Comment on "Production Networks, Geography and Firm Performance "

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Summary

• This paper consists of three parts.

First, the authors provide four stylized facts about the Japanese production network employing a novel data set for the firm-level production network. The four facts are as follows: ① Larger firms have more suppliers ② Larger firms have suppliers in more locations and their distance to suppliers is higher ③ The majority of connections is formed locally ④ There is negative degree assortativity among sellers and buyers.

Second, the authors develop a theoretical model of outsourcing in a domestic economy to explain these facts.
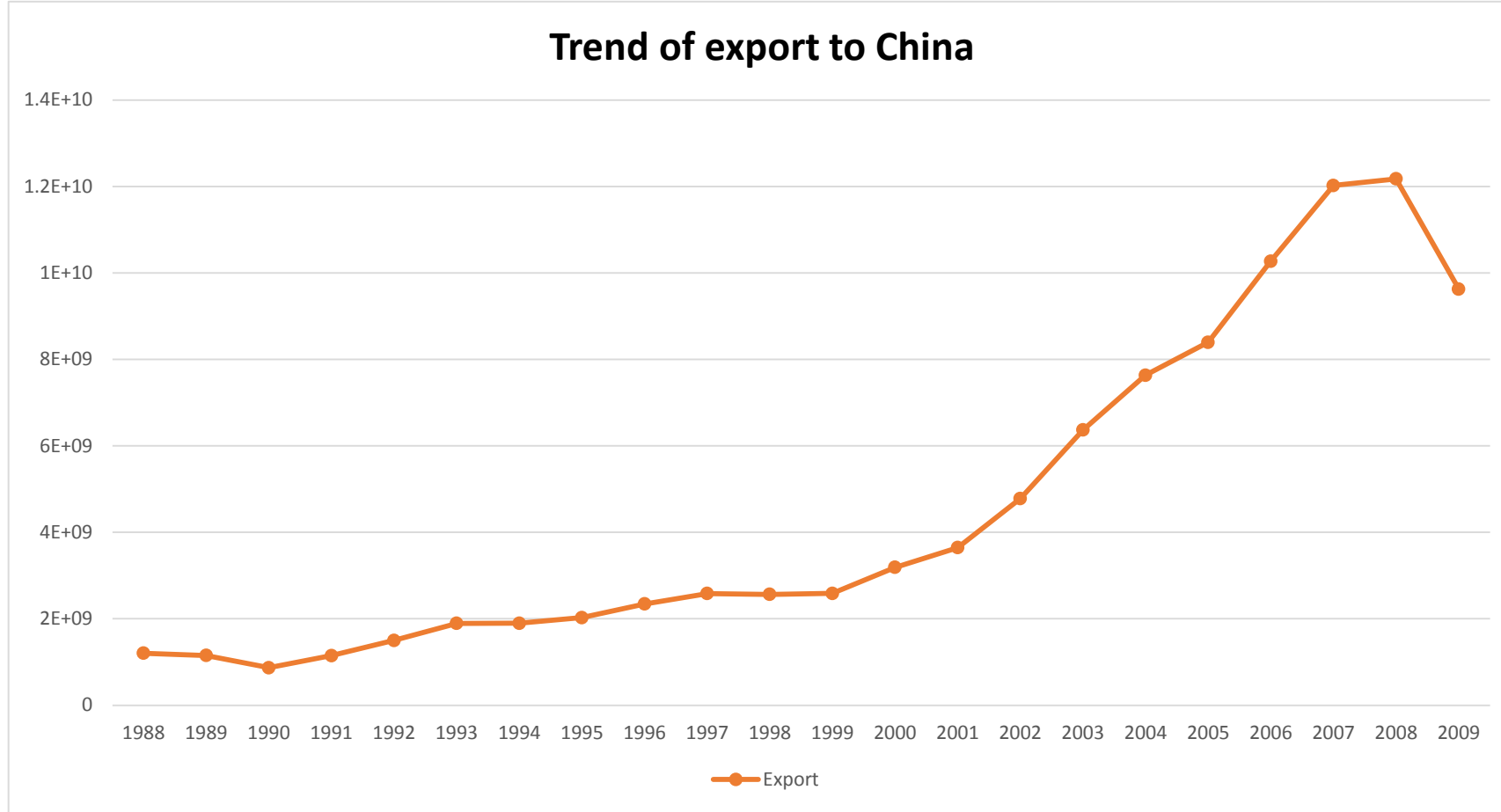
Summary

Third, the authors conduct empirical analysis using a unique event (Shinkansen expansion) and a comprehensive network data set to test a theoretical model. According to estimation results, infrastructure shocks generated significant performance gains, especially for firms in industries that have large shares of purchased inputs, and these gains are due to new buyer-seller linkages. The results are consistent with the model.
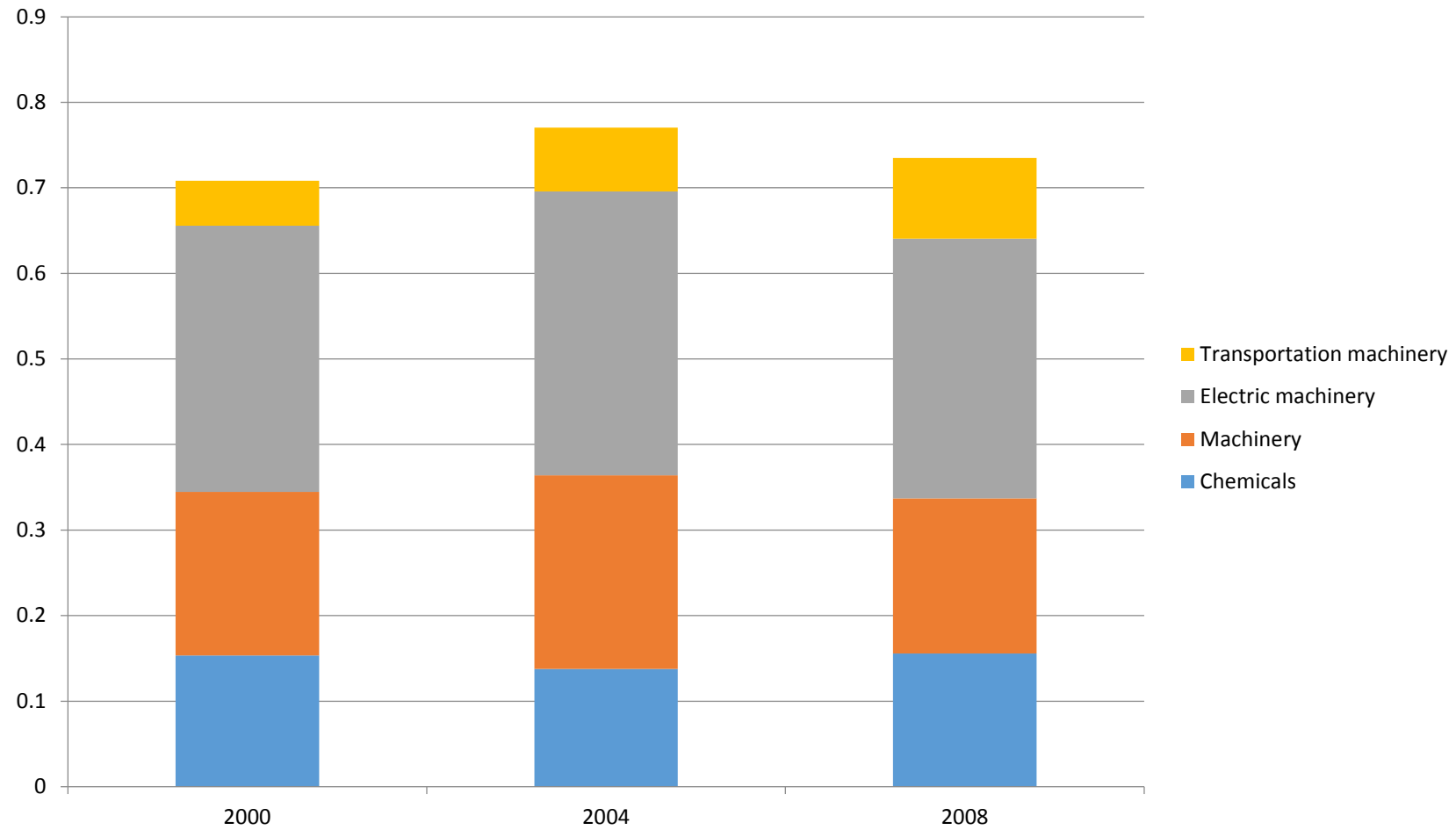
The result of the paper is very clear, and its contribution to the literature is also significant.

Comment (1)

- First, I thought about an alternative episode of network expansion in the same period and area that infrastructure shocks occurred. Since the mid-2000s, exports to China drastically increased. In particular, exports from Kyushu area increased more than those from other areas. Exports to China are also concentrated in purchased input intensive industries such as Chemicals, Machinery, Electrical machinery, and Transportation machinery. Based on these facts, there is a possibility that the increased demand by Shinkansen expansion might include demand boom by China. Therefore, the observed results might overestimate the effect of Shinkansen expansion.

Trend of export to China

Data is taken from exports of goods by industry, major partner countries and region in JIP database supplementary tables.

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Comment (2)

- Second, I would like to give some comments on TFP measurement. In the paper, firm-level TFP is measured by production function estimates using the Olley and Pakes (1996) method. This method is robust to measurement errors (Van Biesebroeck, 2007), and to endogeneity of inputs. But the OP method assumes an identical production technology among firms within an industry.

- There is no investment variable in *Basic Survey of Japanese Business Structure and Actives*. It is necessary to explain which investment data you used as a proxy variable for productivity shocks.

Production function estimates by estimator

Estimator	Coefficients		
	Labor	Capital	Materials
WLP with measurement error correction	0.269	0.115	0.556
WLP	0.307	0.045	0.577
OLS	0.436	0.087	0.517
FE	0.45	0.039	0.357
FD	0.286	0.021	0.274

Kown, Narita, and Narita (2015)

Comment (2)

- I would like to suggest that you may use the index number method for measuring firm-level TFP. Two advantages of this method are that it allows for heterogeneity in production technology of individual firms, and it does not require the assumption on the form of production function. Because information on input cost shares at the firm level is readily available, it is also easy to calculate.