

# Production Networks, Trade, and Misallocation\*

Pravin Krishna<sup>†</sup>

Johns Hopkins University and NBER

Heiwai Tang<sup>‡</sup>

Johns Hopkins University and CESifo

March 18, 2018

(Preliminary. Please do not circulate.)

## Abstract

This paper analyzes aggregate TFP losses in contexts in which policy distortions result in resource misallocation across heterogeneous firms within sectors and where firms are engaged in inter-sectoral intermediate input trade, both domestically and globally. In the presence of various policy distortions and industry input-output (IO) linkages due to firms' global sourcing of inputs, we show that a closed economy's aggregate TFP is simply a geometric mean of sectoral productivities, with weights equal to sectoral influences captured by their sales to GDP ratios. We discuss how a sector's influence needs to be adjusted with each country's domestic trade shares to incorporate global IO linkages. Importantly, sectoral TFP losses get amplified in the aggregate through IO linkages, more so when the economy's foreign trade shares increase. We confirm this amplification quantitatively using manufacturing enterprise-level data from China and India over the period of 2000-2007. However, despite a significant amplification effect through IO linkages for both countries, our estimates of aggregate TFP losses from resource misallocation, obtained using a gross output approach, are similar and sometimes even smaller than those computed using the value-added approach adopted by Hsieh and Klenow (2009) and subsequent studies. The reason is that the distortions on input sourcing appear to be much less dispersed across firms within industries, compared to those of labor and capital, hence resulting in an upward bias in the estimated sectoral TFP losses from resource misallocation under the value-added approach.

**Key Words:** misallocation, input-output linkages, production networks, industrialization

**JEL Classification Numbers:** F14, D22, D85, L10, L14, O11, O47, O53

---

\*We thank Robert Feenstra, Hugo Hopenhayn, Chang-Tai Hsieh, Ernest Liu, Gianmarco Ottaviano, Diego Restuccia, Michael Song, Chad Syverson, Felix Tintelnot, Johannes Van Biesebroeck, Daniel Xu, Xiaodong Zhu, and seminar/ conference participants at CEPR Conference on Global Value Chains, Trade and Development, Columbia University, Hitotsubashi University, NBER China Meeting, Peking University, UC Davis for comments.

<sup>†</sup>pravin\_krishna@jhu.edu

<sup>‡</sup>hwtang@jhu.edu