

# Trade liberalisation and manufacturing productivity: the case of open developing economy of Nepal

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## Abstract

Over the past three decades, trade liberalisation has become a major part of countries' development strategies. However, there is a great debate at both theoretical and empirical levels on whether the relationship between trade liberalisation and productivity is always positive. The debate is still ongoing, and the trade-productivity literature is inconclusive. Advocates argue that trade liberalisation leads to a more efficient allocation of resources through foreign competition and foreign direct investment, resulting in productivity improvement of domestic industries. On the other side, critics believe that trade liberalisation brings in external shocks to an economy, inviting greater amount of risks and uncertainty that affect both domestic industries and workers. Here our motivation for the study starts with a question whether trade liberalisation weighs equal benefits to every country when there is marked dissimilarity in economic development across nations. The paper grabs an opportunity to delve into the issue in the context of a highly open developing economy. We argue that liberalisation impacts are both country- and industry-specific. The paper investigates whether trade liberalisation is uniformly beneficial to all industries/sectors of the country. For this, unlike previous studies, we extend our study beyond conditional mean productivity to examine variation in industries' responses to a common liberalisation shock. We adopt standard methodology in literature, given by Levinsohn and Petrin (2003) (LP hereafter) to estimate the parameters of industry-level production function, where industry productivity is modelled as an unobserved industry-specific effect. The LP methodology is built on ideas first developed by Olley and Pakes (1996). The major objective of the method is to control for correlation between input variables and the unobserved industry-specific productivity shocks, giving consistent parameter estimates of the production function. In other words, this is to tackle the simultaneity problem that exists in estimating the production function, using different choice set of proxies. The LP approach is not just potentially more efficient but often the only one available that is better suited for developing countries' datasets. Later we check the robustness of our production function results using the value-added production model of Akerberg, Caves, and Frazer (2015)

(ACF). With the consistent coefficient parameters of production function, we construct our productivity measure, which is the estimate of the residual TFP that varies across industries and over time. After productivity estimation, first we use standard approach in the literature to study the trade – productivity link (Amiti & Konings, 2007; Fernandes, 2007; Pavcnik, 2002; Topalova & Khandelwal, 2011). However, the results from such approach does not provide information on variation in policy responses for different industries, ranging from the least efficient to the most efficient producers of a particular good. We, therefore, follow Kealey, Pujolas, and Sosa-Padilla (2019) in using quantile regression to study the policy response at different quantiles of productivity distribution. Our argument is that focusing only on aggregate impacts of trade policy on productivity ignores different policy responses that are exhibited at different levels of industries. We look for variation in trade policy responses across industries in the study of trade – productivity link, rather than a single response based on conditional mean productivity. In the study, we also consider cross-industry variation using industry ‘size’ and ‘location’ in the impact of trade policy on productivity. We find that drawing conclusion on trade-productivity relationship is biased and can sometimes be misleading if we only consider average industry productivity. We evidence this through three major channels: (i) First, we observe statistically insignificant relationship between trade and productivity, following the mean productivity approach in literature; (ii) Second, we find industry characteristics play significant role in determining the magnitude and direction of trade impacts on productivity. Large industries are benefitted from trade liberalisation whereas small industries still require protection for their growth; and (iii) Third, we go beyond mean productivity approach and find trade liberalisation impacts vary at different quantiles of productivity distribution. Industries at upper quantiles are highly benefitted, whereas for lower quantiles, it is insignificant. This suggests that industries with high productivity can reap more liberalisation benefits than industries with low productivity. We conclude that trade liberalisation impacts are industry specific, and these impacts can be of both benefitting and hurting nature depending upon productivity distribution and other industry-specific characteristics. It can be a mistake to generalise the trade-productivity link looking at just the conditional mean productivity.

### **Keywords**

trade liberalisation; developing economy; Nepal; manufacturing productivity; panel data; industry characteristics

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