Analysis and Prediction of Bilateral Export between China and BRI Economies

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Abstract

This paper uses a gravity model and machine learning analysis techniques estimations to analyze the prediction of ex-post China's Bilateral Export flow under Belt and Road initiatives. The model includes 162 countries and is estimated in panel over the period 1990-2017. This is showed as a function of geographical, cultural, historical observable, economic, and a host of unobservable transports infrastructure in an augmented gravity model of bilateral Export as a baseline model. Using a fully connected, feedforward neural network, we were able to successfully improve upon Gravity Model's prediction accuracy by an R^2 score of .42. In contrast with previous estimates, results show that neural network approaches effectively predict economic variables using only time-agnostic features over that period. We present our findings here and discuss future opportunities for further investigation.

Keywords: International Trade, Economic Integration, Structural Gravity, Machine learning, China, Africa.