

Trade Barriers and Productivity Shocks: The Dual Drivers of Economic Disruptions under Pandemic Controls

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The effects of strict pandemic-control measures have already been extensively studied. Compared with the existing literature, this paper uses a structural framework to jointly evaluate and compare the global economic impacts operating through trade frictions and productivity shocks. We map two-step structural-gravity estimates into iceberg trade-cost changes and recover total sectoral productivity changes from exporter multilateral resistance terms after accounting for those trade-cost changes. We use the estimated association between recovered productivity and pandemic-control exposure—measured by the interaction between the Stringency Index and sectoral dependence on on-site work—to construct the pandemic-control-related productivity shock used in the counterfactual analysis. The estimates associate stricter pandemic controls with higher manufacturing trade costs and lower recovered productivity in sectors that rely more heavily on on-site work. In the baseline 35-economy, 18-sector model, where the direct productivity shock is assigned to manufacturing, global welfare falls by 1.82%; the Shapley decomposition attributes 71.1% of this loss to productivity and 28.9% to trade costs. An illustrative extension of the productivity shock to non-tradable services raises the welfare loss to 4.95% and the productivity share to 89.5%. The welfare effect remains negative across the reported sensitivity exercises, although its magnitude varies with the structural calibration and the sectoral scope of the productivity shock. Overall, both trade-cost and productivity shocks contribute to welfare losses.

Keywords: COVID-19; pandemic controls; trade costs; productivity shocks; welfare