Online Annex 3. Climate Shocks and Cross-Border Migration in Latin America and the Caribbean[1]

The regions' exposure to climate shocks has increased in the recent decades, with climate shocks becoming important drivers of outbound migration in some regions. Bolstering social safety nets will be key to contain the adverse effects of climate shocks.

Cross-border migration is a critical force shaping many economies in LAC. As of 2020, the stock of LAC citizens living abroad represents over 6 percent of the region's total population; reaching 10 and 25 percent in the case of CAPDR and the Caribbean, respectively. These figures stand out in comparison to most other regions.

Origin-country drivers (push factors) have gained importance in explaining migration across LAC. A decomposition of migration flows into origin-country, destination-country and global factors (using bilateral migration data) suggests that developments in countries of origin account for most of the migration outflows from the Caribbean, CAPDR and South America over 2015–20, in contrast to past 5-year periods (Online Annex Figure 3.1). Origin-country drivers also explain most of migration flows in Mexico, although in the opposite direction—contributing to net inflows—reflecting improved domestic conditions relative to past decades.

Climate shocks are important drivers of outbound migration in some regions. A one-standard deviation increase in climate disasters is found to explain about 1/5 of the increase in total outflows for the median country in LAC. This effect is particularly important in the Caribbean and CAPDR—the two subregions most exposed to climate shocks (Online Annex Figure 3.2)—where a one-standard deviation shock is estimated to increase migration outflows by nearly 1 percent of the country's population, on average.

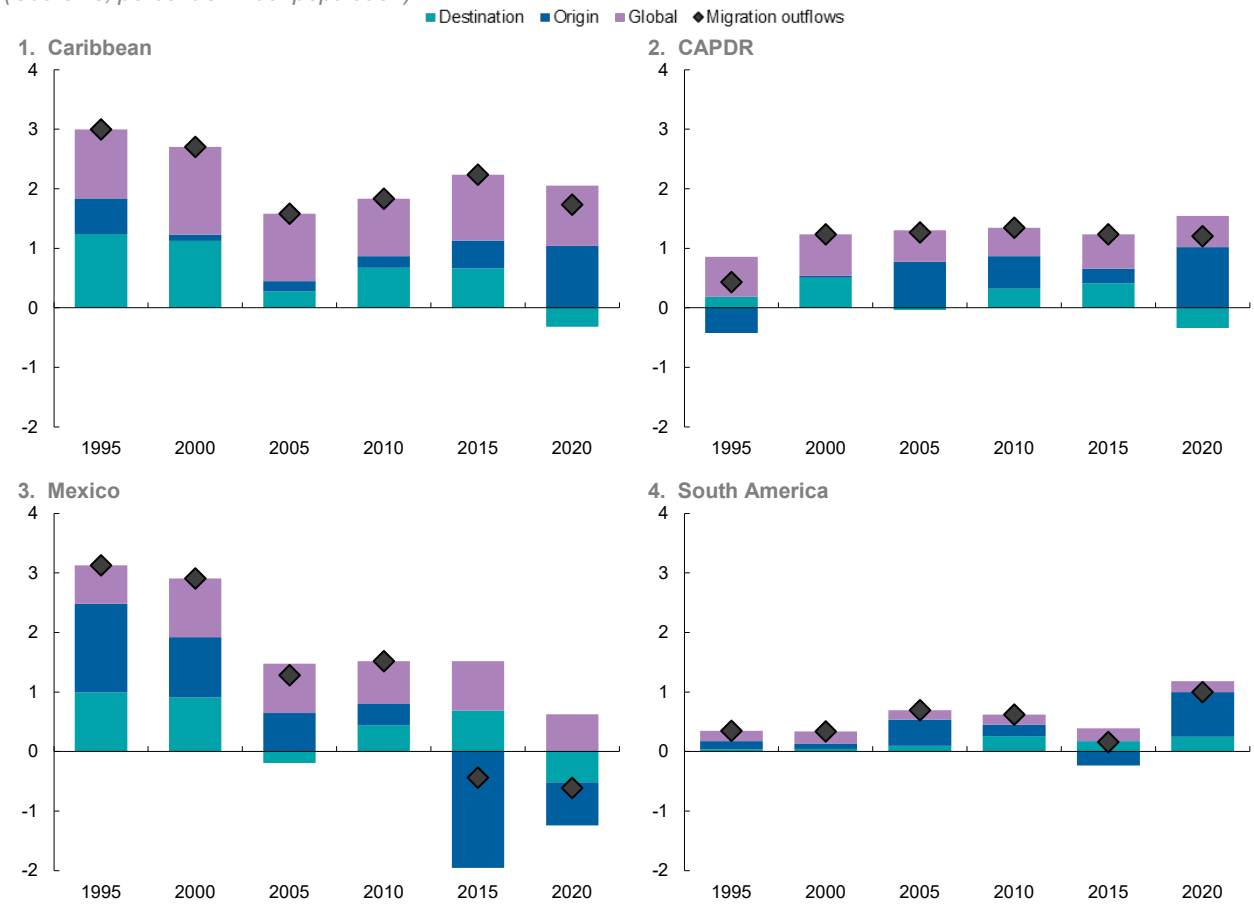
Outbound migration amplifies the impact of climate shocks on the economy. Among the multitude of channels through which climate shocks affect economic outcomes—including damage to physical infrastructure, agricultural crops and workers' health and productivity—human displacement is an important one. Climate shocks have a particularly sizable impact on agricultural output (Online Annex Figure 3.3)—including through induced migration outflows, which account for about 1/5 of the effect. Importantly, remittances play a key offsetting effect, as remittances inflows increase significantly in response to domestic climate shocks.

Bolstering social safety nets will be key to contain the adverse effects of climate shocks. As shown above, the negative effects of climate shocks on the population and the economy can be sizable, especially in CAPDR and the Caribbean. And, while remittances can play an important mitigating role, countries should not excessively rely on them as they may not be available when needed if countries where remittances originate are also impacted. Countries in the region should seek to strengthen policy responses and programs to foster resilience and mitigate the impact of climate shocks on the population, including by reinforcing social safety nets. The increasing frequency and impact of climate shocks points to the urgency of such measures.

[1] Prepared by Paula Beltran and Metodij Hadzi-Vaskov.

Online Annex Figure 3.1. Decomposition of Migration Flows

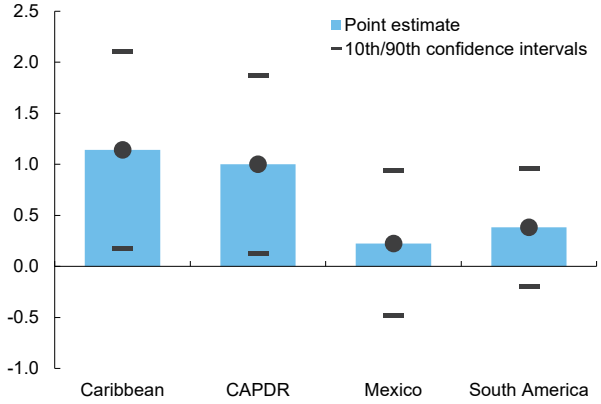
(Outflows; percent of initial population)



Sources: United Nations Population Division Global Migration database; World Bank, World Development Indicators database; and IMF staff calculations.
Note: The analysis, based on Amiti and Weinstein (2018) method applied to migration outflows, decomposes migration outflows into origin, destination, and global factors. The figure presents migration outflows as percent of total population of migrants' country of origin in the preceding 5-year period. CAPDR = Central America, Panama, and the Dominican Republic.

Online Annex Figure 3.2. Impact of Climate Disasters on Migration

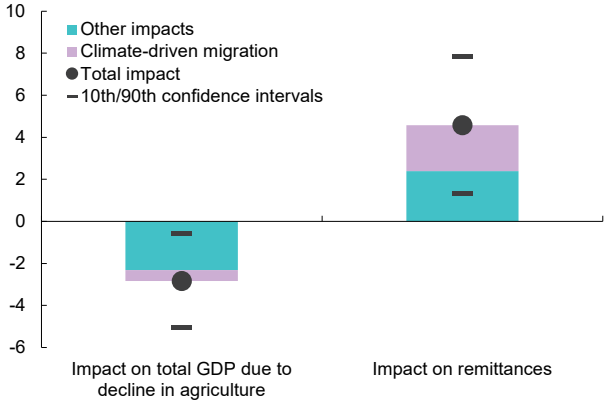
(Impact of one-standard deviation increase in number of climate disasters on migration outflows via origin factors; percent of initial population)



Sources: EM-DAT International Disaster database; United Nations Population Division Global Migration database; World Bank, World Development Indicators database; and IMF staff calculations.
Note: The figure presents results from specifications regressing the identified origin factors of migration outflows on natural disasters, while accounting for other country-specific control variables. Origin factors are estimated using the method proposed in Amiti and Weinstein (2018) and measured as percent of the initial population. The explanatory variable is natural disasters measured as the number of climatological disasters in EM-DAT in the 5-year window.

Online Annex Figure 3.3. Impact of Climate on Economic Outcomes

(Percent of total GDP)



Sources: EM-DAT International Disaster database; United Nations Population Division Global Migration database; World Bank, World Development Indicators database; and IMF staff calculations.
Note: Impact of natural disasters on selected macroeconomic variables for CAPDR and the Caribbean. Agricultural GDP and remittances are measured as percent of total GDP. The figure shows the total impact of disasters on these macroeconomic variables and a decomposition of the effects through climate-driven migration following the mediation analysis method.