

## How Do Firm Digital Adoption Policies Impact Labor Markets and Economic Recovery during the COVID-19 Pandemic?



In response to a shock such as the COVID-19 pandemic, a policy that facilitates firm digital adoption can, in the short run, accelerate the recovery of GDP, total employment, and labor income.



In the medium run, the policy decreases total employment and the labor force participation rate due to a rise in households' opportunity cost of working.



However, this comes with higher levels of GDP and labor income, greater average firm productivity, a larger formal employment share, and a marginally lower unemployment rate.

### CONTEXT

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The COVID-19 pandemic prompted a massive contraction of employment and GDP around the globe, and Latin America and the Caribbean countries were the most affected. In particular, the effect of the shock in the labor market was different than in previous crises because it primarily affected the informal sector, given its high-contact nature. Additionally, COVID-19 forced firms to adopt new technologies to overcome mobility restrictions. We want to understand how policies that reinforce this new incentive to firm digital adoption interact with the COVID shock in a macroeconomic framework.

### PROJECT

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Using Mexico as a case of study, given its low level of intervention to overcome the negative economic effects of COVID, we develop a search and matching model with firm entry and exit where salaried firms can adopt digital technologies. The model replicates quantitatively the pandemic shock in terms of real GDP, unemployment, self-employment, and labor force participation rate. Subsequently, we use the model as a laboratory to test the effect of introducing a policy that facilitates firm digital adoption. Introducing the policy speeds up the recovery of the GDP and the labor markets, increases labor income, and improves firm productivity.

#### Key Concept



#### INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT)

Technology that is used to make decisions regarding communication processes, one example is the use of computers in the making of decisions.

#### Key Concept



#### SEARCH AND MATCHING MODEL

A theoretical economic framework usually used to study phenomena related with imperfections in the labor markets, such as the search for a job and the availability of vacancies.

## RESULTS

We analyze the short- and medium-run impact of introducing a policy that facilitates firm digital adoption. In the medium run, the policy prompts an increase in output by 0.6 percent, consumption by 0.4 percent, and real wages by 3 percent on average for both skilled and unskilled workers. The policy also generates a 1 percent drop in the labor force participation rate because the expansion in households' income increases their opportunity cost of working. Furthermore, the positive change in the proportion of firms that use information and communication technologies (ICT) induced by the policy enhances firms' productivity.

In the short run, the policy not only increases the recovery pace of GDP, unemployment, labor force participation rate and total labor income, but also reduces the magnitude of the shock on all these variables with respect to the non-policy scenario. In particular, the policy could have reduced the highest impact of the shock (second quarter of 2020) by 0.5 percentage points (p.p.) in GDP, 0.2 p.p. in unemployment, 0.6 p.p. in labor force participation rate, and 0.3 p.p. in labor income. In contrast, the policy could have worsened the negative reaction of self-employment, with an additional decrease of 2.5 p.p.

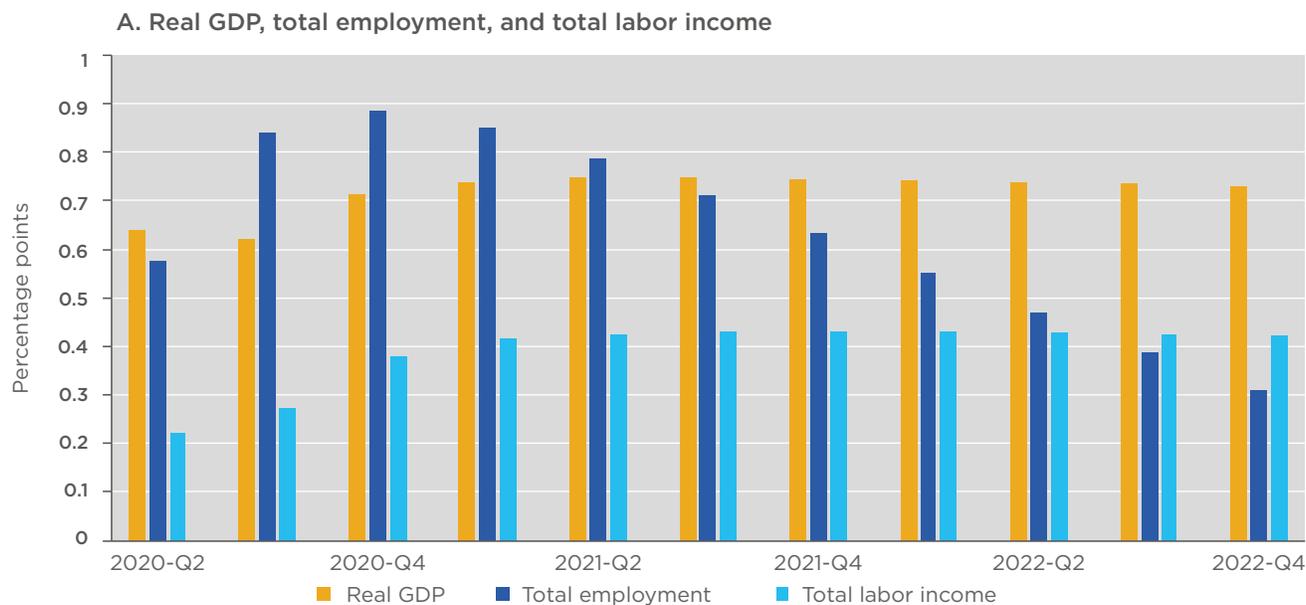
## POLICY IMPLICATIONS

Even before the pandemic, Latin America and the Caribbean countries had made efforts to increase households' and firms' digital adoption rates and reduce firms' costs of entry, and the latest data show that close to 70 percent of the population in the region uses the internet. Although the region has made significant progress in this area, there is still room for improvement.

This paper provides further evidence of the macroeconomic benefits of promoting firms' digital adoption. Our calibrated model for the Mexican economy suggests that implementing this policy decreases the impact of negative economic shocks on labor markets and GDP by reducing those markets' recovery times and weakening the impact of the shock. Even though the outcomes of implementing these policies are not perfect (it prompts a 1 percent decrease in the labor force participation rate in the long run and increases the effect of a negative shock in self-employment in the short run), their net effect is positive: they stabilize labor markets, increase households' income, and increase GDP and consumption.

The unpredictability and the global scale of the COVID economic crisis demanded fast and effective measures. This paper analyzes a specific

**Figure 1. Short-Run Policy Impact of a Subsidy to Digitalization Relative to the Baseline**



## B. Unemployment rate, share of firms using ICT, and informal employment share



policy: promotion of firms' digital adoption. Our evidence indicates that its implementation would have reduced the negative consequences of the pandemic and would have improved the macroeconomic performance of the Mexican economy in the medium run.

### Key Concept



### DIGITAL ADOPTION

The use of information and communication technologies make informed decisions.



### FULL STUDY

[Finkelstein-Shapiro, A., and V. Nuguer. 2022. "Labor Market and Macroeconomic Dynamics in Latin America Amid COVID: The Role of Digital Adoption Policies."](#)

## 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.

