III. Special topic

Tariff accumulation, effective protection and export competitiveness in global production

Are tariffs an issue of the past, thanks to progress in multilateral or preferential trade liberalization? Many analysts are turning their interest to non-tariff measures (NTMs) or trade facilitation because nominal tariffs seem too low to make a

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Figure 1. Effective protection rates by industry at MFN, 1995-2008

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3. Impact of tariffs on domestic production cost

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with the great trade collapse. In 2011, the last year in their dataset, trade frictions are just back to their 2005 level. To explain this peak, it should be kept in mind that this trade frictions index reflects any type of transaction cost, including the reluctance of companies to trade in the middle of a financial crisis or the home bias (such as the trend observed among some consumers towards buying local products). It cannot be interpreted as a surge in protectionism. Nevertheless, it indicates that at the beginning of the 2000s and in the second half of the 2000s, the historical trend of decreasing resistance to trade has been interrupted, a key factor in explaining the slower growth of trade.

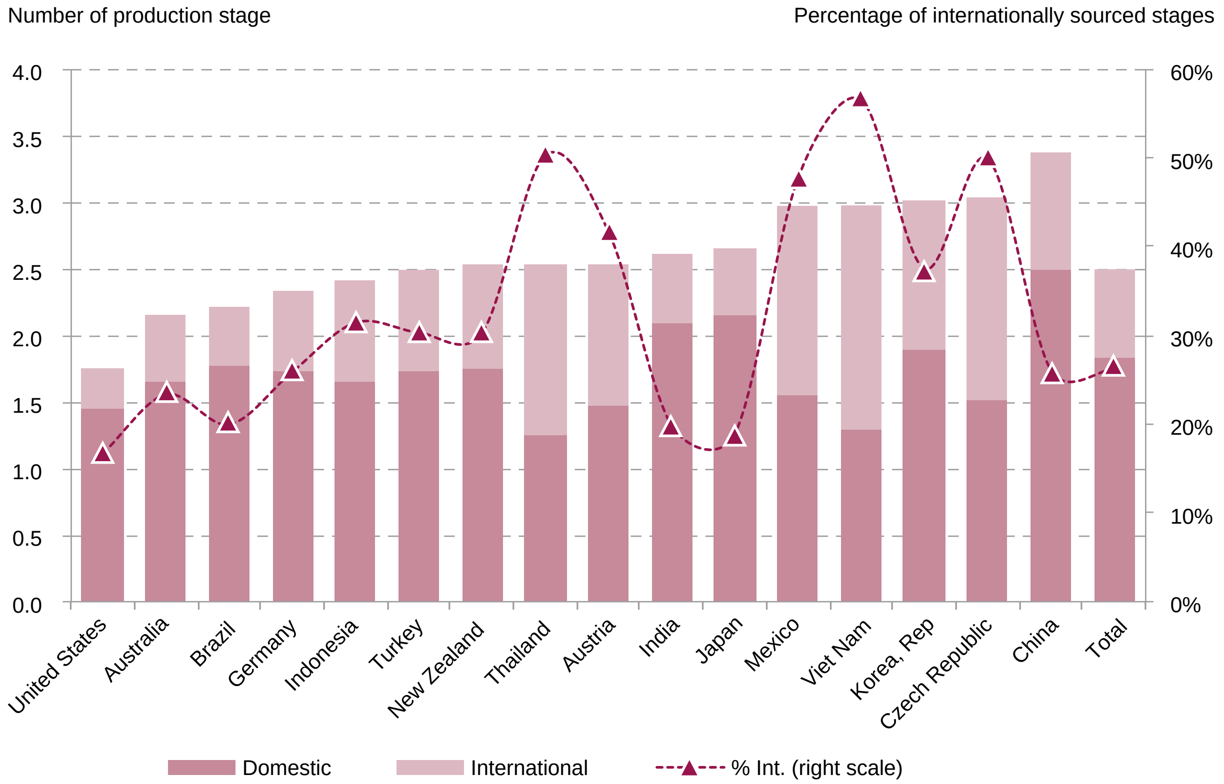
Yi (2003), Ma and Van Assche (2010) and Ferrantino (2012) highlight the non-linearity in the way in which transaction costs negatively affects trade flows in a trade in task perspective, where goods have to travel through several nodes before reaching their final destination. The impact of tariffs and other additional transaction costs is amplified as intermediate goods are further processed by importing countries then re-exported; Yi (2003) indicates that a small decrease in tariffs can induce a tipping point at which vertical specialization (trade in tasks) kicks in, while it was previously non-existent. When tariffs decrease below this threshold, there is a large and non-linear increase in international trade. The cascading and non-linear impact of tariff duties when countries are vertically integrated can be extended to other components of the transaction cost. When supply chains require semi-finished goods crossing international borders more than once, the effect of a marginal variation in trade costs everywhere in the supply chain is much larger than would be the case if there were a single international transaction.

Ferrantino (2012) shows that, when trade costs apply in proportion to the value of a good, the total cost of delivering the product to the final consumer increases exponentially with the number of production stages.[11] For example, if the average ad valorem transaction cost is ten per cent, accumulated transaction costs in a five-stage supply chain lead to an ad valorem tariff equivalent of 34 per cent. Doubling the number of stages by slicing up the supply chain more than doubles the total delivery costs, as the tariff equivalent is 75 per cent. All this indicates the critical role of low transaction costs including tariff duties and non-tariff measures in facilitating trade in a trade in tasks perspective.

Rouzet and Miroudot (2013) formalize a measure of the cumulative tariffs embodied in trade in intermediates along international supply chains. In a GVC, imports of intermediate goods from industry i in country c has a chain of components corresponding to backward production linkages. First, the direct tariff t_i^c is incurred when the imported good crosses the border between supplier country s and c. Second, suppliers in country s have also paid tariffs on their inputs from third countries in proportion to their use of imported intermediate goods. And so on and so forth. Using the matrix of technical coefficients A, the authors demonstrate that the cumulative tariff on an import from country-sector i to country-sector j is equal to:

$$CT_{i,j} = t_{i,j} + \quad {}_{n=0} \; {}_{i}^{(n)}$$

Figure 6. Number of production stages in electrical and optical equipment industry, 2008



Source: OECD-WTO TiVA database: OECD Global Value Chains Indicators -May 2013.

5. Conclusions

In a GVC, rms trade in tasks rather than in nal products; trading in tasks (or in value-added, using the statisticians' vocabulary)

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