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Do falling trade costs benefit all countries equally?

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Trade barriers such as transportation costs and tariffs reduce international trade. But when these trade barriers come down, do they increase international trade equally among countries? This column presents evidence from OECD countries that trade costs have a differential impact depending on the trade intensity of the countries involved. When they already trade a lot, country pairs hardly benefit. But bilateral trade grows faster when the initial trade relationship was thin.

When the Great Recession hit in 2008, many countries experienced a collapse of their exports and imports. For example, US exports went down by around 25% between 2008 and 2009, and Japanese exports declined by a staggering 40%. This Great Trade Collapse has attracted a lot of attention (see Baldwin 2009). Leading explanations include a sharp drop in demand and a trade-credit crunch.

In addition, the Great Trade Collapse and the subsequent recovery have also highlighted the role of various trade barriers. For instance, Evenett (2012) reports that in the wake of the Great Recession, many countries have quietly raised bureaucratic barriers to international trade in a protectionist spirit. These observations raise the classic question: by how much do trade costs impede international trade?

The link between trade costs and trade flows

The standard answer in the international trade literature is given by the so-called 'gravity equation'. It relates the amount of bilateral international trade to supply in the exporting country, demand in the importing country and to bilateral trade costs such as tariffs, transportation costs and bureaucratic hurdles. The link between trade costs and trade is typically very simple. If trade costs go up by a certain extent, then the 'trade-cost elasticity' tells us by how much trade is affected. For example, if trade costs fall by 1% and the trade-cost elasticity is 5, then trade is expected to go up by 5%.

But so far the literature has only allowed for a 'one-size-fits-all' scenario. For a given change in trade costs, trade was expected to react by the same percentage for all bilateral trading pairs. It made no difference whether two large countries like the US and Germany were trading with each other, or whether a large country like the US was trading with a small country like Iceland. Neither did it make a difference whether two countries had fairly low bilateral trade barriers (think US and Canada), or whether bilateral trade barriers and transportation costs were higher (think US and Italy). In practice, data show that the effect of trade frictions on trade flows varies widely.

Trade costs impact all countries but unevenly

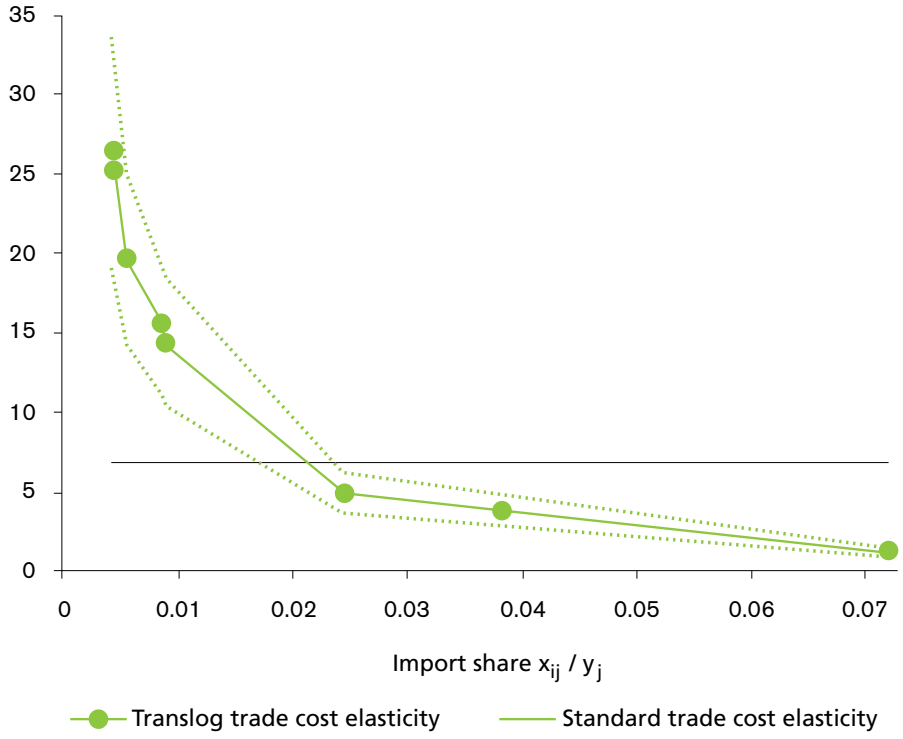
My new research (Novy 2012) challenges the 'one size fits all' feature. I develop a gravity equation that allows trade costs to have a heterogeneous impact across country pairs. This means that a given trade cost change, say, a 1% drop, can lead to different effects for different trading partners. This new approach is arguably fundamental to understanding the trade-cost elasticity, and indeed, evidence from OECD trade flows shows that similar trade barriers may have widely different effects.

The heterogeneity arises through a demand-side argument stemming from so-called translog preferences. Translog preferences generate a demand system that is more flexible than what is commonly used in the gravity literature. Translog preferences allow for richer substitution patterns across the different varieties that countries export. This flexibility breaks the constant link between trade flows and trade costs. It allows me to derive a 'translog gravity equation' with its key feature of an endogenous elasticity of trade with respect to trade costs.

The main result is that the effect of trade costs varies depending on how intensely two countries trade with each other. Specifically, the more the destination country imports from a particular exporting country, the less sensitive its bilateral imports are to trade costs. The intuition is that large exporters tend to enjoy a relatively powerful market position in the destination country. Demand for the exporter's goods is buoyant, and consumers do not react strongly to price changes induced by changes in trade costs. On the contrary, small exporters might only face weak demand for their goods, and consumers are sensitive to price changes. As a result, small exporters are hit harder by rising trade costs and find it more difficult to defend their market share.

Figure 1 illustrates this pattern with the example of New Zealand and its bilateral trade in the year 2000 (similar results hold for other OECD countries and other years). New Zealand is interesting in this context because it has one overarching trade partner (Australia) providing 7.2% of its total imports. The second biggest trade partner is the US with a share of 3.8%, followed by Japan (2.4%) and the UK (0.9%). I estimate the trade-cost elasticities and allow them to vary across trading partners. These elasticities indicate how sensitive bilateral trade is to movements in trade costs.

Figure 1. Trade cost elasticities of New Zealand



Note: The dashed lines represent 95% confidence intervals.

Figure 1 plots the New Zealand trade-cost elasticities against the corresponding import shares. The observation on the very right corresponds to the Australian import share (7.2%). The trade cost elasticity for Australia is quite low at 1.3. The second observation from the right corresponds to the US with an elasticity of 4, followed by an elasticity of 5 for Japan and 14.4 for the UK. The remaining observations on the left-hand side represent further trading partners (Germany, Italy, Korea and France). Clearly, there is a negative relationship between the trade cost elasticity and the trade intensity as measured by the import share. This means that country pairs with a strong bilateral trade relationship are hardly sensitive to movements in trade costs. But country pairs with little previous trade react more strongly.

The differential effect of trade costs stands in contrast to the common 'one-size-fits-all' trade-cost sensitivity that is commonplace in the literature and policy applications. Figure 1 indicates the one size fits all scenario by the horizontal line with the value of 7, which is a typical value for the elasticity. This value might be a reasonable average but it disguises the underlying differences across individual country pairs.

Reassessing the relationship between institutions and trade

In summary, the results demonstrate that trade costs do not always have the same impact on all bilateral country pairs. Instead, bilateral trade is more sensitive to trade costs if the exporting country provides a smaller share of the destination country's imports. The translog gravity framework can therefore shed new light

on the effect of institutional arrangements such as free trade agreements or WTO membership on international trade. For example, in a much-cited article Subramanian and Wei (2007) show that the WTO has strongly promoted trade but unevenly. Some countries and industries have benefited more than others, and a variable trade cost elasticity might play a role in this heterogeneity.

In another famous paper, Rose (2000) finds a large positive effect of currency unions on international trade. But as has been pointed out subsequently, this effect is to a large extent likely driven by small countries such as various Caribbean nations. In contrast, the currency union effect appears rather moderate for EZ countries (see Baldwin 2006).

Finally, the translog gravity framework can help explain why trade liberalisations often lead to relatively larger trade creation amongst country pairs that previously traded relatively little. Translog gravity predicts large trade responses if initial flows are small. Kehoe and Ruhl (2009) find evidence consistent with this prediction in an analysis of trade growth at the four-digit industry level in the wake of the NAFTA and other major trade liberalisations.

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Established in January 2010, CAGE is a research centre in the Department of Economics at the University of Warwick. Funded by the Economic and Social Research Council (ESRC), CAGE is carrying out a five-year programme of innovative research.

The Centre's research programme is focused on how countries succeed in achieving key economic objectives, such as improving living standards, raising productivity and maintaining international competitiveness, which are central to the economic well-being of their citizens.

CAGE's research analyses the reasons for economic outcomes both in developed economies such as the UK and emerging economies such as China and India. The Centre aims to develop a better understanding of how to promote institutions and policies that are conducive to successful economic performance and endeavours to draw lessons for policy-makers from economic history as well as the contemporary world.

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