The complex network topology of trade in a globalized world

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Abstract

The economy and, more specifically, the trade of goods and services can arguably be regarded as a complex system. The underlying dynamics of trade systems are often a priori unknown and concepts from complex system theory provide useful tools to discover new patterns and to develop new hypotheses on the mechanisms of the system.

Here, I extend specific methods of complex networks with a focus on the relations between different subnetworks to investigate the network topology of trade on the global scale. In particular, I am addressing the following questions: What trade structures have emerged and how did they evolve during the process of globalization, seen from a networks of networks perspective? How did bilateral trade agreements impact the economic interconnectedness between the two negotiating partners in this environment? Lastly, I address how direct and indirect trade relations of the trade network imply correlations in economic performance between the industry sectors. Although all new methods and measures introduced in the presentation are motivated by these questions, the methodological concepts are widely applicable to complex networks of other research disciplines.