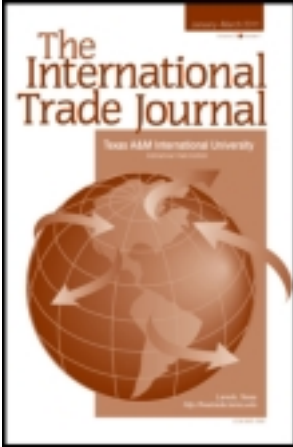


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The International Trade Journal

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/uitj20>

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Available online: 16 Aug 2011

To cite this article: Rolf J. Langhammer (2011): Does International Trade Catch Up with National Trade of Countries? Yes, The International Trade Journal, 25:4, 398-417

To link to this article: <http://dx.doi.org/10.1080/08853908.2011.597680>

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Does International Trade Catch Up with National Trade of Countries? Yes.

Rolf J. Langhammer

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Germany

The article applies an index suggested by Jeffrey Frankel on how to measure the gap between the intensity of national versus international transactions of a country to more than 100 countries over four periods between 1990 and 2005. The gap stands for “incomplete” globalization. It is shown that the gap has steadily declined for most countries over the sample period, irrespective of income levels. While larger economies are still less globalized than small economies, differences in domestic market size have become less important as a dividing line between more and less globalized economies.

KEYWORDS degree of globalization, internal vs external trade intensity, market size, trade barriers

* * * * *

The author acknowledges helpful and instructive comments received from two anonymous referees. The usual disclaimer applies.

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I. INTRODUCTION

*We are still far from the day when we buy from across the globe as easily as across the country.*¹

It is widely accepted in both theoretical and empirical literature that national borders still matter so that people trade more with their fellow citizens than with foreigners. This holds even if geographical distance between traders is smaller in the latter than in the former case and even if countries trade under free trade agreements and share cultural proximities.²

Yet, the debate on the relationship between internal trade and external trade has often been confused by two aspects. First, there has been an asymmetry between internal trade and external trade in terms of visibility and perception. The amount of internal trade cannot be as easily measured as external trade. Internal trade often escapes the sort of border checks, both at exit out of a country and entry into a country, which characterize external trade being subject, for instance, to controls on rules of origin, to checks of compliance with national standards, and to taxation through tariffs. Viewed against high rates of external trade in the recent past, such asymmetry may lead people to

¹Frankel (2006:3).

²Using a dynamic general equilibrium model, Berezin (2000) shows that despite very low trade barriers the presence of national borders can choke off a significant fraction of cross-border trade when firms experience start-up costs in establishing new markets. In studies on trade intensity on both sides of the Canadian-US border (being a low tariff border), intra-Canadian trade and intra-US trade was found more intensive than inter-Canadian-US trade even if the former had to bridge larger distances than the latter. This example has met much attention starting with studies by McCallum (1995), Engel and Rogers (1996), and Helliwell (1998) because the two countries share a free trade agreement, a common language, and other cultural proximities and thus approximate internal market conditions more than most other bilateral trade flows. Even taking these factors into account, domestic transactions were more intensive. Border effects also exist when America consumers use the US dollar as a mode of payment in Canadian border retail shops. This mode of payment is accepted, yet at a marked premium as shown by Pisani et al. (2008). See: McCallum (1995), Helliwell and McCallum (1995), Engel (1996), Helliwell (1998), Berezin (2000), Pisani et al. (2008).

conclude that countries have excessively become open (and vulnerable) to international competition and that globalization has gone too far. The fact that internal trade within a country might still represent a multiple of external trade is then easily ignored.

Second, the ratio between the size of internal and external trade depends on the size of the domestic economy relative to the rest of the world. A domestic economy is usually understood as a nation. Therefore, such ratios are volatile to processes of political integration (see German reunification which led to the redefinition of former external trade to internal trade) and or to processes of deep economic integration, such as in the EU. After the completion of the single market program of the EU, the EU instead of EU member states should become the only “reporting unit” and intra-EU trade should become “internal” trade, thus reducing total world trade by more than a quarter. With ongoing economic integration through deepening regional economic communities and through growing vertical cross-border value-added chains, it would be more difficult to differentiate between internal and external trade. Trade between Idaho and Montana will face almost equal conditions as trade between Belgium and Luxembourg, and vertical trade of a multinational firm would be distinguished by intra-firm versus extra-firm trade rather than by domestic versus international trade. In brief, the divide between internal and external trade will become blurred. Public perception, however, is still far from such a view. Instead, any view of “excessive globalization” departs from a clear divide between internal versus external trade.

Except for very few trade data sources,³ nations still constitute reporting units. Thus, the dividing line between internal trade and external trade is the national border and the question

³WTO statistics, for instance, differentiate between world merchandise trade excluding intra-EU trade and world merchandise trade including intra-EU trade. The former data abandon EU member states as reporting units. See WTO (2009: 12–15).

then arises how the degree of international integration can be approximated if we do not measure internal trade directly. Frankel (2000) offers a workable proxy.

To give a benchmark what perfect international integration in terms of equally buying from abroad as from home sources could mean, he suggests a “back of the envelope” calculation.⁴ He relates the import (or export) share in a country’s GDP to the share of the rest of the world’s GDP (world GDP minus the respective country’s GDP) in world GDP. If local residents were inclined to buy from (or sell to) foreigners as easily as from (to) domestic suppliers (customers), then foreign products would show the same share in a country’s spending (or sales) as the spending (or sales) of citizens from the rest of the world. Then the import (export) share in a country’s GDP would equal the share of the rest of world’s GDP in world GDP.

In the following, this ratio is referred to as the Frankel-Index (FI) or degree of globalization. Except for very small open economies of the Singapore/Hong Kong type with their very high trade ratios and very low share in world GDP, the FI is mostly below unity.⁵

To discuss the development of the FI over time, it is calculated for more than 100 countries over four years (1990, 1995, 2000, 2005) from the import as well from the export side and is graphically described in detail by plotting it against the size of economies (see section 2). It is intuitively plausible that the size of an economy relative to the rest of world influences the country’s FI in that the index declines with the rising share of the economy in world GDP. But that might differ within country groups due to country specifics and over years due to factors

⁴See Frankel (2000).

⁵Frankel (2006: footnote 6) rightly points to the fact that the two city economies export and import more than 100% of their GDP due to the fact that the nominator is a measure of gross sales while the denominator is a value-added measure. For that reason, trade of a country relative to its GDP would have to be much higher than suggested by the FI before one could speak of complete globalization.

which are invariant among countries. This is why, in the second section, the FI is portrayed by income groups of countries and over years.

The third section discusses the importance of two possible determinants of openness, that is primary commodity specialization and transport costs. The fourth section concludes with the results.

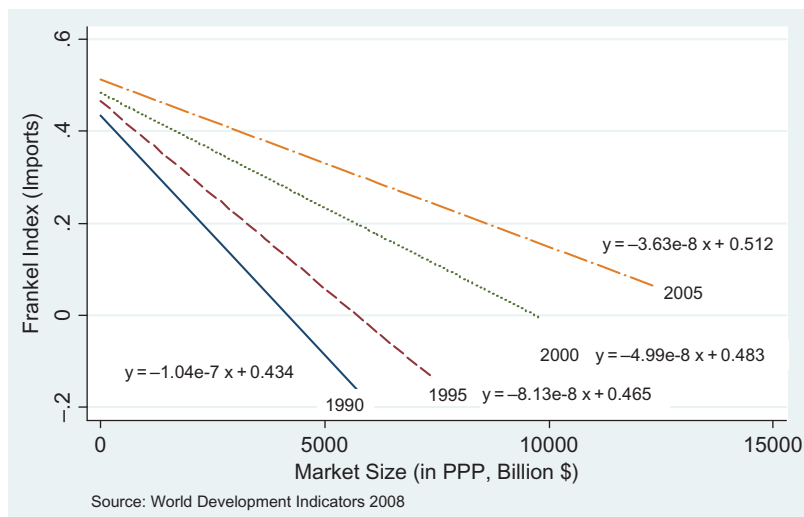
II. THE LINK BETWEEN THE DEGREE OF GLOBALIZATION AND MARKET SIZE.

A number of general observations emerge when observing the change of the FI (based on imports (Figures 1–5) and exports (Figures 6–10) over market size⁶ for the entire sample.

- On the import side, the FI decreases with rising GDP (PPP) (Figure 1). While this holds for every year, there is a difference between the 1990 and 1995 pattern on one hand (steeper decline) and 2000 and 2005 on the other hand (flatter decline) pattern. This suggests that inter-country differences in the degree of globalization have eroded over time so that in 2005 large economies were no longer as far away from the degree of globalization of smaller economies than they were 15 years ago.
- The FI increases over time. At each level of GDP, the FI was higher in year t than in period $t-1$. Yet, this year by year increase was not linear. The rise from 1995 to 2000 was by far the largest relative to the other two steps (1990 to 1995 and 2000 to 2005) and especially large for large economies. In this respect, the first five years of the new

⁶Using the alternative proxy for market size instead of GDP, population yields similar results except for the very heterogeneous high-income non-OECD countries. In this group, countries with larger population are less open than small-population countries whereas using the GDP variable, countries with large markets in 2005 were more open than countries with smaller markets.

Figure 1
Degree of globalization and market size 1990–2005
All sample countries (color figure available online)

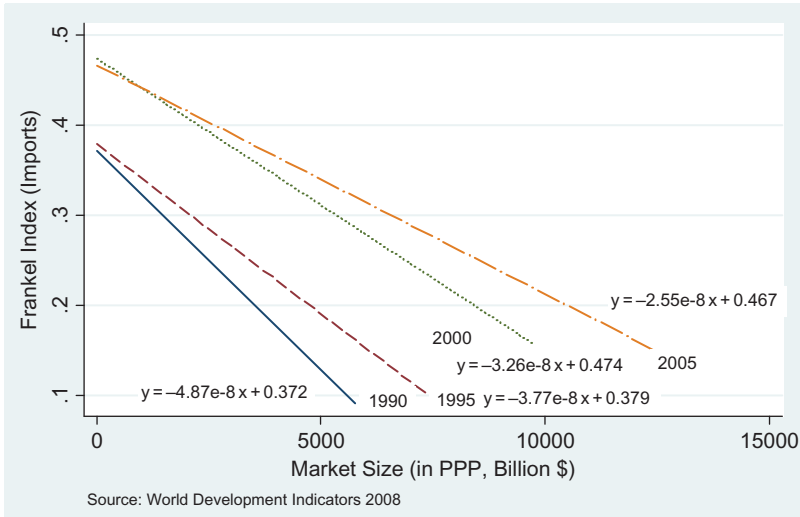


millennium bear witness to a catching up of large economies to smaller economies with respect to their integration in the world economy. To put it differently, in 2005 the FI of a country with a GDP of the size of Germany was at the same level as the FI of the size of Paraguay in 1990.

- Once we split the sample into four income groups in order to reduce country-specific heterogeneity,⁷ results—again on the import side—get sizably differentiated. For the OECD high-income countries [OEC] (Figure 2), the results for the entire sample are confirmed. The largest step in the rise of FI over time was between 1995 and 2000

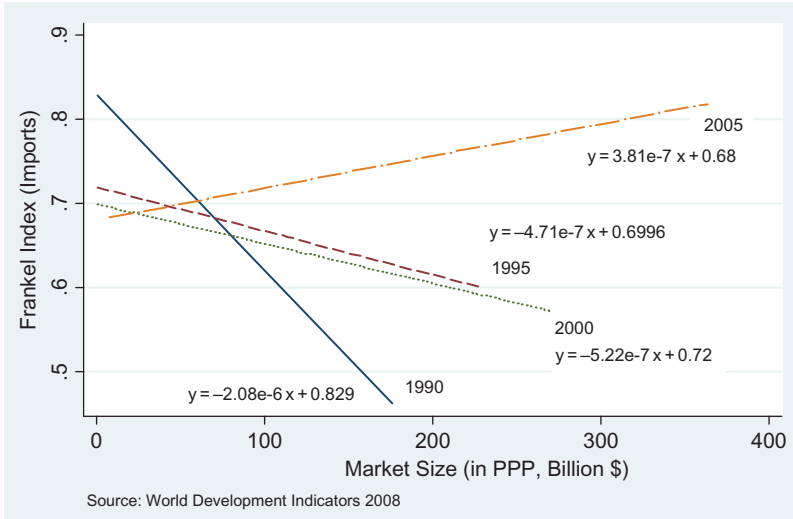
⁷Following the World Bank definition, we differentiate between high-income OECD countries (OEC), high-income non-OECD countries (NOC), middle-income countries (MIC), and low-income countries (LIC).

Figure 2
Degree of globalization and market size 1990–2005 OECD
High-income countries (OEC) (color figure available online)



when the global economy began to benefit the most from the advancement in communication technology. Differences between OECs declined as seen by the flattening of the regression curve over time. For the high-income non-OECD countries (NOC) (Figure 3), representing basically the oil-rich Gulf States, a few island states, and Hong Kong, the link between market size and the FI has been found to be very volatile over time. Neither can the overall observation that FIs rise over time at given market size be supported. Instead, FIs were higher in 1995 than in the two years afterwards. Nor did FIs decline with rising market size in each year. In 2005, larger NOC economies were more globally integrated than smaller ones. This has probably been caused by the rapid growth in trade in Hong Kong, Saudi Arabia, and Israel. In terms of the absolute FI levels,

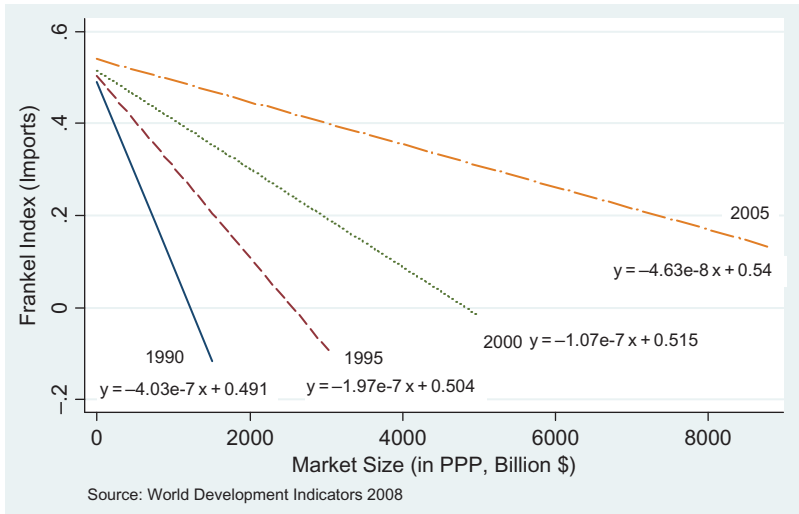
Figure 3
Degree of globalization and market size 1990–2005 Non-OECD
High-income countries (NOC) (color figure available online)



the NOCs are on average the most globalized countries in the sample. The middle-income countries (MIC) (Figure 4) as well as the low-income countries (LIC) (Figure 5) display a clear common pattern of rising FIs over time, declining FI with rising market size, and convergence in the degree of globalization between large and small economies over time with higher absolute levels for the MIC than for the LIC. An average LIC in 2005 with a market size of US\$400 billion should have tripled its imports before trading as intensively with the world as locally, while a MIC with the same market size would have to only more than double its foreign trade to reach “complete” specialization.

- As concerns the FI measured on the export side (Figures 6–10), results do not differ much from the import

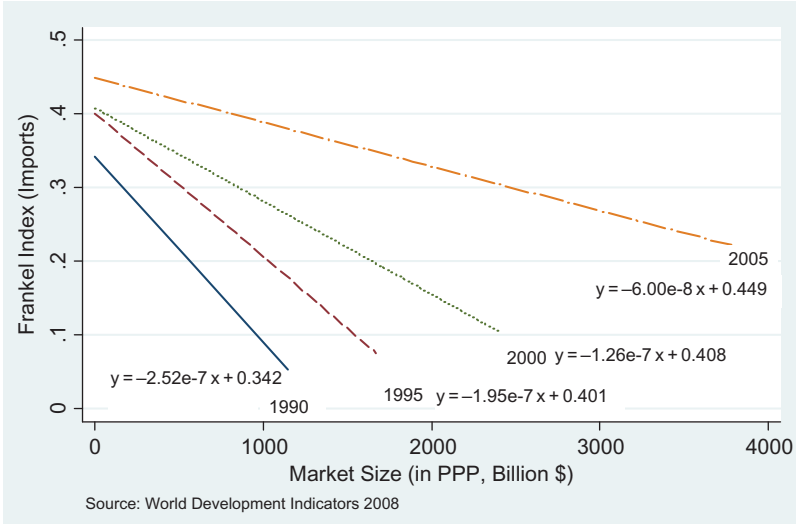
Figure 4
Degree of globalization and market size 1990–2005
Middle-income countries (MIC) (color figure available online)



side as concerns increasing FI over time. Year after year, countries from their individual level of world market integration have come closer to the stage where they sell as easily to international customers as they sell domestically. And year after year, differences in FI between large markets and small markets have declined.

- As for imports, some differences emerge on the export side when the country sample is disaggregated by income groups. Compared to imports, it holds for the entire sample that the negative correlation between market size and FI is less pronounced (Figure 6). Smaller and larger countries have never been as far from each other in terms of preferring local customers over international customers as they have been in preferring local sourcing over international sourcing. This finding from the entire sample is replicated for

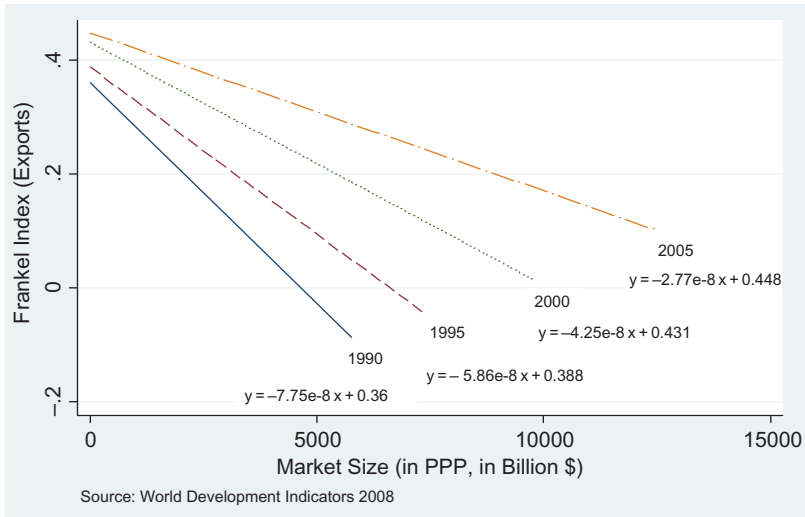
Figure 5
 Degree of globalization and market size 1990–2005
 Low-income countries (LIC) (color figure available online)



the MIC and LIC (Figures 9 and 10). The underlying hypothesis for this finding could be larger similarities in export patterns and export trade costs of these countries than in their import patterns and import trade costs.

- HIC (Figure 7), however, are different in their FI on the export side. Within this group, the distinction between large more domestic sales-oriented countries and small more export sales-oriented countries is sharper than on the purchaser side. In other words, for the rich countries, trade costs on the import side which are responsible for the home market bias seem to be more indifferent to market size than trade costs on the export side. As parts of these trade costs are tariffs and non-tariff barriers, one can also say that the level of these policy-induced barriers has not

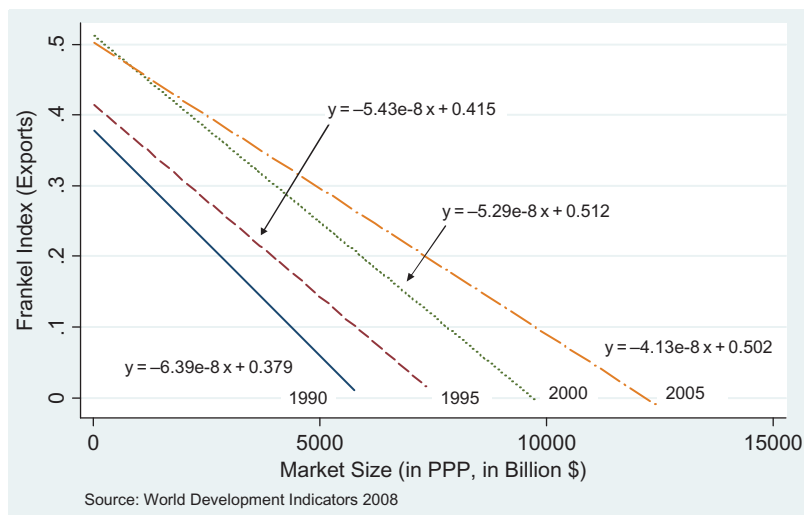
Figure 6
Degree of globalization and market size 1990–2005
All sample countries (color figure available online)



only declined over time but has leveled out between small and large rich countries. When looking at the tariff levels between the United States and small European countries, there is indeed much less difference than in the past.

- Not too much should be read out of the findings on the export side for the “outliers,” the heterogeneous high-income non-OECD countries (NOCs) (Figure 8). As in imports, the slope of the curve changes from negative to positive in 2005, indicating that the large economies within this group became more “global” with respect to selling abroad than the small economies. Comparing the coefficients between GD in imports and exports, differences between large and small economies were larger in exports than in imports and increased over time.

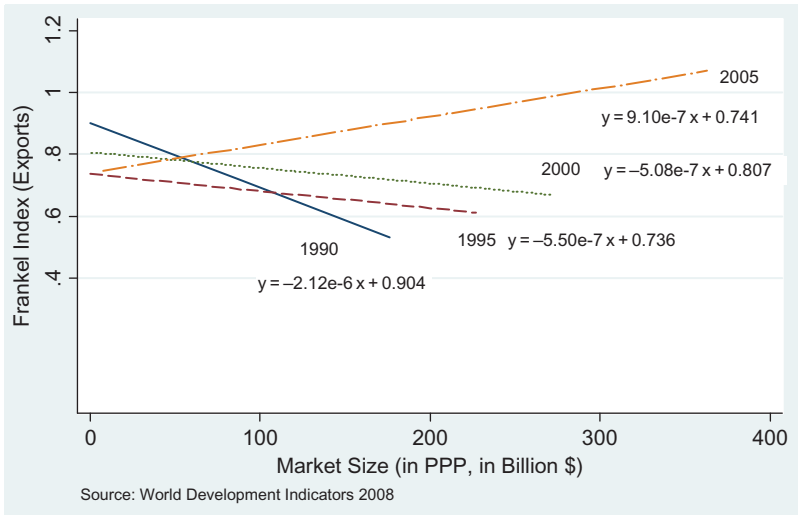
Figure 7
Degree of globalization and market size 1990–2005 OECD
High-income countries (OEC) (color figure available online)



III. THE LINKS AMONG OPENNESS, PRIMARY COMMODITY SPECIALIZATION, AND TRANSPORT COSTS

Many of the sample countries (including high-income OECD countries such as Australia, New Zealand, or Canada) are primary commodity exporters. For these countries, boom and bust periods of commodity prices can have an influence on both their international competitiveness of non-traditional sectors via real exchange rate changes (Dutch disease effect) and their capacity to import (income terms of trade) if they are balance-of-payments (BoP) constrained. This is why there are competing hypotheses concerning the correlation between the degree of globalization and specialization in primary commodity exports. On the one hand, an increase in commodity prices relative to prices of manufactures may raise the share of commodities in total exports, drive

Figure 8
Degree of globalization and market size 1990–2005
Non-OECD high income countries (NOC)
(color figure available online)

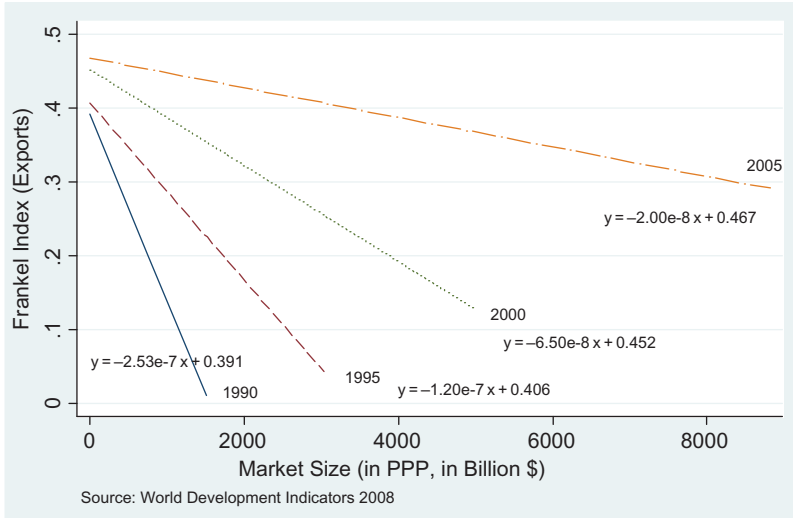


real appreciation, impede the competitiveness of non-traditional (manufacturing) sectors, and give rise to trade-restrictive measures against imports of non-traditional goods and thus deteriorate openness. On the other hand, rising primary commodity export earnings may help those countries dependent on such earnings to relax BoP constraints, and to lower BoP-induced import restrictions and thus become more open. Such restrictions are expected to be especially relevant for poor countries.

In fact, plotting the Frankel-Index on the import side with the degree of primary commodity specialization in exports yields a special pattern for the LIC which differs from the other country samples.⁸ While the total sample and the HIC and MIC mirror

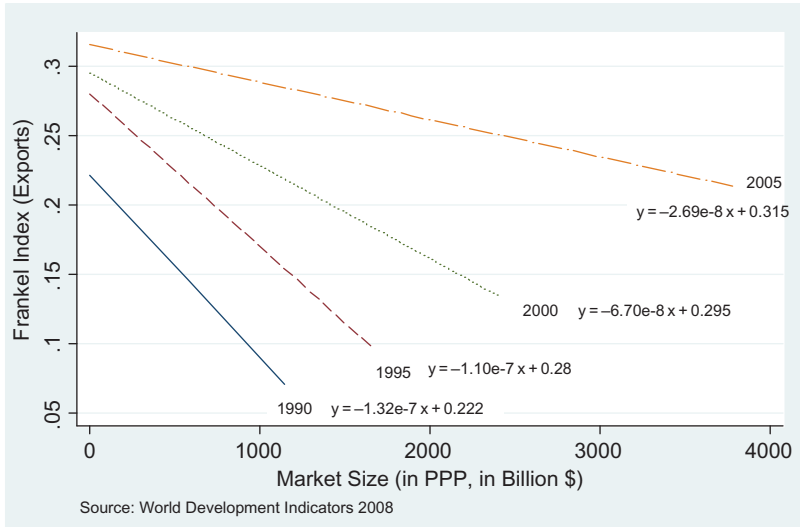
⁸Plotter charts are available upon request.

Figure 9
Degree of globalization and market size 1990–2005
Middle income countries (MIC) (color figure available online)



the expected result that openness is larger in export-diversified economies than in commodity-dependent economies, LIC show more openness for countries with higher dependence on commodities. At a given share of primary commodities in total exports, countries became more open year by year and a given FI index coincides with a rising primary commodity specialization over the period. However, the correlation between primary commodity specialization and openness weakened over time and was much less distinguishable in 2005 than in 1990. By the end of the period, both more or less commodity-dependent countries showed fairly similar degrees of openness between 0.4 and 0.45 while 15 years ago the spread was much larger. This confirms previous findings that differences in the degree of globalization have eroded over time irrespective of the income group. Such rising indifference of openness between income levels complies with the rising indifference between the export structures of countries.

Figure 10
 Degree of globalization and market size 1990–2005
 Low income countries (LIC) (color figure available online)



To illustrate the link between the second factor which is expected to influence the degree of globalization, that is, transport costs, we plot cif/fob ratios of countries and the FI again over time and over income groups of countries.⁹ Cif/fob ratios are annually compiled by the IMF and are widely used in spite of their undeniable shortcomings.¹⁰ As can be expected, differences between the FI on the export side and on the import

⁹Again, plotter charts are available upon request.

¹⁰Hummels (1999) shows cif/fob ratios to have continuously declined since 1948. However, the ratios are based on aggregate trade data and thus apart from technology-induced changes of transport costs can be influenced the changes in the product composition of trade and by changes in the regional composition of trade between remote or neighboring partner countries. Given the relatively short period of 15 years, we assume both sectoral and regional trade patterns to be relatively stable. See Hummels (1999).

While Hummels documents declining distance costs of the second wave of globalization after WWII, Jacks (2009) compares declining distance costs of the first

side arise when cif/ratios are used as an explanatory variable. Except for 1990, the degree of globalization on the export side declines with rising cif/fob ratios. This would highlight costs of bridging distances as a barrier to equality between local and international trade intensity of a country. The relationship holds for OECD HIC, MIC, and for LIC, with the qualification for the latter group that between 1990 and 2005 the FI got less and less responsive to differences in cif/fob ratios. That means that poor countries suffer from a pro-home trade and anti-export bias irrespective of whether or not their transportation costs are high. Or, to put it differently, by the end of the period a degree of export globalization at the 0.3 level held for LIC with low and high transport costs alike, probably because of the primary commodity orientation of these countries and the minor importance of transport costs for the export competitiveness of these goods. Again, the very heterogeneous group of high-income non-OECD countries yields inconclusive results which vary strongly over time.

If we plot the FI on the import side with the cif-fob ratio for all countries, rising ratios along with rising degrees of globalization emerge, however, by displaying a tendency of eroding such relationship at the end of the period. This counter-intuitive relationship is determined by MIC and LIC and probably driven by factors beyond pure distance costs such as insurance costs, the level of competition on transport routes relevant for these countries, and economies of scale in transport volumes. It does not hold for high-income OECD countries which appear to be the less globalized on their sourcing side the higher their transport costs. This is the expected result.

wave of globalization in the second half of the 19th century with those of the second wave. He identifies even more dramatic declines in costs of bridging international distances (relative to intranational distance costs) after 1870 than after WWII and thus exposes the first wave as the more impressive period in terms of the death of distance. See for a comparison of these two periods also Baldwin and Martin (1999).

To summarize, both primary commodity specialization and transport costs as possible determinants of the FI have one factor in common. Their influence of the path towards higher degrees of globalization seems to have declined over time regardless of whether we observe LIC or HIC.

IV. CONCLUSIONS AND POLICY IMPLICATIONS

Measuring the FI over many countries and over a 15-year period shows three clear results. First, the degree of globalization has been rising from different levels in different income groups of countries. Second, this rise holds for less globalized large countries as well as for more globalized small countries. Third, the distinction between FI in large and small economies has been vanishing. Large economies have gradually caught up with smaller economies in terms of their degree of globalization. Distance costs and the composition of trade seem to have some influence on the degree of globalization but it would need a far more detailed sectoral breakdown of trade together with testing different proxies of distance costs to highlight his influence more precisely.

Finally, the 1990–2005 period has been the high-time of globalization due to the dismantling of policy-induced trade barriers in the Uruguay Round, IT technology leap frogs, rapid economic growth of emerging markets, and the rising global demand for commodities and food products. The development of the Frankel Index seems to mirror such continuity in globalization. To test its robustness against discontinuity, it would be useful to measure it for longer historical time periods which take account of “waves” of globalization, including periods of crisis and disintegration. Such tests on continuity would also offer access to better empirically founded policy implications than are possible from a 15-year period that coincided with “high time” globalization, as we know in retrospect, after facing the 2008 crisis.

“High time” globalization was driven by two components. First, during the period under consideration both developing and

industrialized economies liberalized international trade substantially and mostly unilaterally. Between 1983 and 2003, applied tariffs in all income groups declined from levels between 30–40% to a level between 10–15% (Martin and Ng 2007). Poorer countries lowered tariffs more substantially than richer ones, however without binding tariff reductions multilaterally. That means that countries were free to raise tariffs in response to the crisis up to the World Trade Organization (WTO)-negotiated bound levels, but most of them refrained from doing so on a large scale. Hence, larger degrees of openness as shown above are very likely to have been supported by the decline of policy-induced trade barriers.

Second, the period under consideration has been most dynamic concerning growth of FDI which exceeded growth in trade. With the support of vertically oriented FDI and leap frogs in logistics and in savings of transport costs, cross-border value-added chains expanded and trade in intermediates rose. Again, this development has diffused the distinction between internal and external trade as gross output in tradeable goods includes both internal and external value-added alike.

Can we simply extrapolate the 1990–2005 erosion of tariff walls and expansion of cross-border value added chains, especially with the benefit of hindsight concerning the crisis? Caution is needed only because there is the pressure of unrelenting protectionism (Global Trade Alert 2009) as new trade policy instruments—such as a border adjustment which would “correct” for the differential in carbon emitted in the production of an imported good compared to a “like” domestically produced good (see Cosbey 2008) are discussed. Such border adjustment could easily become protectionist. Concerning the future of production networks, fears have been expressed that such networks could have seriously suffered from the crisis because of collapse of export demand, rising trade finance costs, and the market exit of partner firms (Godart, Goerg and Goerlich 2009). If this became true, openness of small LICS would be most heavily impeded

because collapse of world demand and trade finance costs would hit them over-proportionately. Yet knowing that exit from such networks could bear a high toll in terms of sunk costs, countries might support export companies through explicit or implicit export subsidies. Once 2009/2010 trade data becomes available, changes in the FI would allow for more insights into the impact of the crisis on globalization.

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