米中貿易戦争とその後の貿易パターンのネットワーク分析

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Abstract

The US-China trade war since 2018 has had a major impact on the world economy. However, most research on this topic has focused on the magnitude of the effect and not much on it's characteristic and how the relationship between countries has changed. I employ a complex network approach for the timeframe 2017-2019 to study the change in characteristic of the world trade network of one of the product categories (Telecommunication equipment) that had the most impact due to tariffs in the early years of the trade war. I find that the communities in the world trade network has followed a pattern similar to the communities in the world RTA network. Suggesting that in times of shock, the way in which countries connect to each other differ from when there aren't major shocks in the network.

Contents

1 Introduction

1.1 Background

US-China Trade War

The US-China trade war since 2018 has had a major impact on the world economy, since the US and China are the top two economies in the world by GDP, and their bilateral trade accounts for X% of all trade in the world. Hence, Understanding how the trade war has affected the world economy has been a hot topic of econommic research. Here I will briefly overview how the events in the early years of the trade war has taken place.

1.2 Literature Review

Trade War

Three avenues of research regarding the US-China Trade War has been identified in the literature. These are:

i Ex ante estimation of impact

ii Ex post estimation of impact

iii Estimating trade diversion impacts

In the following, I will briefly overview the literature in each of these avenues.

Estimating the effect ex ante Most studies in this avenue follow a similar approach, which is to suppose a scenario of the trade war and use a CGE(Computable General Equilibrium) model for each of these scenarios. For example, Itakura[1] supposes three scenarios of the trade war, (i) US Tariffs against Chinese goods stay fixed until 2035. (ii) In additino to scenario (i), decline in investment in the US and China will occur due to the uncertain economic enviroment. (iii) in addition to scenario (ii), productivity will decline due to the relationship between productivity and trade openness. They then use a CGE model to estimate the effect at 2035 each of these scenarios. The estimations are compared against a baseline derived from the United Nation's outlook for US and China in 2035 respectively. Amiti et al.[2] estimate the effect of the trade war on the US economy using a general equilibrium model. They find that the trade war has had a negative effect on the US economy, and that the tariffs have been mostly borne by US consumers.

Estimating the effect ex post

Estimating trade diversion effects

Trade Network

1.3 Research Question

However, there has been little to no research in understanding "How" has the world trade network changed since the trade war. i.e.What is the characteristic of the world trade network after the trade war.

2 Data and Methods

Data: BACI trade data from CEPII.
date range: 2017-2019
Methods: Network analysis, centrality measures, etc.

2.1 Data

Trade

Distance

RTA

Military Alliances

2.2 Network analysis

Node Centrality

Eigenvector Centrality

2.3 Community detection

2.4 Comparing communities

3 Networks

3.1 Product Network

Node Centrality

Eigenvector Centrality

3.2 RTA Network

Node Centrality

Eigenvector Centrality

3.3 Military Alliancce Network

Node Centrality

Eigenvector Centrality

4 Results

5 Conclusion

6 References

7 Acknowledgements

References

[1] Ken Itakura. Evaluating the impact of the us–china trade war. *Asian Economic Policy Review*, 15(1):77–93, 2020.

[2] Mary Amiti, Stephen J. Redding, and David E. Weinstein. The impact of the 2018 tariffs on prices and welfare. *Journal of Economic Perspectives*, 33(4):187–210, November 2019.