RESEARCH INSIGHTS

Can Better Infrastructure Offset the Negative Impacts That COVID-19 Has Had on Productivity in Different Economic Sectors?

- The effects of COVID-19 have been stronger in service-related subsectors, where supply and/or demand were constrained by lockdowns and social distancing measures. The losses in these subsectors have had direct impacts—through their weight in countries' GDP—and indirect impacts through their effect on other sectors.
- In Latin America, effects on the three most affected sectors—wholesale, retail, and hospitality services; construction; and manufacturing—add up to a 4.9 percent hit to economy-wide labor productivity through direct and indirect channels.
- Large productivity improvements in infrastructure may be needed to fully compensate for the negative productivity losses traceable to COVID-19.

CONTEXT

Since the onset of the COVID-19 pandemic, much attention has been paid to interactions among the pandemic's spread, the effects of policy interventions, and the effects of behavioral responses on aggregate economic activity and employment. There is less evidence, however, on more specific effects, such as the transmission of supply and demand shocks in given economic sectors. At least in the case of Latin America and the Caribbean, there is little evidence on the differential nature of contraction in activity and employment, its sectoral decomposition, and, finally, the prospects for recovery. This study attempts to fill these gaps in our knowledge.

Key Concept

VECTOR AUTOREGRESSION (VAR)

Is a statistical model used to capture the short-run relationship between multiple series as they change over time.

PROJECT

This study uses the growth-accounting KLEMS dataset for eight countries in the region. First, a panel vector autoregression of growth rates in sector-level labor productivity is estimated using historical data to specify the nature and size of sectoral COVID shocks. Those estimates are then used to perform impulse-response simulations of one standard deviation shocks to the most affected sectors. This allows us to assess the aggregate impact of the crisis through direct and indirect sector-level channels. Finally, the possible offsetting effects of improving productivity in infrastructure sectors were calculated by modeling the long-run relationship between productivity shocks in the most affected sectors and infrastructure-related sectors.

RESULTS

On aggregate, effects in the three most affected sectors—wholesale, retail, and hospitality services; construction; and manufacturing—add up to a 4.9 percent hit to economy-wide labor productivity. This loss in labor productivity is larger than that experienced by other regions, and therefore is in line with **results** showing that Latin America and the Caribbean was the region that suffered the worst economic effects from the pandemic.

What type and size of positive shock to other sectors could then possibly offset the negative COVID shock? The paper finds an empirical long-run relationship between productivity in the wholesale, retail, and hospitality sector, and productivity in one of the infrastructure-related sectors: transportation and telecommunications. This includes all forms of transportation, digitalization, logistics and storage. That relationship provides an elasticity that can be used to calculate the possible offsetting effects of improving productivity in infrastructure sectors.

The good news is that greater productivity in that sector can indeed help to offset losses in other sectors. Specifically, an improvement in the productivity of the transportation and telecommunications sector would help to restore lost productivity in the wholesale, retail, and hospitality sector. Given the range in empirical estimates, the required improvement in the productivity of the transport and telecommunications sector for that to happen varies from 10 percent to 25 percent.

The bad news is that these estimates are large given the region's track record on productivity growth in infrastructure-related sectors. For example, the historical rate of productivity improvement in the transportation and telecommunications sector in Latin America and the Caribbean is 2.9 percent annually. At that rate, the required productivity gain would take years.

Key Concept

IMPULSE-RESPONSE SIMULATIONS

Of shocks to a sector, based on VAR estimates, are statistical exercises performed to assess the impacts of shocks on other sectors, and on the overall economy.

POLICY IMPLICATIONS

While the type and size of sector-level shocks may be heterogeneous, their transmission across sectors can have lasting consequences on productivity. Economies have been affected by the pandemic in relation to the magnitude of the shocks they suffered and their sectoral distribution. By the same token, countries intent on recovery must increase investment in sectors with positive spillovers to other sectors so productivity can increase across all economic sectors. A case in point is infrastructure: investing in infrastructure helps to build up or improve a country's productive capacity with positive spillovers to other sectors and, therefore, to the entire economy.

This conclusion draws attention to the need for selective policy actions that operate through improvements in the regulatory compact of infrastructure services. This is no easy task, but it is feasible and can be done through policies that shift focus from "structures" to "services" in the sector, as is argued in the 2020 edition of the Development in the America's (DIA) flagship report, ***From Structures to Services: The Path to Better Infrastructure in Latin America and the Caribbean***.

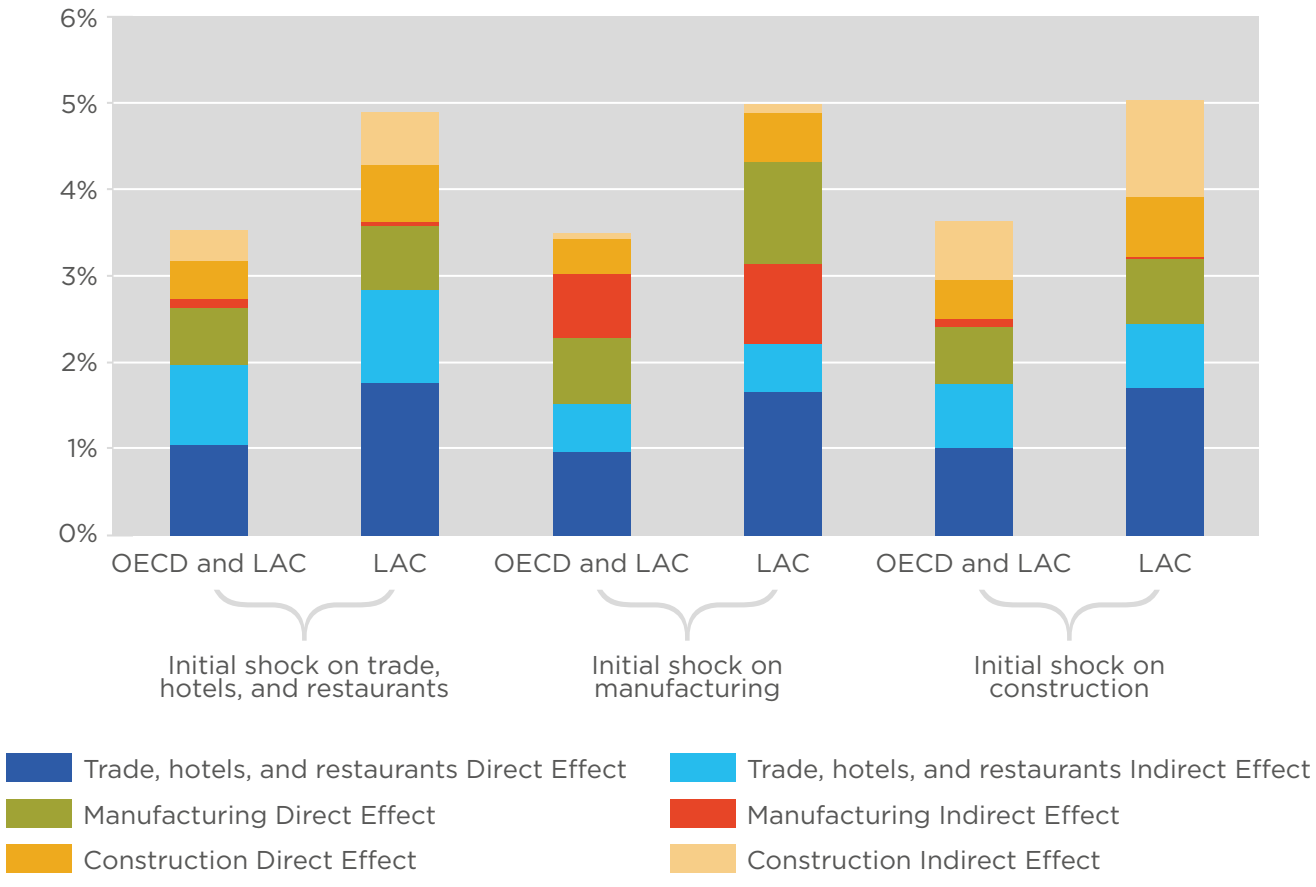
To close its infrastructure gap, Latin America and the Caribbean needs more than investment in hard assets. It needs simultaneous and decisive policy action to improve efficiency of the infrastructure investment process and regulation of services—what the DIA 2020 refers to as "software." For example, digitalization will disrupt the provision of infrastructure services and increase efficiencies in the energy, transport and water and sanitation sectors based on the extent of adoption of digital technologies. Improving governance and ensuring regulation adapts for the future will be critical for better services. Complementarily, changes in fiscal and labor policy and regulation to facilitate the adoption of digital technologies and the reallocation of employment across sectors should also be part of the policy mix.

Key Concept

COINTEGRATION

Occurs when, over the long run, two series move in the same way and the difference between them is constant over time.

Figure 1. Decomposition of Shocks by Sector, Country Group, and Magnitude of Initial Shock



FULL STUDY

Ahumada, H., E. A. Cavallo, S. Espina-Mairal, and F. Navajas. 2021. "*Sectoral Productivity Growth, COVID-19 Shocks, and Infrastructure*."

DEPARTMENT OF RESEARCH AND CHIEF ECONOMIST

The Department of Research and Chief Economist generates new ideas to enrich the knowledge base that supports the policy agenda of the Inter-American Development Bank (IDB) and its member countries for achieving sustainable and equitable development in the region. To maximize the impact of its research, the Research Department carries out activities that serve as inputs to other IDB departments, governments, the academic community and public opinion in the region.

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