RESEARCH INSIGHTS

How Much Has Human Mobility Been Reduced by Social Distancing Policies in Latin America and the Caribbean?

- The lockdowns implemented in Latin America and the Caribbean in March 2020 reduced the share of people who travel more than 1 km (about 0.6 miles) per day by 10 percentage points during the 15 days following its implementation. The effects of the lockdowns declined over time: the effect amounted to 12 percentage points during the first week and to 9 percentage points during the second week of the implementation of the lockdowns.

- In contrast, school closures reduced mobility by only 5 percentage points, and no effects were found for bar and restaurant closures or the cancellation of public events.

- The results suggest that lockdowns are a tool that can produce reductions in mobility quickly. This is important given the expectation that reduced mobility slows the spread of COVID-19.

CONTEXT

COVID-19, which reached Latin America and the Caribbean in late February 2020, has caused one of the biggest health crises in decades. To slow the spread of the virus and avoid the collapse of health systems, the region's governments implemented social distancing measures along with mass communications campaigns. These measures led to a drastic decline in human mobility between March and April of 2020. Which policies, though, were more effective in reducing human mobility? What was the size of the reduction in mobility? And how long did these effects last?

PROJECT

This project studies the impact on human mobility of four social distancing policies implemented by national governments on March 1 through April 14, 2020: lockdowns, school closures, bar and restaurant closures, and the cancellation of public events. The key outcome analyzed in this study is the percentage of people traveling more than 1 kilometer (about 0.6 miles) per day, an outcome computed using georeferenced data from cellular phones provided by the company Veraset. To estimate the size of the effect, we analyze mobility before and after the implementation of these policies and compare countries that enforced those measures with those that did not.

Key Concept

PERCENTAGE POINT CHANGE

The raw difference between two percentages, which is not the same as a percent change. For example, a reduction from 10% to 9% is a 1 percentage point decrease.

RESULTS

The results, summarized in the figure, indicate that lockdowns had a significant impact on mobility. Specifically, the percentage of people traveling more than 1 kilometer declined by an average of 10 percentage points after the implementation of this policy. This accounts for close to a third of the average decline in mobility that happened in the region between the first week in March and the first week in April. This policy, however, became less effective over time: while during the first week after the implementation of the lockdown mobility declined by 12 percentage points, the effects during the second week amounted to only 9 percentage points, a statistically significant difference. We also find that the size of the effects varies among countries. While lockdowns reduced mobility by between 16 and 19 percentage points in Argentina, Bolivia, and Ecuador, the reduction was only 3 percentage points in Paraguay and Venezuela.

On the other hand, we estimate that school closures reduced mobility by nearly 5 percentage points. The impact of lockdowns and school closures are different from zero with a 95% confidence level; in other words, they are statistically significant. In contrast, the impact of closing bars and restaurants and canceling public events is close to zero and not statistically significant. This suggests that these two measures are less effective at reducing human mobility.

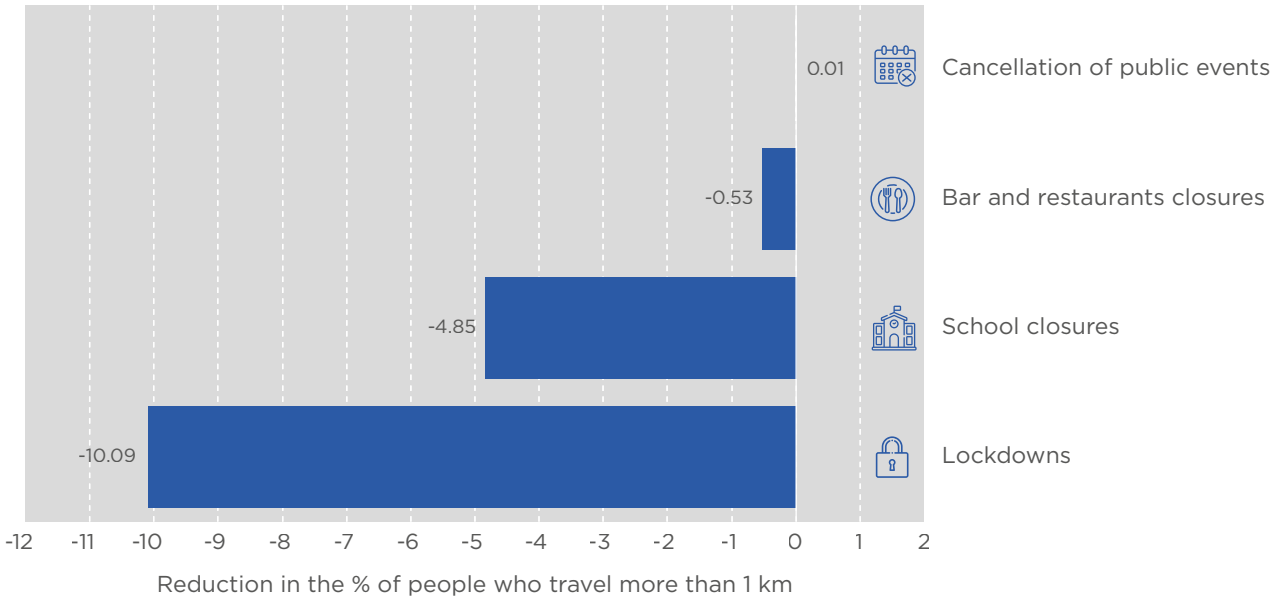
POLICY IMPLICATIONS

The results suggest that lockdowns are a tool that can quickly produce reductions in mobility quickly. This is important given the expectation that reduced mobility slows the spread of the COVID-19. This link between mobility and spread, based on the mechanisms by which the virus spreads, has been confirmed by recent empirical studies. However, it is important to consider the evidence presented with regard to variation in effects over time and among countries. These considerations suggest that the impacts of lockdowns on mobility cannot be assumed to be automatic and free from uncertainty.

With regard to the decline of the effectiveness of lockdowns at reducing mobility, consider two possible explanations should be considered. First, people initially afraid of becoming infected, with the passage of time and upon receiving more information on how to prevent contagion, may have gained more confidence and begun to increase their mobility. Second, the increase in mobility for people subjected to the lockdown may also be the result of high levels of poverty and informality in the region, which force people to go out after several days of lockdown because they need to generate income to cover essential living expenses. These two effects should be considered when deciding the length and stringency of lockdowns.

The study also indicates that closing schools reduced mobility to a certain degree. No significant effects, however, were detected from closing bars and restaurants or from canceling public events. It is nonetheless important to consider that these measures may have a more significant effect on reducing the size of gatherings rather than reducing mobility in general. Therefore, these measures may be effective at slowing the spread of the virus, even without reducing mobility.

Figure 1. The Effects of Social Distancing Policies on Mobility



Notes: Each bar represents the size of the effects of social distancing policies on human mobility. The effects are measured as the reduction in the percentage of people who travel more than 1 km. The results are obtained using a sample of 18 Latin American and Caribbean countries covering the period from March 1 to April 14, 2020.

RESEARCH ON HUMAN MOBILITY AT THE IDB

This study is one of the products of a larger project that produced the Human Mobility Map, an online visualization tool that shows how human mobility has been affected by COVID-19 in Latin America and the Caribbean. This project was led by the IDB Research Department and was the result of the collaboration effort from the Information and Technology Department, the Institutions for Development Sector, the Knowledge, Innovation and Communication Sector, the Legal Department and the Office of the Secretary.

FULL STUDY

Aromi, D., M. P. Bonel, J. Cristia, M. Llada, J. I. Pereira, X. Pulido, and J. Santamaria. 2020. *"#StayAtHome: Social Distancing Policies and Mobility in Latin America and the Caribbean."*

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.