reform, adjustment and growth: what does the evidence tell us? *Economic Journal* 108: 1547-1561.
- Hanaki, N. 2000. Effects of policies and institutions on economic volatility and growth: a literature review. Columbia University. <http://www.columbia.edu/~nh85/hanaki/papers/sep2000.PDF>.
- Harrigan, J., and P. Mosley. 1991. Evaluating the impact of World Bank structural adjustment lending: 1980-87. *Journal of Development Studies* 27, no. 3: 63-94.
- Heitger, B. 1987. Import protection and export performance – their impact on economic growth. *Weltwirtschaftliches Archiv* 123, no. 2: 249-261.
- Krueger, A.O. 1978. *Foreign trade regimes and economic development: liberalization attempts and consequences*. Lexington: Ballinger Press for NBER.
- Liang, N. 1992. Beyond import substitution and export promotion: a new typology of trade strategies. *The Journal of Development Studies* 28, no. 3: 447-472.
- McKay, A., and C. Milner. 1997. Measuring trade strategy in the presence of non-tradables: theory and some evidence for the Caribbean. *Journal of Development Studies* 33, issue 5: 658-674.
- Milner, C. and O. Morrissey. 1999. Measuring Trade Liberalisation. In *Evaluating Economic Liberalisation*, eds. M. McGillivray and O. Morrissey. Basingstoke: MacMillan.
- Milner, C. 1995. Relative incentives and trade strategies: typologies and possibilities. *Economic Record* 71: 230-239.
- Morrissey, O. 2005. Imports and implementation: neglected aspects of trade in the report of the commission for Africa. *Journal of Development Studies* 41, no. 6: 1133-1153.
- Pritchett, L. 1996. Measuring outward orientation: can it be done? *Journal of Development Economics* 49, no. 2: 307-335.
- Rodrik, D. 1999. *The new global economy and developing countries: making openness work*. ODC Policy Essay No. 24. Baltimore, MD: John Hopkins University Press.
- Rodriguez, F., and D. Rodrik. 2000. Trade policy and economic growth: a skeptic's guide to the cross-national evidence. In *Macroeconomics annual 2000*, ed. B. Bernanke and K. Rogoff. MIT Press for NBER, Cambridge, MA.

- Santos-Paulino, A.U. 2002a. Trade liberalisation and export performance in selected developing countries. *The Journal of Development Studies* 39, no. 1: 140–164.
- Santos-Paulino, A.U. 2002b. The effects of trade liberalization on imports in selected developing countries. *World Development* 30, no. 6: 959–974.
- Santos-Paulino, A.U. 2004. Trade liberalization and the balance of payments in selected developing countries. *The Manchester School* 72, no. 1: 100–118.
- Santos-Paulino, A.U. 2005. Trade liberalisation and economic performance: theory and evidence for developing countries. *The World Economy* 28, no. 6: 783–821.
- Santos-Paulino, A.U., and A.P. Thirlwall. 2004a. The impact of trade liberalisation on exports, imports and the balance of payments of developing countries. *The Economic Journal* 114, issue 493: F50–F72.
- Santos-Paulino, A.U., and A.P. Thirlwall. 2004b. Trade liberalisation and economic performance in developing countries – introduction. *The Economic Journal* 114, issue 493: F1–F3.
- Skipton, C., and R. Lawson. 2005. Estimating the size of the trade sector: an explanation of the methodology used to construct actual and expected trade sector size for component 4-c of the economic freedom of the world index. *Economic Freedom of the World: 2005 Annual Report*. Vancouver: The Fraser Institute.
- Subasat, T. 2002. Does trade openness increase economic growth? A critical review of the evidence for developing countries. *Development Policy Review* 20, no. 3: 333–349.
- Subasat, T. 2003. Do outward-oriented developing countries really grow more rapidly? A critique of the Dollar Index. *International Review of Applied Economics* 17, no. 3: 309–326.
- UNCTAD. 2004. *World investment report*. New York: United Nations.
- World Bank. 2003. *World development indicators 2003*. Washington, DC: World Bank, CD-ROM.
- Yaghmaian, B. 1994. An empirical investigation of exports, development, and growth in developing countries: challenging the neoclassical theory of export-led growth. *World Development* 22, no. 12: 1977–1995.

Appendix

Table A. Countries used in the regressions

Albania, Algeria, Argentina, Australia, Austria, Bahamas, Bahrain, Bangladesh, Barbados, Belgium, Belize, Benin, Bolivia, Botswana, Brazil, Bulgaria, Burundi, Cameroon, Canada, Central African Republic, Chad, Chile, China, Colombia, Congo, Democratic Republic of Congo, Republic of Costa Rica, Cote d'Ivoire, Croatia, Cyprus, Czech Republic, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Fiji, Finland, France, Gabon, Germany, Ghana, Greece, Guatemala, Guinea-Bissau, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Iran, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kenya, Kuwait, Latvia, Lithuania, Luxembourg, Madagascar, Malawi, Malaysia, Mali, Malta, Mauritius, Mexico, Morocco, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Romania, Russia, Rwanda, Senegal, Sierra Leone, Singapore, Slovak Rep, Slovenia, South Africa, South Korea, Spain, Sri Lanka, Sweden, Switzerland, Syria, Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States, Uruguay, Venezuela, Zambia, Zimbabwe.

Copyright of *International Review of Applied Economics* is the property of Routledge and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.