

## Taking Account...

### **BEA paper explores trade-weighted import costs**

Global trade has grown significantly since World War II. A classic explanation is that trade expanded as a response to falling trade barriers. However, this classic story has been difficult to demonstrate empirically. Trade costs do not appear to have fallen enough over time to explain the amount of trade growth observed given conventional elasticities. Until the recent recession, trade continued to grow during the 2000s despite little decline in trade costs.

Benjamin Bridgman, an economist at the Bureau of Economic Analysis (BEA), discusses this issue in his recent paper “Market Entry and Trade-Weighted Import Costs,” which examines how trade costs are conventionally measured and some key drawbacks of such measurement.

The relatively small decline in trade costs historically has puzzled many. Freight costs especially show only a small decline despite revolutionary changes in global transportation since the late 1960s. Ports and ocean shipping services, for example, have boosted productivity growth enormously because of the adoption of containerization and bulk handling. Modern containers and bulk ships can be unloaded in a few hours rather than being unloaded manually over the course of days.

One explanation for the smaller-than-expected decline in

trade costs is that improved transportation quality has moderated the decline in freight rates; shipments are faster and subject to less damage, theft, and loss. Another explanation is that market power in international shipping has kept rates high.

Measurement issues, however, cannot be ignored. Import costs comprise thousands of product-level freight and tariff lines that need to be aggregated. However, trade weighting, the most common form of aggregation, suffers from a well-known bias: goods with the highest trade costs get the lowest weighting or may not be counted at all.

Using a version of the heterogeneous firms trade model developed by Richard Baldwin and James Harrigan, Bridgman’s paper shows that fixed market entry costs can bias trade-weighted measures in two ways.

First, as fixed costs fall, more goods with high variable trade costs tend to trade, and this influx of goods with high trade costs will dampen declines in trade-weighted measures.

Second, the ad valorem equivalent of trade costs that are charged on a per unit basis will vary with the quality of goods. Goods of high quality and high value per unit tend to trade more when fixed costs are high. When specific costs fall, the average quality of goods also falls. Lower quality goods that were not traded previously tend to start trading, while among those goods that had been traded,

trade shifts to lower quality goods. Since these goods have the highest ad valorem trade costs, trade-weighted measures will underestimate the decline in trade costs.

The effects of composition changes on aggregate measures of trade costs are significant. Since the 1970s, there has been a counterintuitive shift toward high-trade-cost goods as falling trade costs have made low-value goods more economical to trade. This tendency has the effect of muting falling import costs in trade-weighted measures. Bridgman found that trade costs calculated according to his model fell twice as fast as trade-weighted measures.

This explanation helps explain the significant improvements in transportation technology with relatively small declines in trade-weighted transportation costs.

In addition, if the decline in trade costs has been underestimated, trade elasticity does not have to be unrealistically high; that is, a much lower elasticity can explain the long-term growth in trade.

The results of the paper also highlight a new problem in measuring trade costs. The expansion of newly traded goods implies that there are a large number of goods for which we cannot directly measure the change in trade costs.

Bridgman’s paper is available on the BEA Web site under “Papers and Working Papers.”