PRESENTATION PROPOSAL FOR THE 2014 MATHEMATICS OF NETWORKS MEETING

Arnaud Dyevre*
a.dyevre@lse.ac.uk

This proposal is based on the dissertation I will submit later this month for the completion of the MSc Local Economic Development. Using network analysis and American export data, it sheds light on the process by which U.S. states and cities acquire comparative advantage in certain industries.

1. abstract

How do new path of regional economic growth unfold is one of the most intriguing question in economic geography. Our understanding of this process has benefited from the recent advancements in product diversification theories.

Using highly disaggregated U.S. export data (more than 6000 industries) at the national, state and metropolitan level and comparing the datasets to world trade data, one can create a large weighted network. The nodes represent the industries and the edges represent the probabilities to be good at exporting in one industry when being already good in the other (for a more detailed explanation of the method, see Hidalgo et al., (2007)). An representation of such network is presented in Figure 1.

If an American state is currently not exporting a product with a revealed comparative advantage (RCA) but this industry is strongly connected (in terms of co-exporting probabilities) to industries in which the state do have RCAs, then one can expect that it will become good at exporting the good of interest in the near future. Indeed, state economies can reallocate resources more easily from one industry to another if these industries are similar in their input requirements.

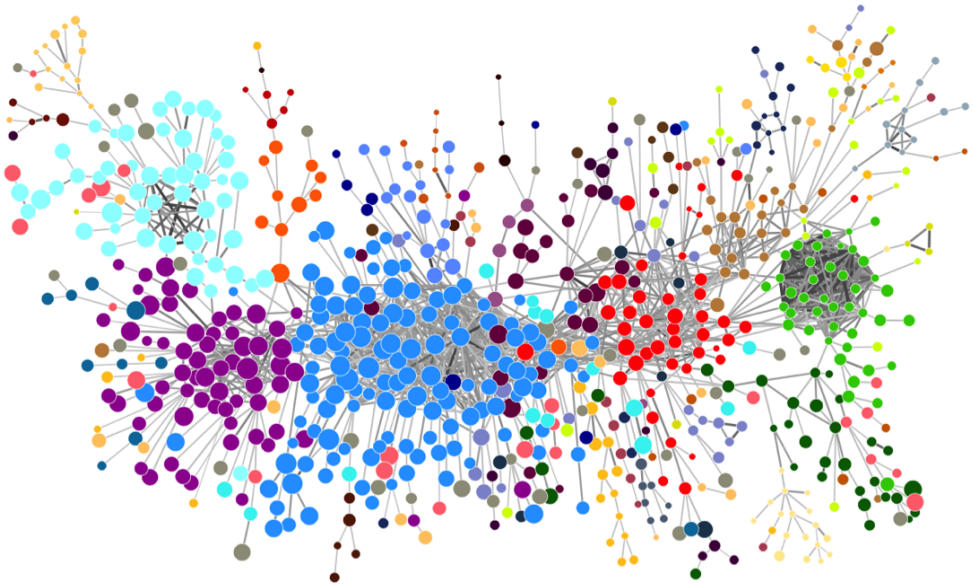
A specific measure of network density captures this potential of developing a new comparative advantage. I show in my dissertation that, controlling for confounding factors, the density is a major predictor of acquisition of RCA. It is thus a reliable indicator of the industries in which a local economy can be good at in the future.

It is the first time this method is used at the sub national level for the United States and at such a precise degree of industry classification. The case of Spain has been studied previously in Boschma et al., (2012), although less accurately and only at the regional level.

*MSc Local Economic Development, Department of Geography, London School of Economics and Political Science

FIGURE 1.— The "Product Space", industry relatedness based on world export data (From Hidalgo et al., (2007)

)



2. DATA

- World trade data at the HS6 level: http://www.cepii.fr/CEPII/en/bdd_modele/presentation.asp?id=1
- U.S. export data at the HS6 level, for states and cities: https://usatrade.census.gov

REFERENCES

BOSCHMA, R., MINONDO, A., & NAVARRO, M. (2012). *Related variety and regional growth in Spain*. Papers in Regional Science, 91(2), 241-256.

HIDALGO, C.A., KLINGER, B., BARABASI, A.L., HAUSMANN, R. (2007). *The Product Space Conditions the Development of Nations*, Science, 317 (5837), 482-487.