

## An Exhaustive All-Subsets Examination of Trade Theory on WTO Data

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**Abstract :** We examine trade theory with this motivation. The full set of World Trade Organization data are organized into country-year pairs, each treated as a different entity. Topological Data Analysis reveals that among the 16 region and 240 region-year pairs there exists in fact a distinguishable group of region-period pairs. The generally accepted periods of shifts from dissimilar-dissimilar to similar-similar trade in goods among regions are examined from this new perspective. The period breaks are treated as cumulative and are flexible. This type of all-subsets analysis is motivated from computer science and is made possible with Lossy Compression and Graph Theory. The results question many patterns in similar-similar to dissimilar-dissimilar trade. They also show indications of economic shifts that only later become evident in other economic metrics.

**Keywords :** econometrics, globalization, network science, topological data, analysis, trade theory, visualization, world trade

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