Investigating double counting terms in the value-added decomposition of gross exports

Topic: Classical IO applications: Trade and GVCs
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In the input-output framework, the concept of 'double counting' comes from the measurement of intermediate inputs. Output is equal to (domestic) value-added plus intermediate inputs. But intermediate inputs are also produced with (domestic or foreign) value-added and other intermediate inputs. Double counting terms can be regarded as a subset of intermediate inputs in output decomposition. When it comes to value-added in exports, there is no consensus yet on the definition of double counting terms. Some authors, such as Koopman et al. (2014), Nagengast and Stehrer (2016) and Borin and Mancini (2017) propose to base the definition on the number of international border crossings. Also, Los and Timmer (2018) point out that the double counted domestic value-added is the sum of the bilateral domestic value-added across all partners minus the unilateral one (i.e. with partner world). Moreover, they indicate that the allocation of value-added to gross flows is 'arbitrary'. Alternatively, Miroudot and Ye (2018) rely on a supply-side input-output model. In their framework, double counting terms can be measured by the second and later input rounds in the generation of value-added in exported goods using the Ghosh decomposition.

In this paper, we investigate more closely the concept of 'double counting' in the decomposition of gross exports. First, we show that while domestic value-added can be indeed 'double counted' in the domestic content of exports, the concept of foreign double counting is more complicated and does not always imply value-added counted twice from the point of view of the exporting economy. When talking about 'double counting' in gross exports, it is important to distinguish the global level (world) from the country level. We provide separate frameworks and introduce different terms based on the global-consistency and country-consistency of the decomposition in order to shed light on the distribution of GDP in the global/country export flows. We thus clarify the meaning of double counting terms in the different decompositions of gross exports.