



Recovering Growth

Rebuilding Dynamic Post-COVID-19 Economies
Amid Fiscal Constraints



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Latin America is emerging from the COVID-19 crisis, but the recovery is weaker than expected, and the scars on the economy and society will take years to fade. The need to recover dynamic, inclusive, and sustainable growth to redress both the legacy of the pandemic and long-standing social needs has never been more acute. In turn, despite the emergence of some industrial “green shoots” offering new avenues for growth, addressing long-unattended agendas that prevent the region from taking off has never been more urgent. In this spirit, Chapter 1 of this report lays out the recent social and macroeconomic evolution of the region and the near-term challenges it faces emerging from the pandemic. Chapter 2 then explores several of the areas where key growth-advancing reforms could be undertaken in the constrained fiscal context, focusing especially on spending more efficiently and reallocating resources to more productive uses.

The social costs of the pandemic have been devastating. Poverty rates, excluding Brazil, measured at 5.5 USD/day rose from 24 to 26.7 percent, their highest increase in decades; students lost between one and one-and-a-half years of education; and the fall in the UN Human Development Index dwarfed that during the financial crisis. The good news is that the vaccination drive has picked up steam over the last six months and, while still far from where it needs to be, COVID-19 deaths are falling in most countries.

Latin America and the Caribbean's (LAC's) economic recovery is stronger than predicted earlier in the year, but weaker than favorable tailwinds would dictate. Forecasts of 2021 growth have been upgraded over the summer and regional growth is expected to reach 6.3 percent for 2021, almost recovering the 6.7 percent losses of 2020. However, given the robust recoveries in their principal trading partners, low global borrowing rates, and the prospect of another commodity super cycle, growth rates might be expected to be 1.5 percentage points higher.

...And several challenges face the recovery:

Recurrence of the virus. Any recurrence of the virus will lead to declines in economic activity, not only because of government measures to enforce social distancing, but also because half of the decline in activity is due to voluntary distancing due to fear of the disease.

Tightening of global liquidity to tamp down inflation. Should global inflation pressures not prove temporary, global borrowing rates will rise, depressing demand and challenging budget management.

High levels of private sector debt and lack of clarity on banking solidity. World Bank Pulse Surveys suggest that in many countries 40-60 percent of firms are in arrears as a result of pandemic-driven falls in revenues. This overhang will in the best case dampen investment, and in the worst case create zombie firms that are effectively bankrupt but are still in operation. To the degree that banking systems are forbearing debt payments, this could also be creating a de-transparentization of the financial sector, where the true level of non-performing loans in the system is hard to discern. Governments will need to streamline presently unwieldy debt resolution mechanisms and monitor systemic soundness.

Rising budget deficits. Declining government revenues and extraordinary efforts to protect families and firms during the COVID-19 pandemic have led to high deficits, and increased debt. In some cases, this has led to ratings downgrades and potentially raised borrowing costs. In all cases, there is reduced room for governments to engage in growth and equity promoting investments.

Rising public debt: The average public debt to Gross Domestic Product (GDP) ratio has risen dramatically over two years by 15 points to 75.38 percent, leading to reduced ability to borrow abroad and complicating fiscal management going forward.

The COVID-19 crisis came on top of another “lost decade” of low growth, suggesting deeper structural problems. From 2010 to the outbreak of the pandemic, LAC grew at 2.2 percent per year while the world grew at 3.1 percent. The forecasts for 2022 and 2023 are similarly lackluster at 2.8 and 2.6 percent, respectively. The lackluster recovery, together with the low growth rates of the previous decade suggest structural problems internal to the region and point to the urgency of addressing the list of long-recognized growth-impeding internal shortfalls in infrastructure, education, energy policy, firm capabilities, and innovation, while confronting some new climate change challenges.

The situation is not uniformly bleak across countries and industries and historically, green shoots may arise from crises triggering large-scale economic restructuring. As an example, while hospitality and personal services have suffered greatly, accelerated digitization brought about by the need to socially distance could help boost sectors like information technology, finance, and logistics and these may, in turn, enhance market competition and increase economic efficiency. However, unless these structural factors are addressed, anemic growth is likely to continue and will be insufficient to make progress on poverty and relieve social tensions.

Taking Off: Rebuilding Dynamic, Inclusive, and Greener Economies with Limited Fiscal Resources.

Chapter 2 focuses on possible ways of raising potential growth and societal well-being with limited fiscal space through three channels: raising additional revenues, increasing the efficiency of current spending, and reallocating spending to higher growth/higher social value added areas. Progress in each area requires increasing the transparency of public spending and information about it, increasing public sector accountability and employing private sector discipline, working toward consistency and coherence across programs, and maintaining an equity lens throughout.

Growth Neutral Revenue Mobilization

Emerging evidence suggests that there is room for increased revenue mobilization without large negative impacts on growth. The popular value added tax (VAT), for example, appears to have negative growth impacts for countries with already high tax burdens, but for countries with rates between 7.5 percent and 14 percent, the negative effects are small, and expansion is feasible. However, because it weighs on consumption, the VAT is regressive and potentially exacerbates inequality. By contrast, income taxes can be designed to be more progressive, but are estimated to have a larger negative impact on output in LAC than, for example, in the United States. Property taxes as a share of GDP in LAC are generally below 0.6 percent of GDP, while the Organisation for Economic Co-operation and Development (OECD) level is 2 percent and offers another potential source of revenue, that, again, would be more progressive. Taxes on tobacco, alcohol and sugar sweetened products generate health benefits and revenues. Increasing the excise taxes has been estimated to raise the tax to GDP ratios by an average of 0.7 percent in low-income countries (LICs) and low-to-middle-income countries (LMICs) and, when health impacts are taken into account, the impact of the increase is progressive. The goal of lowering carbon emissions may also involve levying taxes which would also raise revenues although the magnitudes and equity impacts are as yet unclear for the region. Finally, there are gains to be made in tax enforcement. For example, the regional average evasion rates for VAT and corporate income taxes are 29.4 and 49.2 respectively.

Gains in Spending Efficiency

Large potential gains in spending efficiency offer an important complement or alternative to raising revenues. This does not mean cutting spending across the board, as has been done many times in the past, with strong contractionary effects. It means using existing resources better. Estimated inefficiencies in procurement, civil service, and targeted transfers in LAC represent an *average amount of waste in the region of 4.4 percent of GDP*—larger than the current average spending on health and almost as large as the average spending on education— and accounts for about 16 percent of average government spending. Public procurement of goods, services, and capital equipment accounts for, on average 30 percent of spending and is frequently a source of waste, mismanagement, and in some cases corruption. The waste originating in bribes and

padding budgets appears to be enormous: about 26 percent over the cost of projects. World Bank simulations estimate savings of 16 to 22 percent with straightforward modifications in practices and without changing existing procurement laws. The average wage bill consumes 29 percent of general government spending, and wage bill inefficiencies are estimated to cost 1.2 percent of GDP. About 30 percent of public spending on average in LAC consists of transfers, including social programs, firm subsidies (mostly energy), and contributory pensions; inefficiencies through mistargeting and waste are estimated at about 1.7 percent of GDP.

Rethinking Spending Priorities for Growth and Equity

Strengthening the Health System Quick Wins to Improve and Expand Service. COVID-19 revealed the limitations of the health systems in most LAC countries. Over time, public spending will need to increase to international levels, but in the short term, moving systems toward the global efficiency frontier has the potential to extend average lifespan by four years. This includes benchmarking services offered against global norms, undertaking Health Technology Assessments, unifying fragmented systems, reconfiguring services provision, improving information systems, and reducing corruption.

Making Better Grades in Education Efficacy and Equity. Over the medium term, substantial remedial work will need to be done at the elementary school level, to counteract the lost years of learning and human capital accumulation due to COVID-19, while addressing long-standing inefficiencies that have led to perennially inadequate outcomes. Prioritizing the hardest hit schools, better use of technology to complement teaching, improving monitoring and reporting of educational outcomes, and improving educational leadership would all contribute. At the university level, shifting the ample funding from bachelor programs to Short Course Programs (two to three years) more focused on particular technical skills in line with global norms would be progressive, address a persistent skill shortage in the private sector, and improve labor market outcomes. More generally, collecting and diffusing information on and increasing accountability for school outcomes and revisiting the allocation of subsidies across programs would all make the higher education system more effective and less regressive.

Getting More from Innovation Spending. LAC underinvests in research and innovation—as a crude proxy, average research and development (R&D) expenditures are 0.6 percent of GDP compared to double that (1.2 percent) for middle-income countries and 1.4 percent for upper-middle-income countries. Further, the private sector reports both low confidence in the quality of research institutes and little interaction with them by global standards. Revisiting funding mechanisms to strengthen incentives to quality and collaboration would ensure that scarce innovation resources have an impact on growth. Reprioritizing away from R&D toward strengthening managerial capabilities and product and process innovation would, over the long run, facilitate participation in global value chains (GVCs), and prepare firms for longer-term innovation projects, including the transition to greener technologies.

Public Transfers for Equity: Converting Short-Term Stimulus to Long-Term Growth. Public transfers were important to supporting households during COVID-19 and, over the longer term, higher flows are likely necessary to approach OECD levels of equality. The evidence to date suggests a positive short-term impact on output through demand, but over the longer term, targeting transfers to support productivity increasing investments (for instance subsidies to Short Cycle programs, or other human capital accumulation) would both improve equity and lay the foundation for growth.

Smart Public Investment in Infrastructure. Public investment in infrastructure as a share of GDP has fallen by two-thirds since the 1980s and has not been offset by public-private partnerships (PPPs) or other private funding mechanisms. The overall fall has negative adverse impacts on competitiveness, growth, and inequality. Studies identify barriers to better using existing resources including weak planning, project appraisal, and preparation capacity; overly rigid or myopic budgeting designed to control fiscal deficits rather than promote efficient spending; difficulties with budget execution; unclear project sustainability, often due to imbalances between capital and current spending on infrastructure, often arising, again, from overly rigid budgets and suboptimal planning; weak procurement practices; and finally, often uncompetitive construction industries. Savings in traditional infrastructure are potentially large. Expansion of digital infrastructure is relatively cheap and could increase productivity, connect rural areas, and build in resilience to future crises, for instance, through broader access to distance learning.

Powering a Sustainable Energy Future. Depending on global energy prices, energy subsidies can cost several points of GDP and remain poorly targeted: 40-60 percent of electricity subsidies, for example, go to the top 20 percent of the income distribution. Shifting away from general subsidies and providing targeted support to vulnerable populations would free up resources to explore conservation measures and other sources of low cost and environmentally sustainable power. The region's gains in energy efficiency have been below those of comparable regions, and the World Bank has identified hundreds of potential energy savings areas ranging from building codes, setting minimum energy performance standards, and developing financial mechanisms to support investments that would contribute. LAC also has a comparative advantage in generating Green Hydrogen which, if scaled, would be competitive in world markets and reduce emissions across many domestic industries.

Growth Outlook for the Region

REAL GDP GROWTH RATES					
	2019	2020E	2021F	2022F	2023F
Argentina	-2.0	-9.9	7.5	2.6	2.1
Bahamas	0.7	-14.5	2.0	8.0	4.0
Barbados	-1.3	-18.0	3.3	8.5	4.8
Belize	1.8	-14.0	9.0	4.0	1.8
Bolivia	2.2	-8.8	5.5	3.5	2.7
Brazil	1.4	-4.1	5.3	1.7	2.5
Chile	0.9	-5.8	10.6	2.4	1.8
Colombia	3.3	-6.8	7.7	4.2	3.9
Costa Rica	2.3	-4.1	3.8	3.5	3.2
Dominica	3.5	-11.0	3.4	8.1	5.9
Dominican Republic	5.1	-6.7	9.1	4.9	4.9
Ecuador	0.0	-7.8	3.0	3.4	2.2
El Salvador	2.6	-7.9	8.0	4.0	2.5
Grenada	0.7	-13.7	3.0	4.4	3.8
Guatemala	3.9	-1.5	5.1	4.1	3.5
Guyana	5.4	43.5	21.2	49.7	25.0
Haiti	-1.7	-3.3	-0.8	3.2	1.4
Honduras	2.7	-9.0	4.7	4.4	3.8
Jamaica	0.9	-10.0	3.5	4.0	2.8
Mexico	-0.2	-8.3	5.7	3.0	2.2
Nicaragua	-3.7	-2.0	5.5	3.0	2.5
Panama	3.0	-17.9	9.9	7.5	5.0
Paraguay	-0.4	-0.6	4.3	4.0	3.9
Peru	2.2	-11.1	11.3	3.2	3.0
St. Lucia	-0.1	-20.4	3.3	10.6	7.8
St. Vincent and the Grenadines	0.5	-3.0	-6.1	8.3	6.1
Suriname	1.1	-15.9	-3.5	1.8	2.1
Uruguay	0.4	-5.9	3.4	3.1	2.5
Latin America and the Caribbean	0.8	-6.7	6.3	2.8	2.6

Source: World Bank and staff calculations.
Note: The cut-off date for the data is September 23, 2021.

CHAPTER 1

FROM DEVASTATION TO AN ANEMIC RECOVERY PATH

Latin America and the Caribbean (LAC) is recovering from the COVID-19 crisis. Vaccination rates have steadily risen, and mortality rates are progressively under control after a tragic loss of life at a scale incomparable in memory, and among the most heartbreaking in the world. The pressure on health facilities is slowly relaxing, and school doors are reopening. Matching the health impact, the 2020 economic downturn in the region was the deepest in this century and globally notable for its severity, especially afflicting the lower strata of society. But here, too, gross domestic product (GDP) forecasts have been revised steadily upward over the summer with favorable tailwinds offering opportunities for full recovery of 2020 losses.

But recovery to what? Even if a new variant does not threaten gains to date, the scars left on the economy and society are deep: unsustainable fiscal accounts; a private sector with unclear indebtedness and health; and up to a year-and-a-half of lost human capital accumulation to name only a few. Taking a longer view, these blows are layered on what might be called the “second lost decade” of the 2010s. While the world grew at 3.1 percent, LAC grew at 2.2 percent, a rate too low to pull LAC populations to prosperity and calm social unease—*and this was before the arrival of COVID-19*. The weak performance was partly driven by erosion of commodity prices, the sensitivity to which only underscores how undiversified the economies of the region remain. Of more concern, given the strong favorable tailwinds from external factors—continued low global interest rates, strong recovery in principal trade partners, a potential new commodity super-cycle—is the recovery has been unexpectedly weak, and growth forecasts for 2022 and 2023 are back to the lackluster pre-COVID-19 rates. The recovery is anemic for internal reasons, and the analysis here confirms the urgent need to address a list of long recognized growth-impeding internal shortfalls in infrastructure, firm capabilities and innovation, education, energy policy, and governance, while confronting some new climate change challenges.

Chapter 1 first lays out how the pandemic brought us here, and what the economic and social implications have been. We then discuss the conjunctural macroeconomic challenges going forward: the possible downsides of another outbreak; a possible tightening of international and domestic liquidity to restrain inflation; the rise in corporate debt and the de-transparentization of the banking sector that could undermine future stability; and the disappearing fiscal space.

This last issue is especially critical as it occurs precisely at a time of new urgency to address more structural factors in our economies. The large countercyclical policies put in place during the pandemic were successful in protecting at risk populations during the worst of the pandemic, but fiscal space in the region has been almost depleted and continued deficits may become unsustainable, thus creating their own drag on the economy.

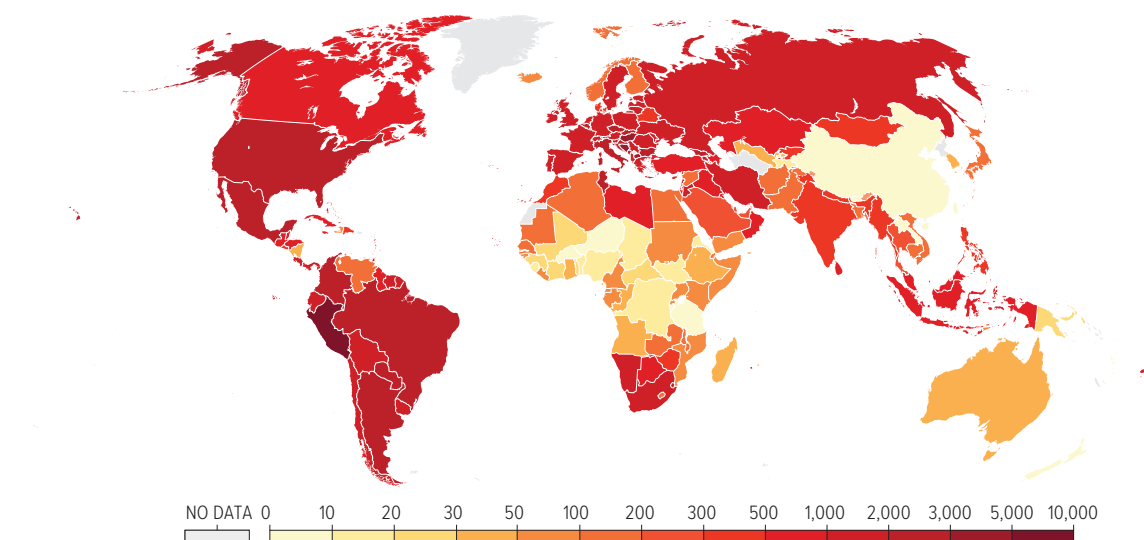
Hence the second chapter of this report argues that faced with an unforgiving fiscal panorama over the foreseeable horizon, it is time to precisely intensify the focus on how efficiently and wisely we raise and spend public resources to lay the foundation for dynamic and inclusive growth going forward. We focus on growth neutral revenue mobilization, potential savings through reduced waste and leakages, and reallocation of existing resources. Though a thorough discussion of all candidate areas is not possible in the span of this document, the goal is to put several ideas on the policy table and highlight recurring principles of reform, including increasing transparency and information; increasing public sector accountability and employing private sector discipline; working toward consistency and coherence across programs; and maintaining an equity lens throughout.

The Ongoing Challenge of COVID-19

Slow Progress Defeating COVID-19

In the first year and a half of the COVID-19 pandemic, Latin America and the Caribbean (LAC) experienced the highest death tolls among all developing regions (Figure 1.1) despite most countries in the region imposing strict stay-at-home orders, closing most non-essential activities, and even imposing curfews. Some argue that the low effectiveness of these measures and the poor quality of data collected on death tolls across the region may explain part of this puzzle (Shi and Taskin, forthcoming). However, World Bank calculations of “excess mortality”—the number of deaths above what is usually expected at that time of year—place Latin America (LA) substantially above other regions of the world after January 2021 (figure 1.2).¹

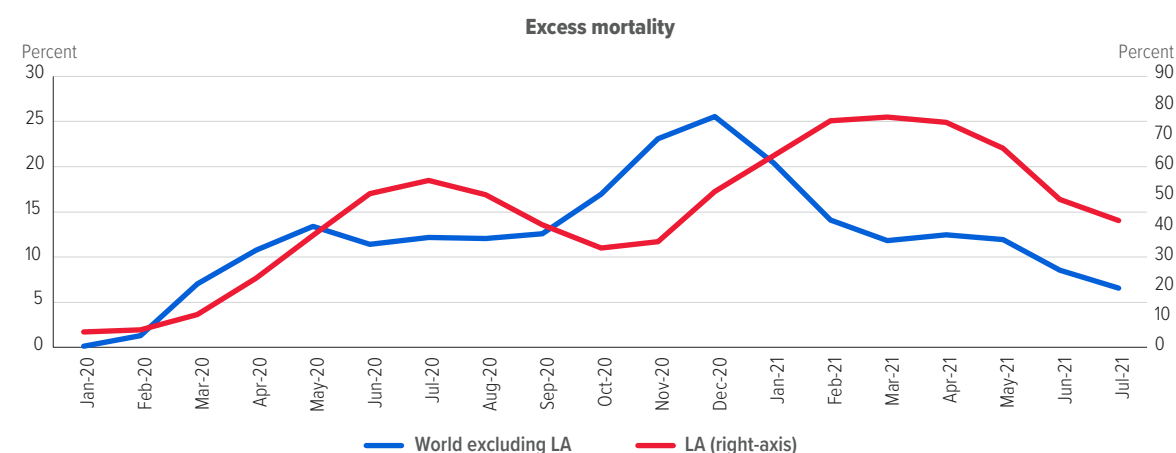
Figure 1.1: LAC Leads the World on Cumulative Confirmed COVID-19 Deaths



Source: Our World in Data.

Note: Data reported as of September 20, 2021.

Figure 1.2: COVID-19 Hit LA Especially Hard and Remains a Barrier to Recovery



Source: Our World in Data.

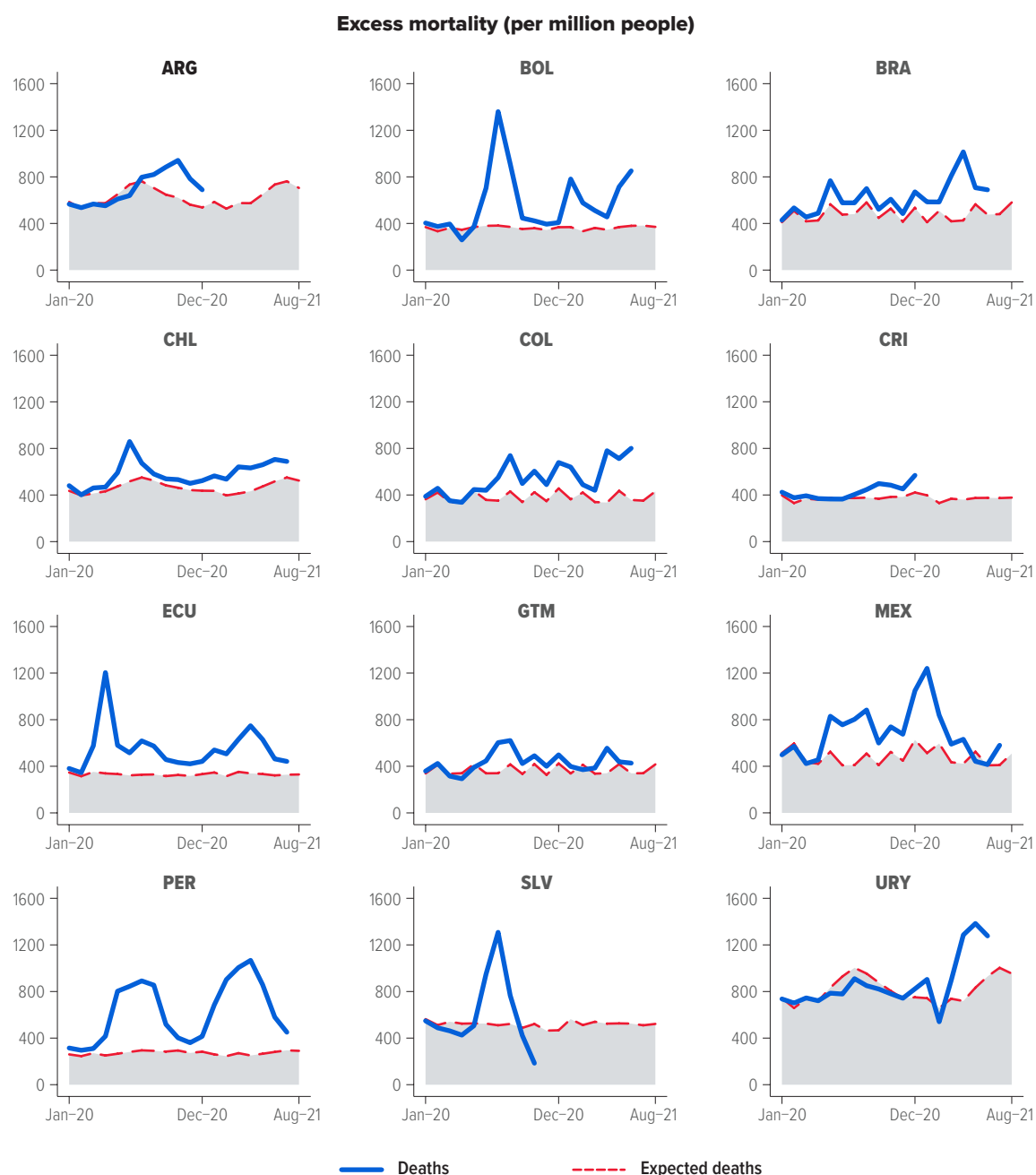
Note: Excess mortality is measured as the percentage difference between the reported and projected number of deaths for each country and time period, as provided by Our World in Data. Latin America (LA), includes Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, and Peru. The global sample covers 59 countries. The aggregates represent weighted averages by population.

¹ As in previous editions, we defined excess mortality as the difference between the total number of deaths in 2020 and the corresponding figure in “normal” times — measured in practice as the average mortality of the previous five years. To ensure meaningful comparison, both official COVID-19 deaths and excess mortality are reported relative to the population.

Exploring excess mortality across individual countries in the region (figure 1.3), we observe that Peru, Mexico, Bolivia and Ecuador have suffered peaks in mortality that triple the size of those usually experienced across the whole pandemic period. Brazil and Uruguay were hit much harder in 2021 than in 2020. Chile and Costa Rica saw positive but relatively small excess mortality rates throughout the different waves.

The burden of COVID-19 has not been shared equally across society. Detailed tracking shows that in Bogota, Columbia infection rates rose sharply in poorer sections of the city, a pattern that is likely to be repeated elsewhere (Laajaj et al. 2021). In low- and middle-income countries (LMICs), mortality among young people is relatively higher compared to high-income countries (HICs) (Demoyndynes et al. 2021).

Figure 1.3: Progress on COVID-19 Varies by Country but Reflects Gains in Vaccination

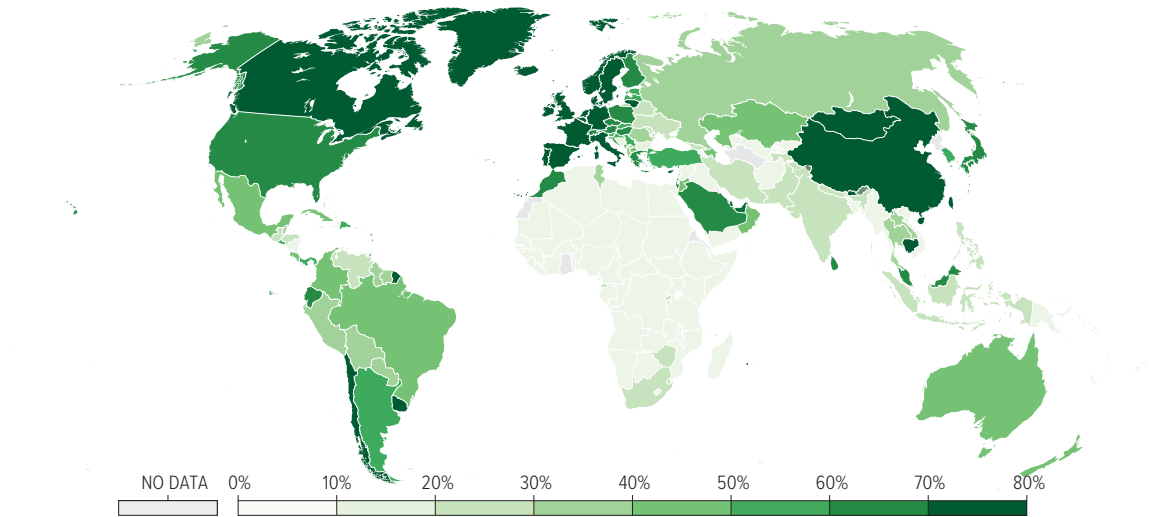


Sources: National statistical agencies and World Bank staff calculations.

While economic activity recovered after countries relaxed quarantines and lockdowns, the hopes for a full return to normalcy are still pinned on vaccines. As Figure 1.4 shows, LAC is making progress, but the region still lags far behind advanced economies and other emerging regions such as East Asia and advances in vaccinations differ across countries. On the positive side, Chile and Uruguay reported completed vaccination

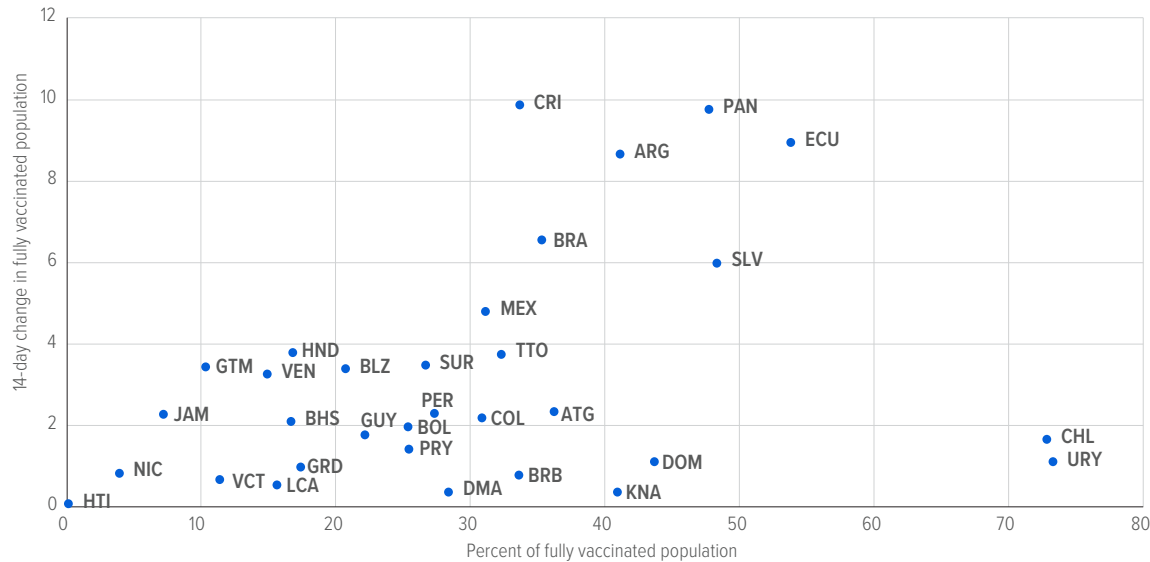
rates close to 75 percent and countries like Argentina, Brazil, Costa Rica, Ecuador, El Salvador, and Panama accelerated their campaigns, growing their vaccinated population by more than 6 percent in the last two weeks. On the negative side, the Central American and Caribbean countries report vaccination rates below 20 percent, and the share of the vaccinated population in these economies is increasing at a slow pace.

Figure 1.4: LAC is Advancing on Vaccinations, but Still Lags Other Regions



Source: Our World in Data.
Note: Data reported as of September 20, 2021. Data reflects share of fully vaccinated population.

Figure 1.5: Progress in Vaccination Rates Varies Across the Region

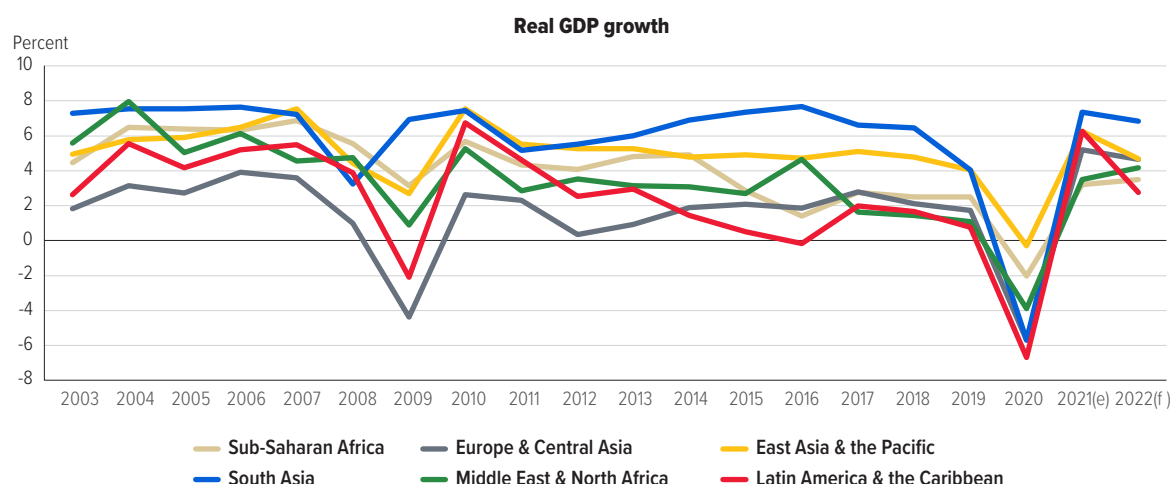


Source: Our World in Data.
Note: The 14-day change is reported between August 28, 2021, and September 10, 2021.

Devastating Human Costs

The COVID-19 pandemic left deep scars. Estimates show that LAC suffered one of the largest recessions in the world with an aggregate GDP loss of 6.7 percent in 2020 (figure 1.6). 2021 is predicted to be a rebound year with revised growth rates estimated at 6.3 percent.

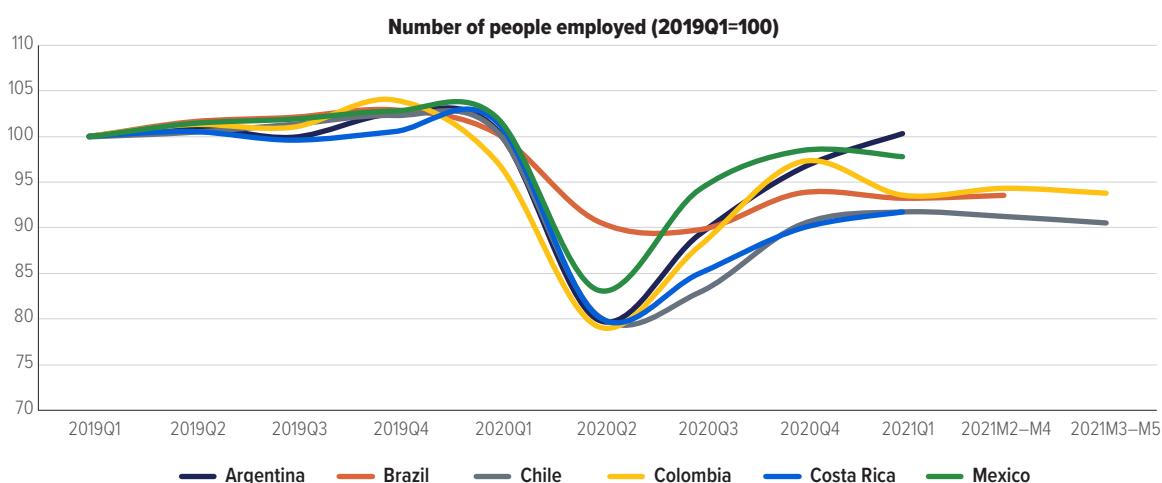
Figure 1.6: From Low Growth to the Worst Recession



Source: World Bank.
Note: e=estimate; f=forecast.

Figure 1.7 shows that employment fell dramatically in 2020 Q2 and has yet to recover. Part of this fall was due to the fall in output, but part also was due to declines in participation, perhaps driven by concerns about the pandemic itself. Moreover, as the recent World Bank Report *Employment in Crisis: The Path to Better Jobs in a Post-COVID-19 Latin America* (Silva et al. 2021), argues, as in previous crises, we are likely to see a roughly 2 percent shift from formal to informal employment.²

Figure 1.7: Employment Remains Below Pre-Pandemic Levels



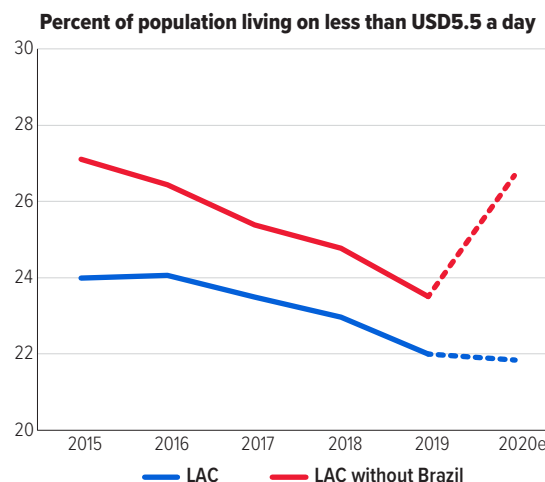
Sources: National statistical agencies and staff calculations.

The COVID-19 outbreak has highlighted the ability of social protection systems to mitigate deteriorations in well-being by partially replacing lost income. Countries throughout the region have topped up existing social assistance schemes and expanded programs to reach new beneficiaries, including in the informal

2 <http://hdl.handle.net/10986/35549>.

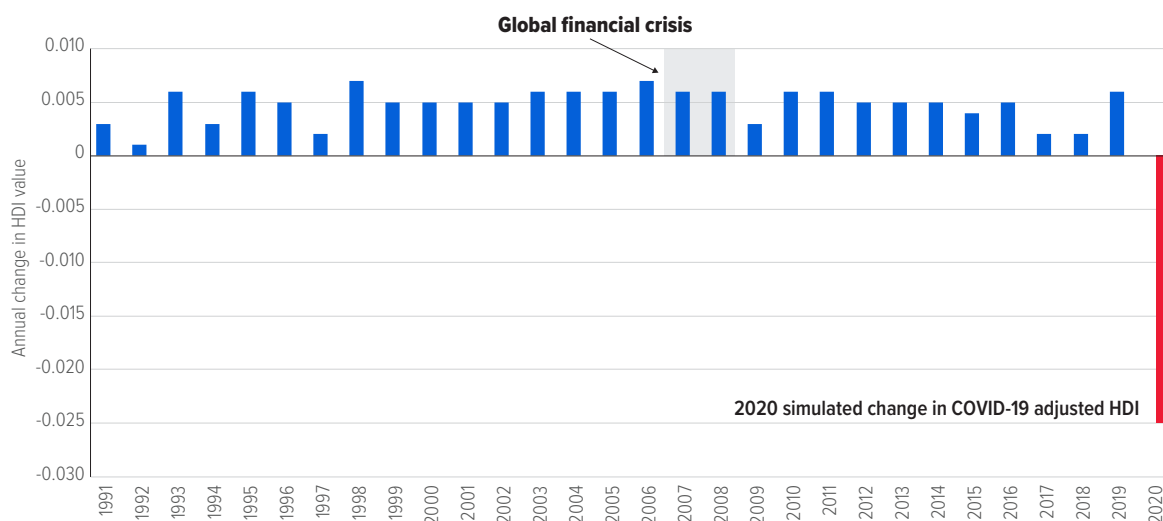
sector. Coverage of cash transfers expanded from 28 percent to 67 percent of the population in LAC (World Bank 2020). The impact has been impressive, but uneven. Without the mitigation measures, the region was projected to add 28 million poor people; instead, for the region as a whole, 2 million *fewer* people were in poverty in the region in 2020 than in 2019. However, most of these gains were heavily concentrated in Brazil. Excluding Brazil, whose transfer programs were very generous, the region is projected to suffer an increase of 3 percentage points in the number of people living with less than USD 5.5 between 2019 and 2020 (figure 1.8). This translates into more than 13 million people dropping below the poverty line. The Human Development Index (HDI) (Figure 1.9), a measure created by the United Nations that combines changes in income, health, and education in equal shares, shows an unprecedented decline unseen even during the global financial crisis.

Figure 1.8: Without Brazil, Poverty Increased Sharply Throughout the Region



Source: World Bank 2021.
Note: e=estimate. The Latin America and Caribbean regional aggregate is estimated based on a sample of 18 countries (LAC-18).

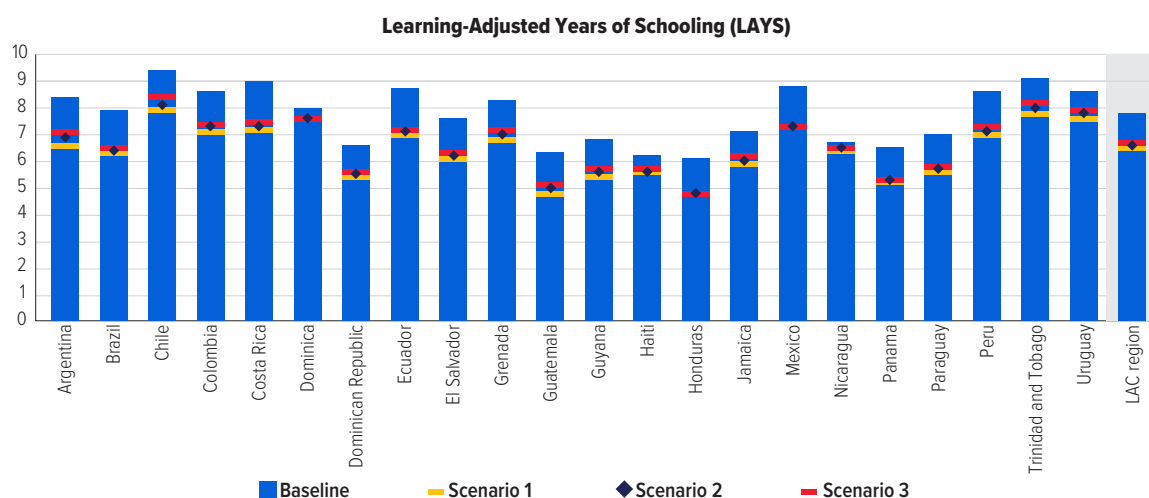
Figure 1.9: The Human Development Index Recorded Its Largest Drop



Sources: Human Development Index (HDI), Human Development Report (2020) and staff calculations.
Note: The HDI is reported for the World.

Yet, another especially worrisome outcome of the pandemic is the large costs in human capital foregone due to persistent school closures. Estimates suggest that learning-adjusted years of schooling (LAYS) in LAC may have decreased from 7.8 years to 6.4-6.7 years on average (figure 1.10). These losses affect all countries and could represent a significant long-term drag on labor productivity growth. Since they are most acute among the lower social strata, they may also exacerbate existing inequalities and impede upward mobility.

Figure 1.10: The Region Suffered Large Losses in Learning-Adjusted Years of Schooling



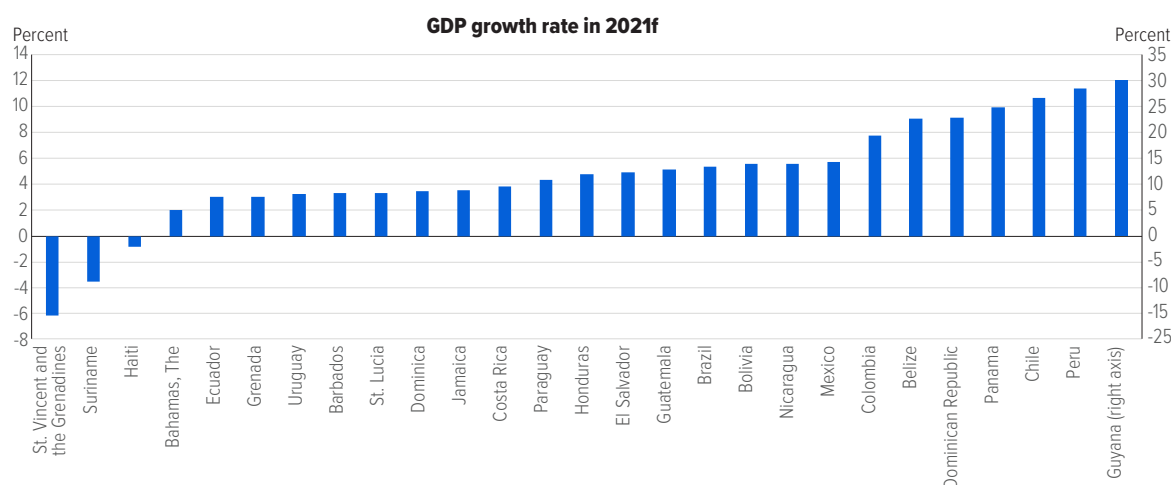
Source: World Bank Staff calculations.

Note: Methodology follows Azevedo et al. (2021) "Country Tool for Simulating the Potential Impacts of COVID-19 School Closures on Schooling and Learning, version 6 transpose." School closures data comes from the UNESCO database, available in <https://en.unesco.org/covid19/educationresponse>. Scenario 1 considers that partially opened systems are equivalent to fully closed systems (assuming very low coverage); ii) Scenario 2 assumes that partially opened school systems are 20 percent opened (or 80 percent closed), iii) Scenario 3 assumes that partially opened school systems are 40 percent opened (or 60 percent closed).

Recovering, without Taking Off

After facing one of the worst economic recessions in 100 years, the region is poised to grow at 6.3 percent for 2021, a credible recovery but still insufficient to recover pre-pandemic GDP levels for most countries. There are significant differences across countries. At the high end, Guyana again posted high GDP growth rates driven by the exploitation of large oil discoveries. Among the other top performers, Belize, Chile, the Dominican Republic, Panama, and Peru are all expected to grow at rates above 9 percent. Other large economies in the region like Argentina and Colombia are expected to grow at 7.5 and 7.7 percent respectively while Brazil and Mexico are expected to post growth rates above 5 percent. Caribbean economies populate the bottom end of the growth distribution as they heavily rely on tourism flows that are recovering slowly. St Vincent and the Grenadines, Suriname, and Haiti, still recovering either from disasters or political upheaval, are expected to lose 6.1, 3.5, and 0.8 percent of GDP, respectively. the Bahamas, Barbados, Jamaica, Grenada and St Lucia are expected to grow between 2 and 3.5 percent in 2021 (figure 1.11).

Figure 1.11: GDP Growth Rates Have Been Robust

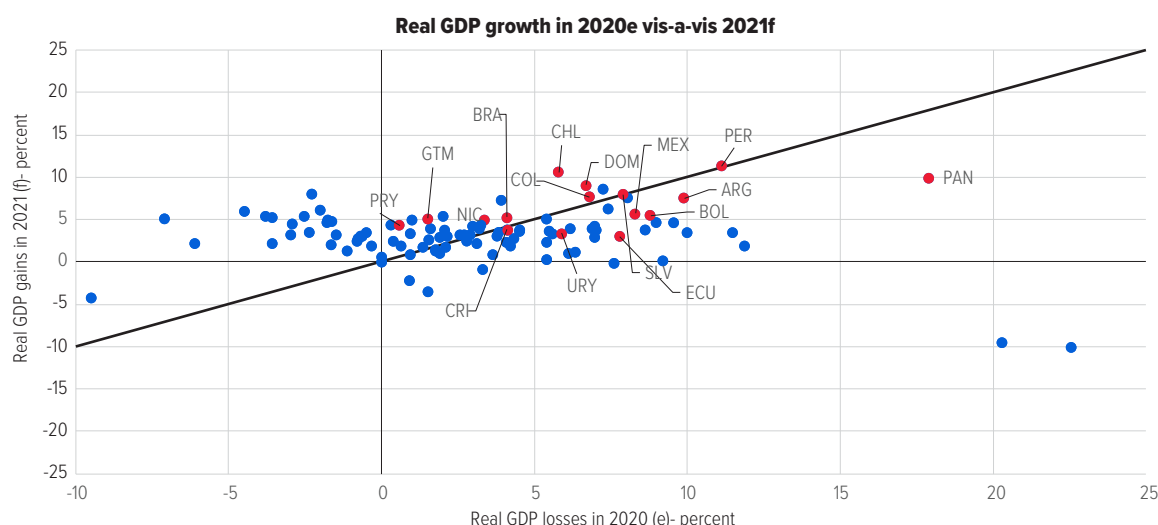


Source: World Bank staff calculations.

Note: f = forecast.

Figure 1.12 shows that these gains in most cases will at best just offset the GDP losses in 2020. Chile and the Dominican Republic lie above the 45-degree line and will more than recover. Brazil, Colombia, and Mexico lie above but close to the line and will just recover. Argentina, Ecuador, Peru, and Uruguay lie below the line and will fall short of full recuperation.

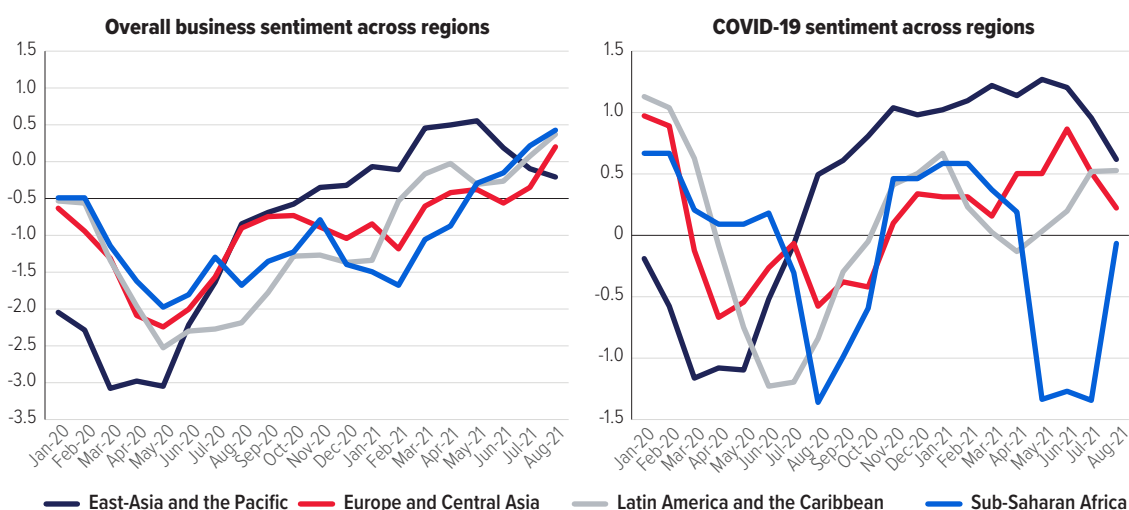
Figure 1.12: Most Countries Have Not Regained their 2019 Levels of Income



Source: World Bank staff calculations.
Note: e=estimate, f=forecast.

While current estimates point towards a rebound that will be insufficient to make up for the 2020 losses in many countries, these estimates are continuously evolving, and the latest revisions have been mostly positive. Additional green shoots arise from studies trying to gauge current domestic business sentiment. An artificial intelligence (AI) analysis of quarterly earnings call transcripts of major corporations with interests in LAC show that sentiment around the region's ability to battle back against COVID-19 was less upbeat than in East Asia and the Pacific or Europe and Central Asia, yet overall business sentiment shook that off and is now relatively favorable (figure 1.13). Improvements in business sentiment typically lead to higher domestic investment and thus higher economic growth.

Figure 1.13: Machine Learning Estimates of Business Sentiment from Quarterly Earnings Calls Investors Are Shaking Off Concerns About Progress on COVID-19



Source: Shi and Taskin, forthcoming.

Note: The analysis is based on the earning calls transcripts of publicly listed companies in the United States stock market between 2006-Q1 and 2021-Q3. Middle-East and North Africa and South Asia are excluded from regional charts due to small number of observations. The average values are calculated using the observations between January 2010 to December 2018 for overall business sentiment and January 2020 to December 2020 for COVID-19 sentiment. The last observation is August 12, 2021. See Shi and Taskin (2021) for further details.

Box 1.1. Machine Learning: Earnings Calls Transcripts Offer Early Information on Economic Trends

Analyzing earnings calls transcripts offers an early view into how companies see the evolution of the economy months before formal statistics are released. Machine learning technologies allow “reading through” thousands of transcripts and generating an aggregate sentiment index. Shi and Taskin (forthcoming) for this report employed 178,339 transcripts publicly listed companies in the United States stock market covering companies headquartered in 81 different countries between 2006-Q1 and 2021-Q3. Sentiment score in a given text is calculated by the balance of positive and negative words divided by the total number of words. In each earning call, the COVID-19 sentiment score is calculated around the COVID-19 mentions. Specifically, the sentiment score within 10 words before and after each COVID-19 mention is calculated and averaged across these mentions to obtain the COVID-19 sentiment score in each earning call. The COVID-19 sentiment for a region in each call is calculated by the same method by focusing on the text around COVID-19 that cites at least one country of the region within 10 words before or after the COVID-19 mention. The regional sentiment scores are calculated by focusing on the text around the mentions of the corresponding region or its countries. Z-scores are computed as raw series minus average score divided by standard deviation.

The economic sentiment score shows a strikingly high correlation of 0.87, with realized GDP evolution two months forward from 2010-Q1 and 2021-Q1 and hence gives useful intelligence on future trends.

See Shi and Taskin (forthcoming) for further details.

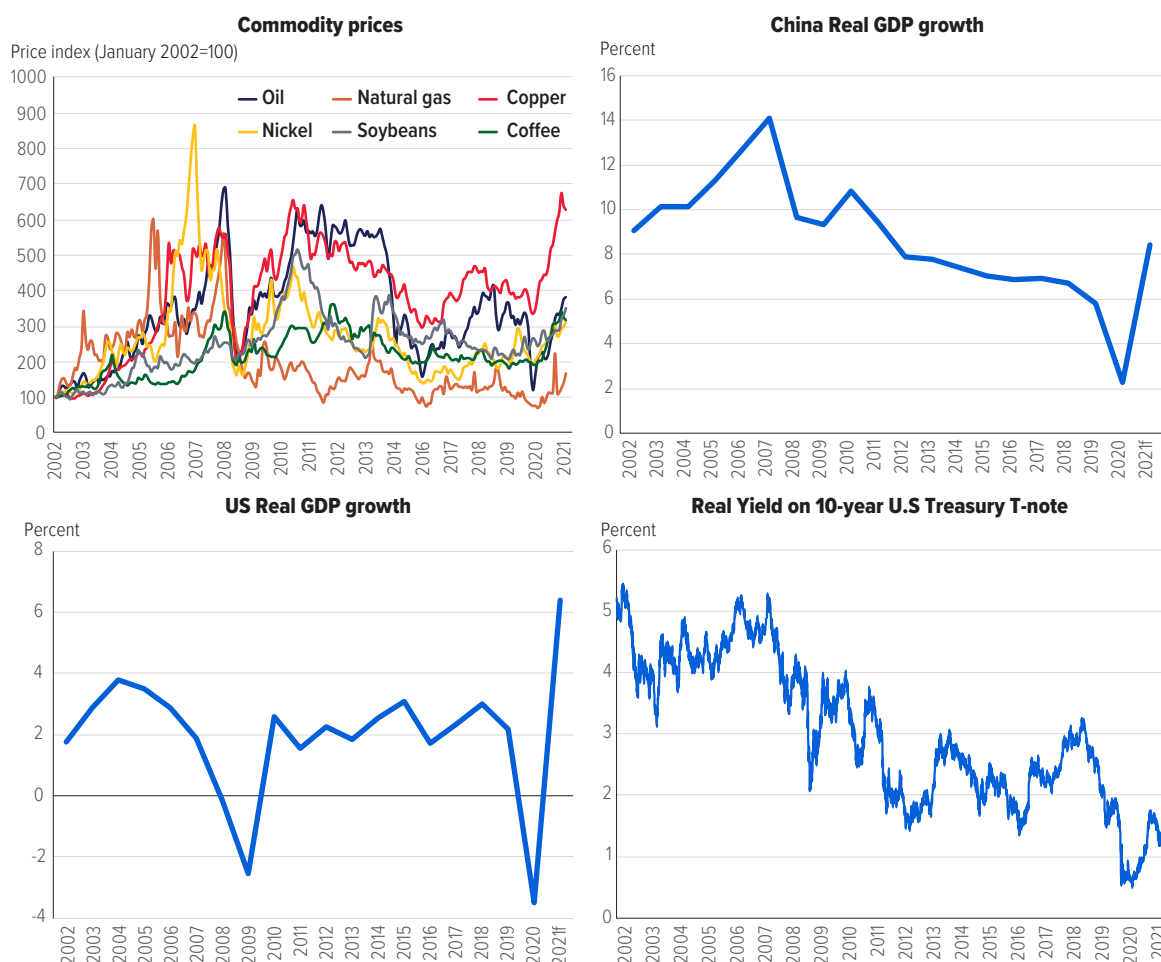
The Paradoxical Recovery: A Return to Anemic Growth Despite Favorable Tailwinds

Beyond the economic rebound experienced in 2021, economic projections for the region are lackluster albeit with some variance across countries and industries. Colombia, for example, is expected to grow decently at 4.2 percent in 2022 and 3.8 percent in 2023. Moreover, during times of heightened uncertainty, economic green shoots may arise from unexpected technological disruption which, as highlighted in our previous semiannual report (World Bank 2021), can contribute to reinvigorating productivity growth when public stimuli start to dry up. Sizeable advances in digitization and other technologies adopted to manage social distancing may introduce new products and industries as well as inject more competitiveness. This said, on average, the region is expected to register growth of 2.8 percent in 2022, similar to the growth experienced between 2017 and 2019. This return to low growth is predicted despite clearly favorable external factors. Figure 1.14 show the evolution of three major external drivers of growth for the region. First, foreign demand for goods and services is expected to rebound as the two major trade partners of the region, the US and China, experience robust economic recoveries. International liquidity, which is an important determinant of the cost of external borrowing, remains abundant, as the Federal Reserve and the European Central Bank continue their expansive monetary policies. Finally, commodity prices, which represent an important source of growth for commodity exporters, have been on the rise, foretelling the potential of a new commodity super cycle.

For a region that heavily depends on international trade foreign financing as well as the price of commodities, the disappointing growth implies a significant drag on the economy arising from domestic factors. To measure the size of such a drag, we rely on a simple model that estimates the output growth in the region predicted by the three external drivers mentioned above. As shown in figure 1.15, the model estimates a significant gap between the growth predicted by external factors and actual growth (see box 1.2). The estimates predict that the region may have missed upwards of 4 percentage points of annualized GDP growth relative to the potential growth presented by external tailwinds by the first quarter of 2021 although the gap narrows to 1.5 percentage points by the end of 2021. While these estimates vary by country, this regional “underperformance,” combined with the low pre-COVID-19 rates of growth relative to the rest of the world, are worrisome. Figure 1.15 suggests a decline in growth preceding the pandemic that significantly lagged

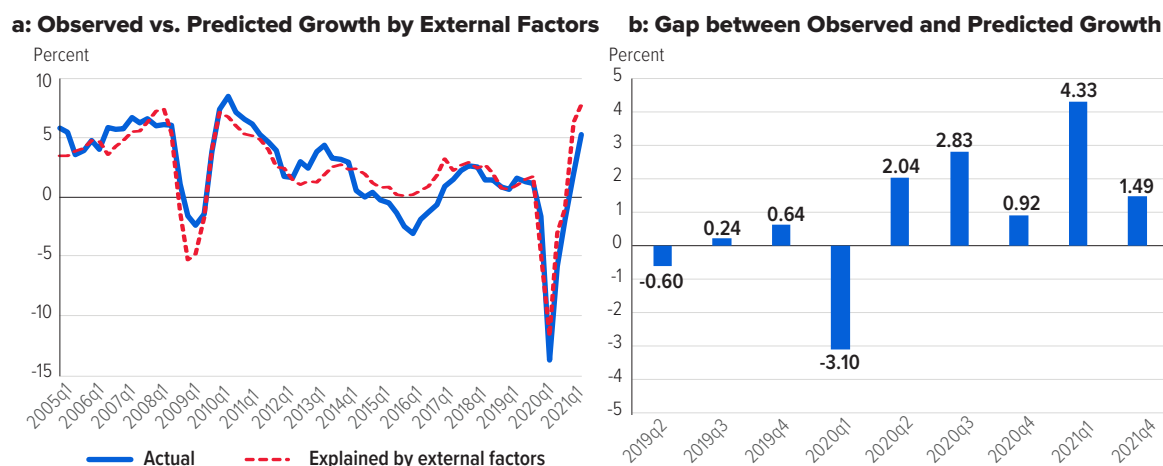
global performance, leading some to call the 2020s a second “lost decade”: from 2010 to the advent of the pandemic, LAC grew 2.2 percent while the world grew 3.1 percent. Though there are still obstacles to negotiate to recovery from the COVID-19 shock, this suggests that there are deeper structural issues the region needs to come to grips with. Accelerating growth will require making progress on the list of long recognized growth-impeding internal shortfalls- in infrastructure, firm capabilities and innovation, education, energy policy, and governance -while confronting some new climate change challenges.

Figure 1.14: Tailwinds in Key External Factors



Sources: World Bank Commodity Prices (Pinksheets); IMF WEO; U.S. Department of Treasury.
Note: f=forecast.

Figure 1.15: Given Favorable Tailwinds, LAC Should Have Grown Faster in 2021



Source: World Bank staff calculations.

Note: Latin America includes Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Peru, Paraguay, and Uruguay.

Box 1.2. A Model of Growth Explained by External Factors

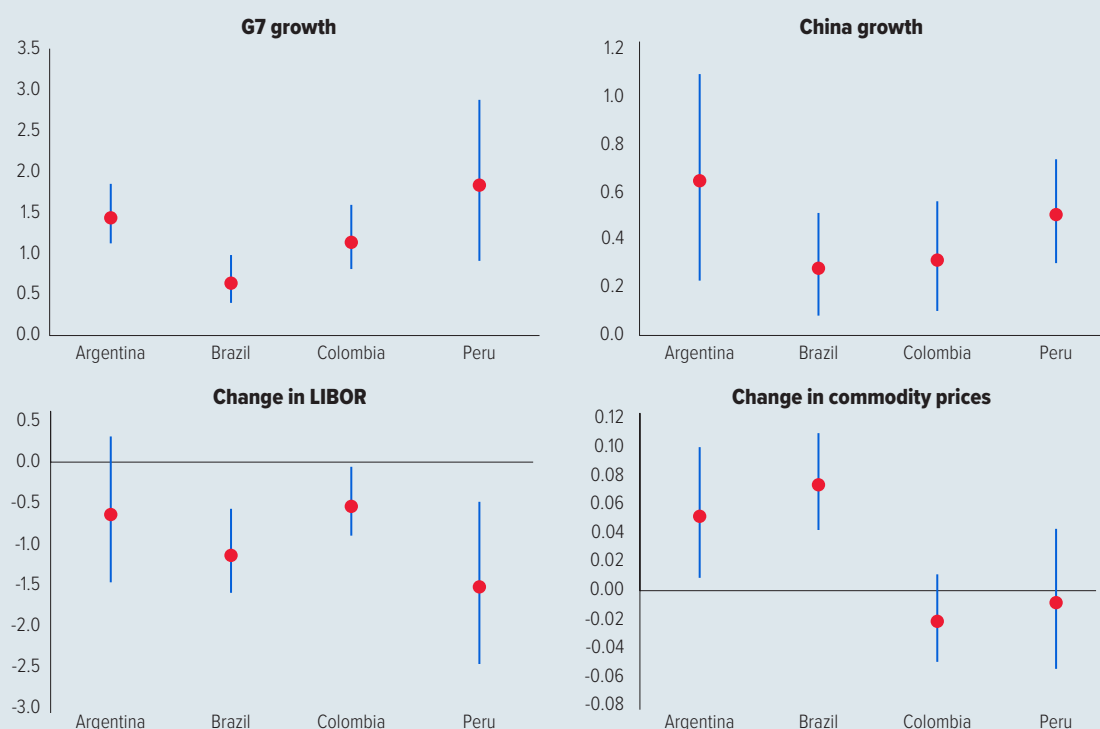
In the last decades, Latin America and the Caribbean has opened to international trade and financial flows, coupling its growth to external forces. The share of trade as percent of GDP increased from 32 percent in 1990 to 46 percent in 2020, while net inflows of foreign direct investment (as percent of GDP) have multiplied by five. Trade agreements have flourished, and open capital accounts are the norm.

As result, the relationship between growth and the external sector has strengthened. For instance, the correlation between South America's growth and the change in commodity prices is 0.80, while that with China's growth is above 0.70. In the same period, the correlation between Central America, Mexico, and the Dominican Republic's growth with that of the G7 amounts to 0.85.³

The external factors model seeks to exploit these correlations to get an estimate of how LAC's (expected) growth is driven by the global economy. Specifically, following De la Torre *et al.* (2013), the model collects the part of GDP growth that is explained by external variables that are common to all countries in the region. To keep the model simple, only four variables are included to gather real and financial variations in LAC's external sector. Real global factors are represented by the growth of China and the G7, in conjunction with the change in commodity prices. Financial factors are represented by international interest rates.⁴

Using quarterly data from 2005, the annual growth rate of each country is regressed against these foreign variables. The estimated values represent the expected growth due to external factors. These rates are then aggregated by region through a weighted average. The weights represent the share of each country's GDP in the region's total in 2019. Forecasted values are obtained by combining the estimated parameters of the model with the World Economic Outlook (WEO) forecasts of the external variables.

Figure B1: Growth Response to External Factors (in percentage points)



Sources: Haver Analytics, IMF WEO and World Bank staff calculations.

Note: The dots show the point estimates and the lines represent 95 percent confidence intervals.

³ Using quarterly data between 2005 and 2019. South America includes Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Peru, Paraguay, and Uruguay. Panama is excluded from Central America.

⁴ As international rates the Treasury's 10-year yield and the six-month London interbank offered rate (LIBOR) were used with similar results. The LIBOR is used in the results presented here, since this rate is forecasted in the WEO.

As an example, Figure B1 shows the estimated response of the annual growth rate to variations in external factors for Argentina, Brazil, Colombia, and Peru. Growth is particularly associated with G7 and China's GDP, while there is more variation in the response of growth to changes in commodity prices, with countries like Argentina and Brazil showing a stronger association. As expected, growth rates are (on average) negatively associated with foreign interest rates.

More generally, among the four external factors, South America's growth seems most correlated with the economic activity in the G7 (with an average elasticity of 1.16) and in China. Similar results are found for Central America, Mexico, and the Dominican Republic (CAMD). This subregion's growth is particularly associated with G7's growth (with an average elasticity of 1.25). Relative to South America, CAMD's growth seems to be less responsive to changes in commodity prices and in China's growth.

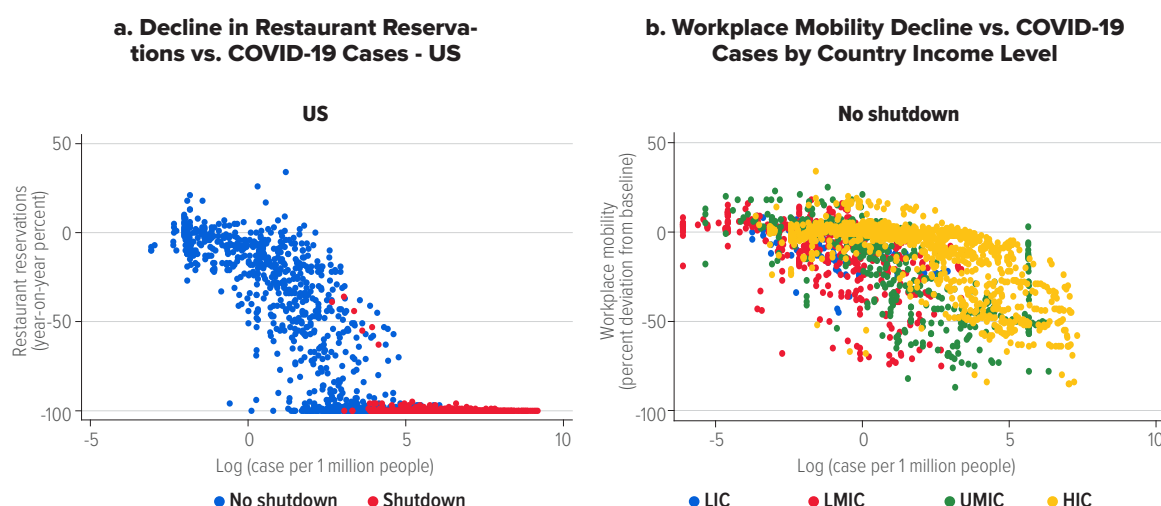
Source: World Bank staff calculations .

Challenges to Recovery

New COVID-19 Outbreaks

LAC's rapid advancement in vaccines and recent better news in managing the Delta variant is partly responsible for the more positive market assessments in recent months. However, the likelihood of the emergence of new strains including those more resistant to present vaccines is impossible to know, and the impact on the economy even less so. Part of the diminished economic activity arose because of the severe Non-Pharmaceutical Interventions (NPIs) (e.g., lockdowns) imposed across the region. Even if these become less prevalent during future outbreaks, it is also important to acknowledge that throughout the pandemic, citizens demobilized themselves. Figure 1.16 shows that, even without any NPIs, the increase in COVID-19 deaths led to a drop in google mobility measures across countries of all income levels. In both high-income and lower middle-income countries, the voluntary demobilization was as at least as important as NPIs. As a particular striking but relevant case, the decline in patronizing restaurants in the US occurred entirely before any NPIs were implemented. These voluntary effects arguably exacerbated the recession in LAC because of the large role of the informal sector, which initially contracted in several countries due to fear of contagion (Leyva and Urrutia 2021; Alvarez et al. 2021).

Figures 1.16: Much of the Slowdown in Activity Was Due to Voluntary Self Distancing



Source: Maloney and Taskin 2019.

Note: U.S. Restaurant reservations against COVID-19 incidence. Workplace mobility is Google measure of work-related mobility index. LIC, LMIC, UMIC, and HIC stand for Low-Income Countries, Lower-Middle-Income Countries, Upper-Middle-Income Countries, and High-Income Countries, respectively.

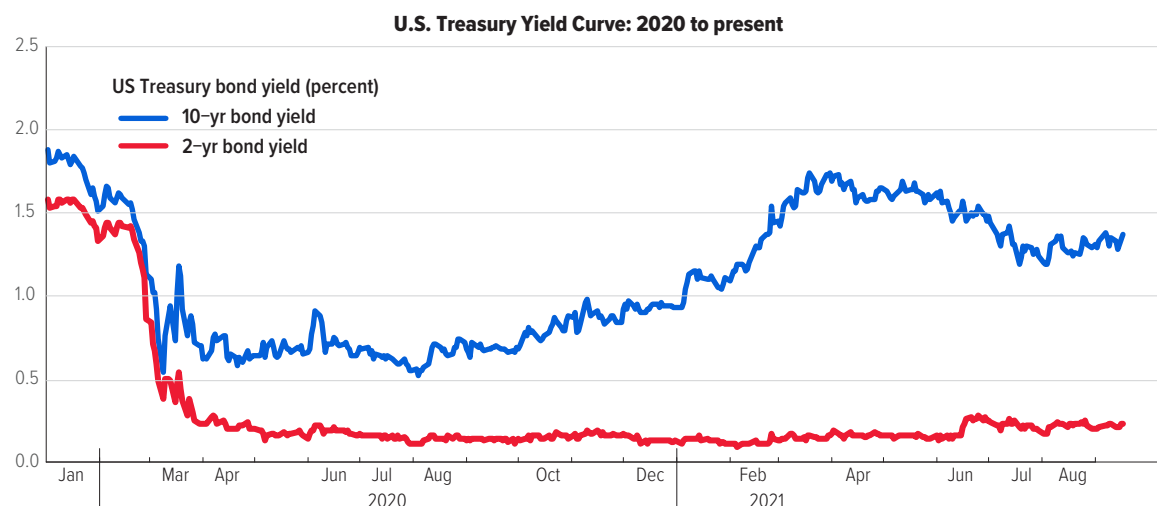
The take-away is that control of the virus is essential to a healthy recovery and that, regardless of measures that authorities take, continued mortality will be a drag on growth. Though we are fundamentally treading in the unknown, one set of estimates predicts that a severe outbreak would shave 1 percentage point off growth (Gagnon, Kamin, and Kearns 2021).⁵

Inflation Risks

The economic rebound from the depths of the pandemic recession jointly with structural shocks to goods and services as well as labor markets, and disruptions to global supply chains, are starting to put pressure on prices in major economies like the United States and several emerging markets including Latin American and Caribbean economies. These inflationary pressures create domestic as well as external risks for the region.

A steeper yield curve in US Treasuries may be an indication of inflationary pressures in the world's largest economy (figure 1.17). The Federal Reserve has started to hint a substantial slowdown of their expansionary monetary policy in 2021 and a potential increase in policy rates for 2022. Such a reversal in the Fed's policy will decrease international liquidity, increase the cost of foreign borrowing for emerging markets and, potentially, dry up much needed capital inflows to year-on-year region.

Figure 1.17: Steeper Yield Curve in the US May Indicate Higher Inflation in the Horizon



Source: US Department of Treasury.

Several countries of the region have also experienced a recent uptick in domestic inflation, which poses a risk as this may cap the ability of central banks to keep supporting the economy and increase economic uncertainty. Understanding the drivers of price increases may help policy makers build tailored and thus more effective policies to address them. A recent study (Ruch and Taskin, forthcoming) separates the drivers of inflation in LAC between demand driven and supply driven. In the context of COVID-19, negative demand shocks arise from the loss of income and increased precautionary behavior which lead to a decrease in the consumption of goods and services. For example, lockdowns and precautionary behavior saw demand for air travel collapse, and with it the price of airfares: in Brazil airfares dropped by almost 60 percent in July 2020 compared to a year earlier. A negative supply shock occurs when the production of a good (or service) is disrupted. This could be caused by drought, labor strikes or shortages, and mobility restrictions and lockdowns in the context of COVID-19.

In LAC, consumer prices dropped at the start of the pandemic as consumption collapsed with consumer inflation shifting from 3.6 percent in January 2020 to a trough of 2.3 percent in May 2020. The slowdown in consumer inflation was largely due to negative demand shocks which created a deficient demand

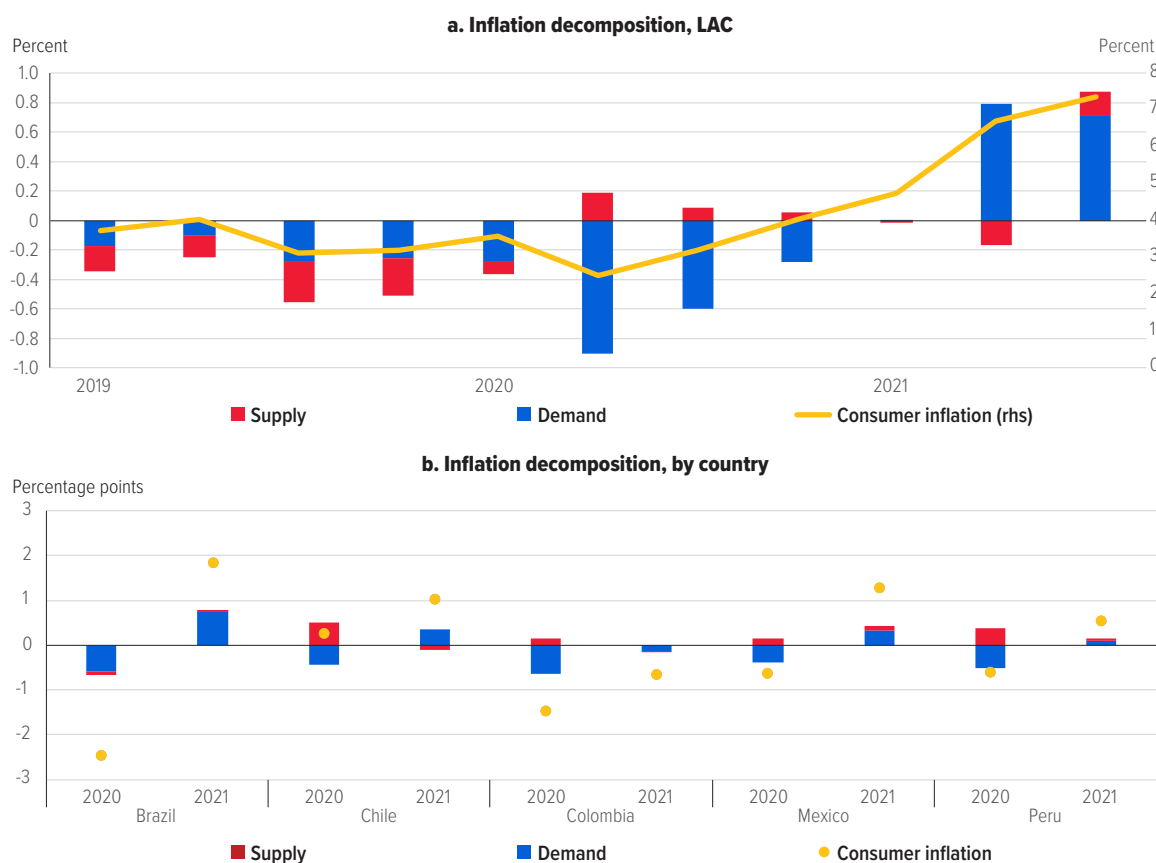
⁵ <https://voxeu.org/article/covid-social-distancing-driven-mostly-voluntary-demobilisation>

environment (figure 1.18.a). At its peak in the second quarter of 2020, demand shocks contributed almost 1 percentage point to the decline in inflation. These shocks reversed in 2021—reflecting in part base effects—and contributed significantly to the rise in consumer inflation through 2021. The collapse in supply at the start of COVID-19 only partially offset the impact of the deficient demand environment and increased inflation by 0.2 percentage point during the second quarter of 2020.

Demand and supply dynamics differed across the region (figure 1.18.b). In Brazil, Colombia, and Mexico, large demand shocks pushed inflation down and was only partially offset by supply shocks in Colombia and Mexico. The collapse in demand was largest in Brazil and Colombia. In Peru, supply shocks limited the fall in inflation at the onset of the pandemic, contributing close to 0.4 percentage point to consumer inflation. In Chile, however, supply shocks contributed 0.5 percentage points and saw an increase in inflation during 2020.

With vaccination rates remaining moderately low and uncertainty about the course of economic activity still significantly elevated, uncertainty around inflation is equally high. The standard deviation on consumer inflation during COVID-19 was four-times higher than in normal times. In 2021, uncertainty has declined but remains elevated. Inflation uncertainty will likely remain above normal levels until the COVID-19 pandemic is under control and supply-demand mismatches are resolved.

Figures 1.18: Inflation in LAC is Nudging Upward and is Largely Demand Driven



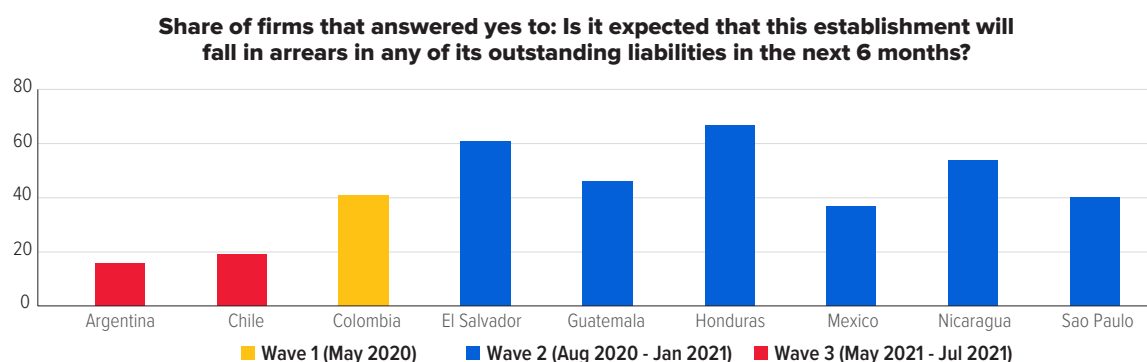
Source: Ruch and Taskin, forthcoming.

Note: Based on sign-restricted Bayesian VAR models. Decompositions only show demand and supply shocks and exclude other shocks. Shocks are measured as deviations from a model-based constant. Regional aggregates are a weighted average of Brazil, Chile, Colombia, Mexico, and Peru using 2020 constant GDP in USD. “Consumer inflation” is shown as a deviation from a model-based constant or initial condition.

Firm Arrears, Debt Overhang and Financial Stability

The reduction in sales caused by COVID-19 has led many firms to run arrears and fall behind in payments. Figure 1.19 tabulates the share of firms that report being likely to be in arrears in the next six months. Several countries find themselves with over 40 percent of firms reporting a likelihood of arrears in the six months after January 2021, and two are over 60 percent. The concern is threefold. First, these firms will either exit from COVID-19 with high levels of debt, impeding capital accumulation and growth, or they are, *de facto* bankrupt and continue as zombie firms. Developing more streamlined mechanisms than often clumsy bankruptcy procedures of the region, particularly for small and medium enterprises (SMEs), is an urgent priority (figure 1.20). Governments, to the degree feasible, may continue to offer support: preliminary data suggest that the share of firms varies with access to public support: 9 percent in Mexico, 20 percent in Vietnam, 30 percent in Brazil and 65 percent in Poland. This, too, has perils to the degree that it props up less efficient firms and prevents the necessary reallocation of resources to their most productive use.

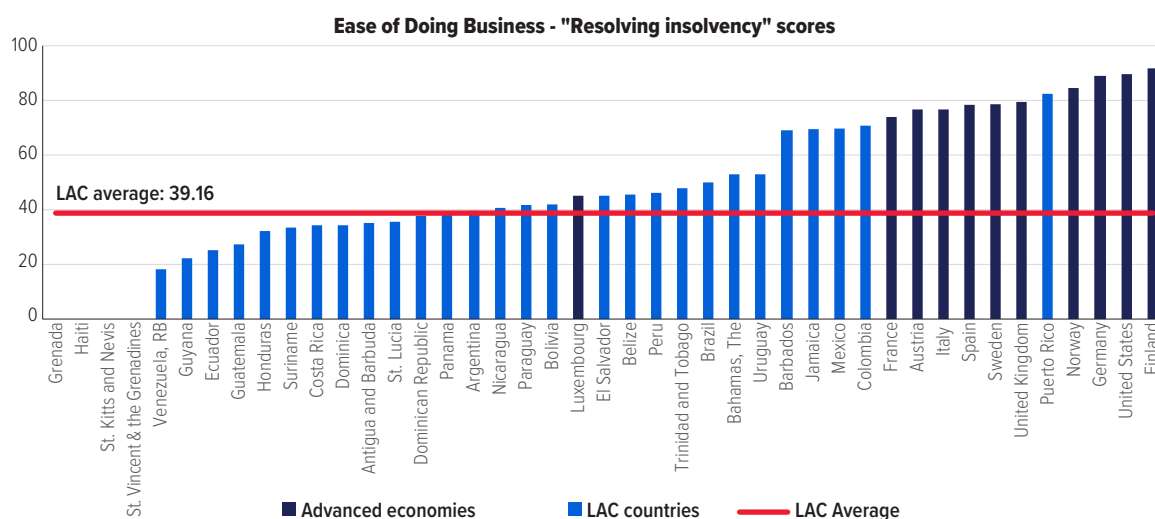
Figure 1.19: Much of the Private Sector is in Arrears



Source: World Bank Pulse Surveys.

Note: Firms reporting the expectation of falling into arrears in any of their outstanding liabilities in the next months. For Colombia, the questions refer to the expectation of falling into arrears within the next month. For Argentina, Chile and Sao Paulo, the figures include firms which are already in arrears at the time of survey.

Figure 1.20: LAC's Debt Resolution Mechanisms Need to Be Streamlined



Source: Doing Business 2020.

Note: The score for resolving insolvency is the simple average of the scores for each of the component indicators: the recovery rate of insolvency proceedings involving domestic entities, as well as the strength of the legal framework applicable to judicial liquidation and reorganization proceedings.

Second, in some countries, tariffs have been raised explicitly to support firms, effectively "off the budget." While understandable, given the high levels of concentration of industry in the region (see for example, De Loecker and Eeckhout 2018) and overall low levels of contestability, reversing this tendency will be important both from a point of ensuring allocative efficiency, and also improving within firm performance.⁶

6 See, Cusolito and Maloney (2018) for a discussion of the sources of productivity growth.

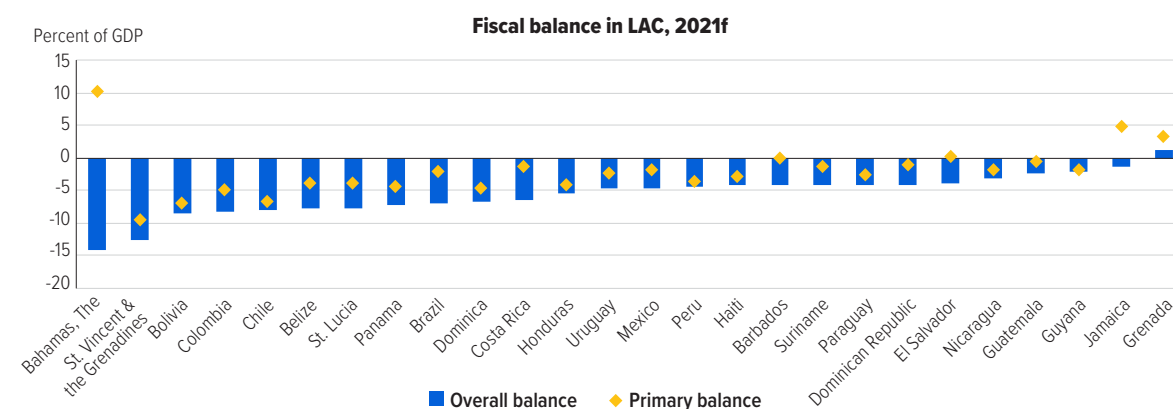
Finally, in many countries, banks have forbore debt payments for long periods. This effectively has led to a process of de-transparentization of the banking sector- it is not possible to know what share of these assets will eventually be healthy, and which will eventually be classified as non-performing loans. A sudden uncovering of an unknown volume of non-performing loans could put the financial sector under stress, suggesting active monitoring by financial authorities would be prudent.

A WorldBank analysis (Feyen and Mare 2021) of what increase in NPLs would wipe out the capital buffers for at least 20 percent of the total banking system assets suggests that, for the median country in LAC, NPLs would have to rise by 10 percentage points to threaten system stability⁷. For some countries, the buffers are substantially less, which combined with a high share of firm arrears poses a situation meriting close attention by supervisory agencies.

Disappearing Fiscal Space

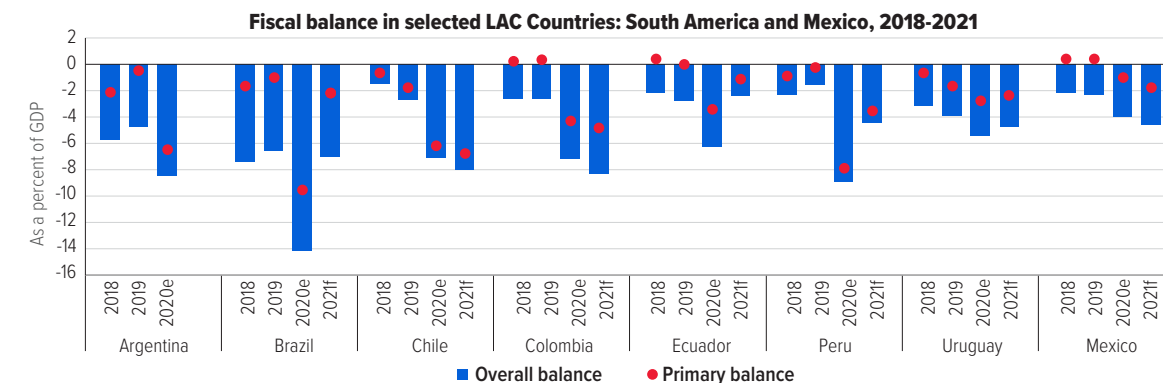
To mitigate the devastating effects of the pandemic on economic activity, the Latin American and Caribbean countries applied strong counter-cyclical fiscal policies in 2020. Stimulus packages ranged in size from relatively small, less than 2 percent of GDP in Mexico, to very large, more than 10 percent of GDP in Brazil. As shown in figures 1.21 and 1.22, fiscal efforts are still predominant throughout the region in 2021. These efforts have translated into large primary fiscal deficits. Chile, Colombia, and Peru – to name a few - are estimated to post deficits in excess of 4 percent of GDP this year.

Figure 1.21: Widespread Overall and Primary Fiscal Deficits



Source: World Bank and staff calculations.
Note: f=forecast.

Figure 1.22: Large Fiscal Efforts Continue in 2021

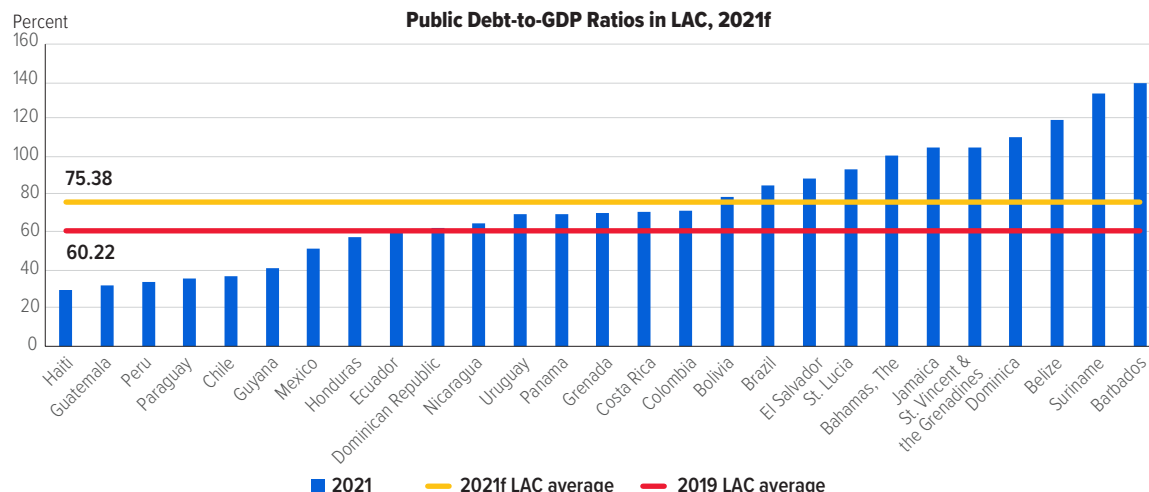


Source: World Bank.
Note: e=estimate; f=forecast

⁷ This analysis has several important limitations and should be interpreted as a rough approximation of banking system resilience. Limitations include data quality, simplifying stress test assumptions, focus on credit shock only, uncertain COVID-19 outlook, impact of regulatory forbearance, quality and extent of policy/fiscal support, and second round effects among others.

Providing households and firms as much fiscal relief as possible during the worst time of the pandemic was a sensible policy, which may have helped many households and firms across the region avoid the financial abyss. Broad-based social transfers have provided relatively large economic returns and may be needed for the time being. This being said, these fiscal efforts have been conducted in an environment of limited fiscal space and heavily financed by public debt issuances, mostly to foreign investors.

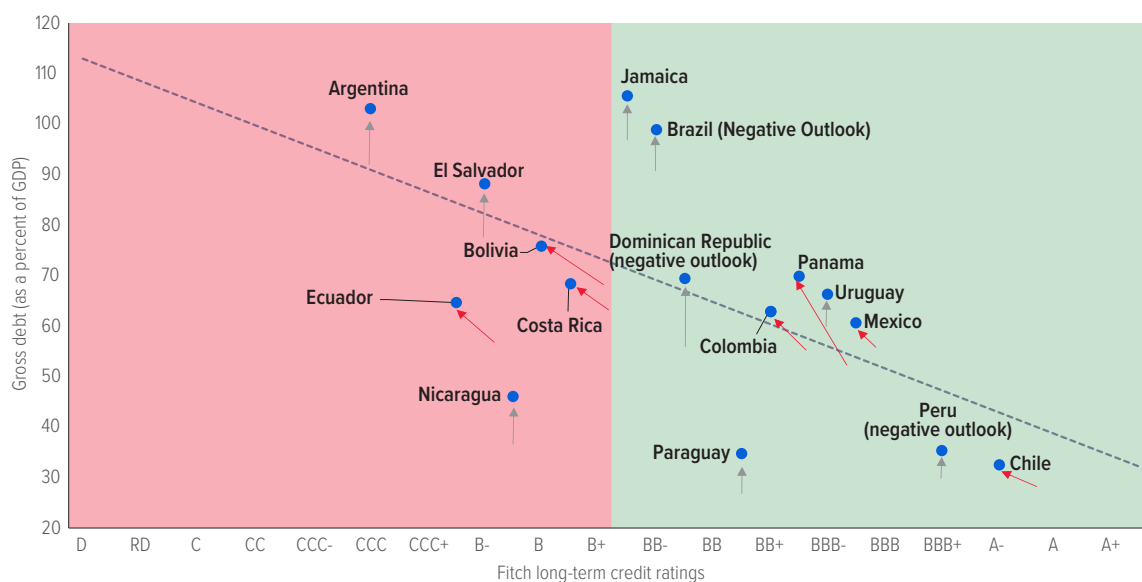
Figure 1.23: Public Debt is on the Rise



Source: World Bank and staff calculations.
Note: f=forecast.

The large increases in public debt ratios can be perceived by domestic and foreign investors as fiscally unsustainable, in which case these developments may affect countries' credit ratings and consequently limit their access to international credit markets. The average public debt-to-GDP ratio has risen in the past two years by 15 points to 75.38 (figure 1.23). Figure 1.24 shows how the deteriorating fiscal positions of the big economies in the region, such as Brazil, Colombia, Chile, Ecuador, and Peru have been accompanied by significant credit downgrades, which in turn have kept sovereign spreads, i.e., cost of international funds, relatively high (figure 1.25).

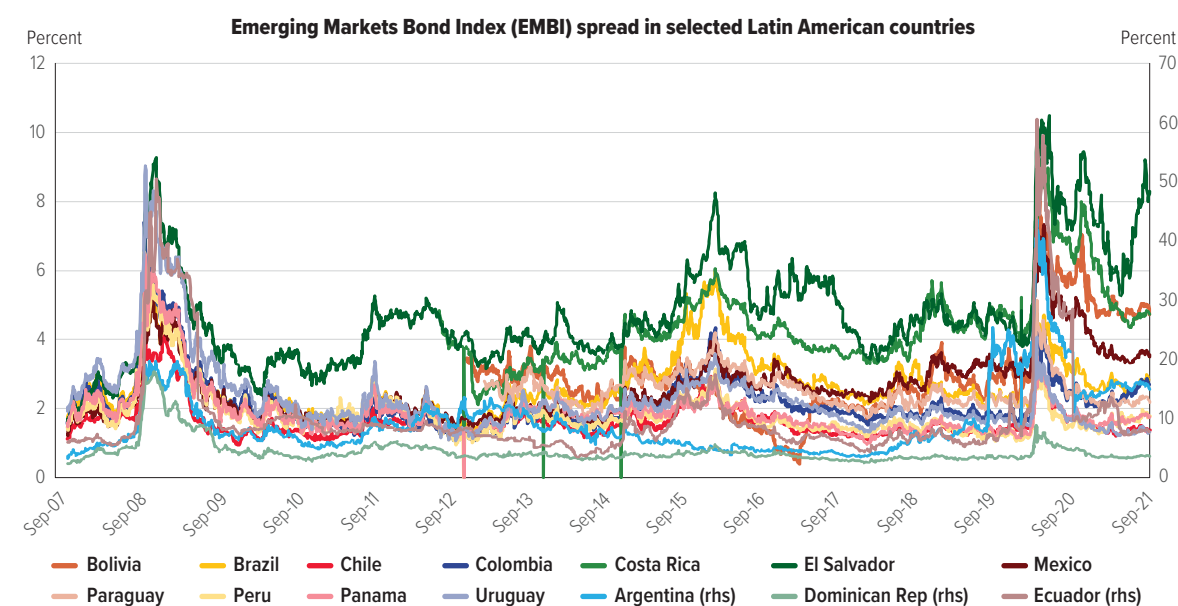
Figure 1.24: As Debt Grows Sovereign Credit Ratings Slide



Sources: Fitch Ratings, World Bank and staff calculations.

Note: Arrows indicate change from pre-pandemic positions to the end of 2020. Argentina and Ecuador suffered restricted defaults during the time of the pandemic. Brazil, the Dominican Republic and Peru did not change their ratings, but Fitch moved their outlook to negative foretelling possible downgrades in the future.

Figure 1.25: Sovereign Spreads Remained High Despite Economic Recovery



Source: JPMorgan Chase.

At the current rate of vaccination and with the risk of new virus variants, we cannot rule out the prolongation of the health emergency. With a depleted fiscal space and being forced to “live with the virus transpose,” countries need to start thinking about growth friendly paths to fiscal consolidation. Chapter 2 of this report is dedicated to exploring a growth-enhancing sustainable fiscal framework for the region. This framework must include growth neutral revenue mobilization, a more efficient use of public resources and reorienting government expenditures to improve human capital accumulation, incentivize employment and develop critical infrastructure.



CHAPTER 2

REBUILDING A DYNAMIC, INCLUSIVE AND GREENER ECONOMY IN A CONSTRAINED FISCAL ENVIRONMENT

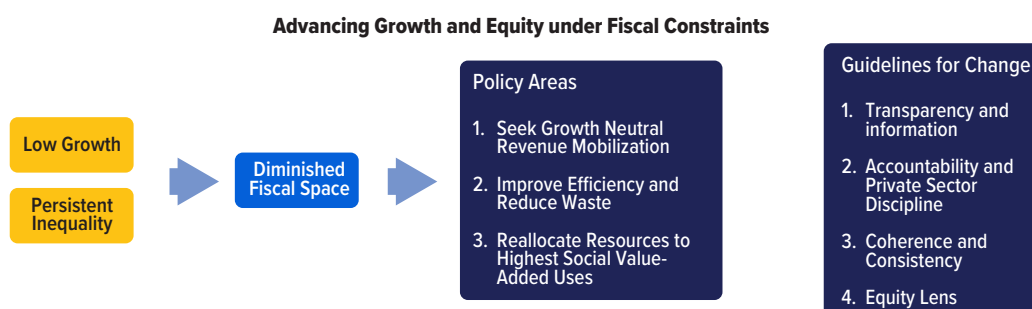
The Fiscal Challenge to Growth and Inequality

Government efforts to protect families and businesses during the pandemic, combined with a sharp decline in tax revenues, led to a sharp increase in indebtedness and fiscal deficits across the region. Given potential rises in global interest rates to dampen inflation, and ratings downgrades in some countries, borrowing costs are likely to rise, which will potentially further worsen the fiscal situation.

The long-standing low growth and inequality challenges that have been exacerbated by COVID-19 make expanding fiscal resources where possible, and more importantly, ensuring that they are used efficiently, more critical than ever. To these ends, figure 2.1 suggests three broad agendas: seeking growth-neutral revenue mobilization, improving efficiency and reducing waste, and reallocating resources to their highest social value-added uses. These three agendas can all be facilitated by ensuring more transparency, improving accountability both bureaucratically and by harnessing private sector demand and participation as a disciplinary device, working toward greater coherence among programs and ensuring consistency over time, and, throughout, maintaining an equity lens.

The goal of this chapter is not to provide an all-encompassing plan for growth under fiscal constraints, it is rather to put a set of ideas on the table that the World Bank and others have developed, and that may provide, if not quickly, then at least possible wins over the medium term, and locate them in a longer-term context of reform.

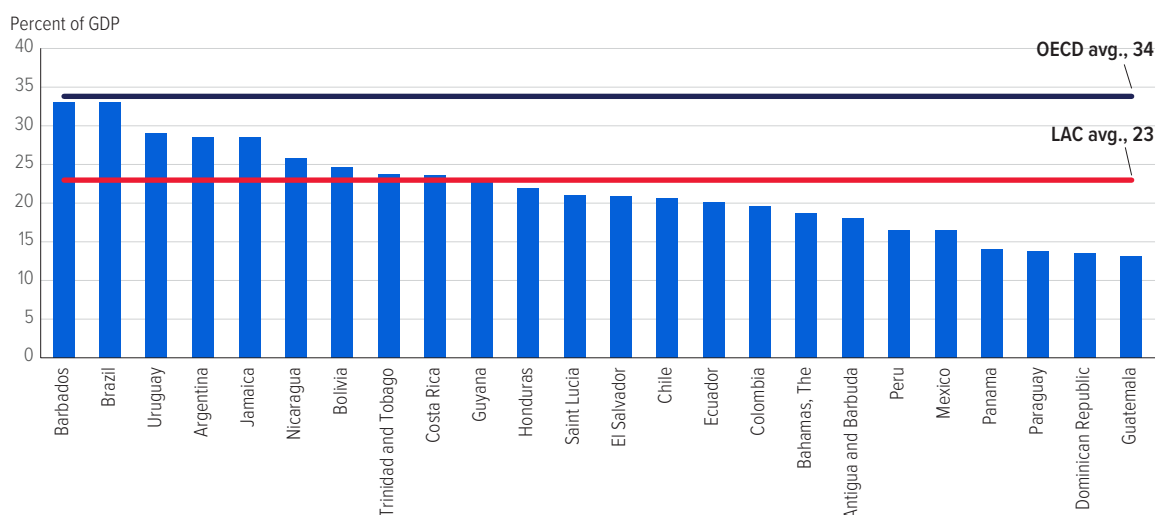
Figure 2.1: Advancing Growth, Equity and Sustainability under Fiscal Constraints



Growth-Neutral Revenue Mobilization

Raising taxes clearly relieves the fiscal pinch and LAC would seem to have room, with some exceptions, to increase its tax-to-GDP ratio. The OECD averages 34 percent while LAC averages roughly two thirds of that at 23 percent (figure 2.2). The concern is that doing so will also have a dampening effect on economic activity, an effect captured through the estimated tax multiplier. Formally, the tax multiplier measures the effect of a USD 1 change in tax revenues on the level of GDP, and these effects can be negative and quite large. Based on a broader discussion on the effects of fiscal adjustments, former IMF Chief Economist Olivier Blanchard has argued that fiscal multipliers in the Eurozone have been underestimated by the IMF and others, and hence that the contractionary effects of raising taxes during fiscal austerity plans have been considerably higher than initially expected. Individual and multi-country analyses in industrial economies, mostly European, have found tax multipliers ranging from about -1.7 to -5.1 (Cloyne 2013, Hayo and Uhl 2013, Pereira and Wemans 2013, Alesina et al. 2015, Riera-Crichton et al. 2016, and Gil et al. 2017), suggesting that fiscal adjustments relying heavily on tax hikes are costly in foregone output.

Figure 2.2: LAC Taxes are Substantially Less than the OECD



Source: OECD Global Revenue Statistics Database.

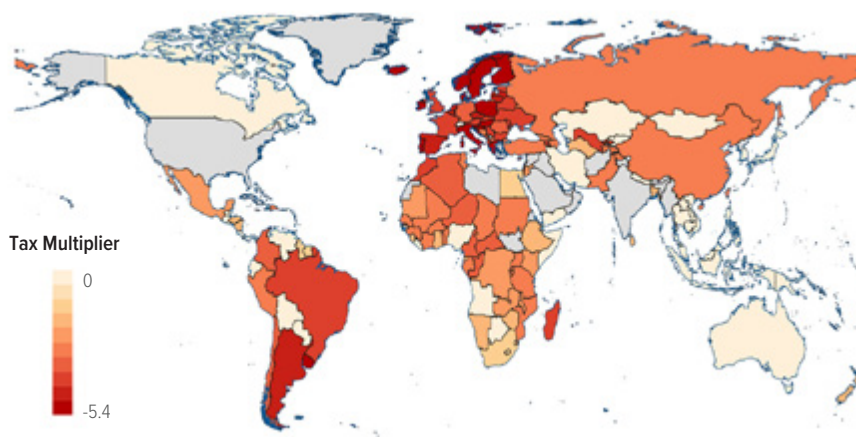
Note: Values are total tax revenues (as percent of GDP) for 2019. Tax revenues may not be strictly comparable as measures of provision of social services as, for instance, countries which fund pensions through mandated individual contributions in private accounts will show lower taxation despite a comparable burden on taxpayers. Revenue collection also rises with level of development.

The Growth Costs of Tax Hikes are not Necessarily Large in the Developing World

These findings, however, may not translate to the developing country context. Recent work at the World Bank on the value-added tax (VAT) for a large set of industrial and developing countries shows that tax hikes are not always contractionary (Gunter et al. 2021). Negative effects on output are found to be highly non-linear with the initial level of tax rates: when initial tax rates are low or moderate, the impact of tax changes on long-run economic activity is very small (or virtually zero), becoming negative only as the initial level of the tax rate rises. The reason is that the distortion imposed by taxation on economic activity is directly related to the level of tax rates.

This suggests that the growing consensus pointing to large negative tax multipliers in advanced countries is driven mainly by high initial tax rates. As figure 2.3 shows, for half of the world (88 of 175 countries) the tax multiplier is statistically zero. For example, tax changes would have virtually no effect on GDP in countries with low tax rates such as Angola, Costa Rica, Ecuador, Guatemala, Nigeria, and Paraguay which have current VAT rates ranging between 7.5 percent and 14 percent. In contrast, the same tax increase would cause output to fall in countries with relatively high VAT rates, including emerging markets like Argentina and Uruguay and, especially, many industrial European countries. The initial level of taxes is thus a critical consideration when contemplating tax hikes.

Figure 2.3: The Growth Effects of Raising the VAT Vary by Country

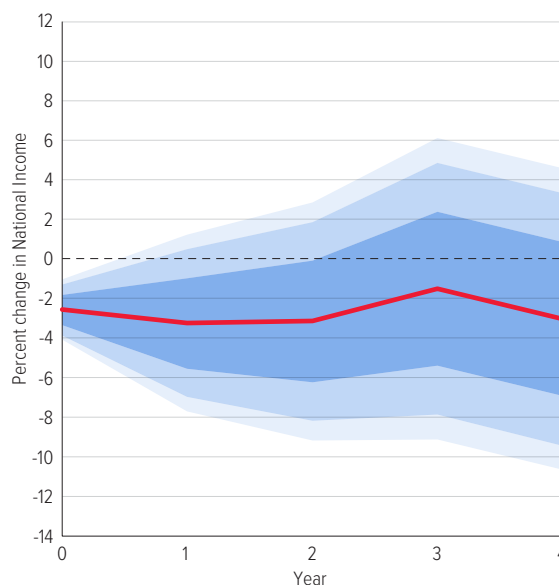


Source: Gunter, Riera-Crichton, Vegh, and Vuletin (2021)

Note: The Multiplier represents currency units decrease in real GDP after a one currency unit increase in real revenue from VAT

Income Taxes: The VAT, by focusing on consumption, tends to be regressive. Individual (or personal) income taxes, however, can be designed to be progressive and thereby help offset high levels of inequality. Income tax rates are generally low in LAC, but increasing them may have more direct adverse effects on labor supply, effort or new business activity. Evidence of the elasticity to taxable income (ETI), defined as the percentage change in pretax individual income, which in the aggregate is highly correlated with GDP, to a percentage change in the individual income tax, is virtually non-existent in the developing world, including the LAC region. Short-term ETI estimates for the United States range between -0.02 (Saez 2004) to -1.2 (Mertens and Olea 2018), however, recent work at the World Bank by Venturi, Riera-Crichton, and Vuletin (2021) finds that for a sample of 6 Latin American countries (Argentina, Brazil, Colombia, Ecuador, Paraguay, and Peru) the response may be significantly more negative. Figure 2.4 shows a short-term ETI of about -2.5 suggesting that the distortive labor and macroeconomic costs of increasing individual income taxes are, at least, about 2 times larger than those estimated in the United States, suggesting that income taxes are potentially costly in terms of growth in LAC.

Figure 2.4: Higher Income Taxes May Have Negative Growth Consequences



Source: Venturi, Riera-Crichton, Vuletin (2021).

Note: The marginal income tax multiplier represents percent change in national income after a one percentage point change in the average marginal income tax.

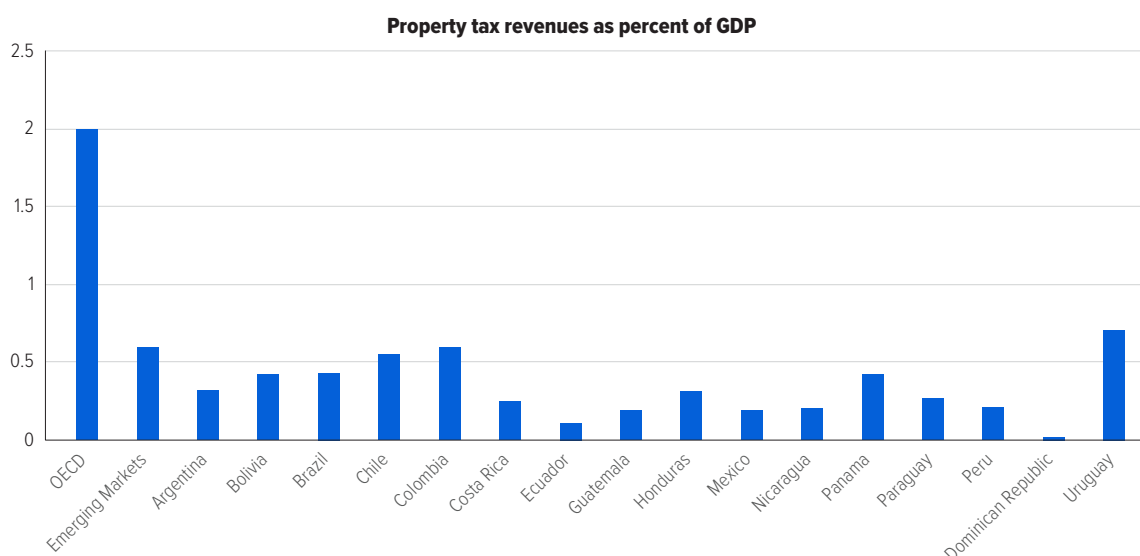
Property Taxes: The growth impacts of property taxes are expected to be less adverse since the assets are not mobile and the link to growth is less clear, and they can also be designed to be more progressive. There is room to expand them over the medium term in LAC: OECD levels of property taxes constitute 2 percent of GDP (5 percent of taxation) while virtually all countries in LAC are below 0.6 percent and in no LAC country do they exceed 0.8 percent (Birdsall and Gupta 2018, Figure 2.5).

Pro-health Taxes: Though the case for taxing tobacco, alcohol and sugar-sweetened beverages is generally grounded in their effects on health, increasing the excise taxes has been estimated to raise the tax to GDP ratios by an average of 0.7 percent in lower-income countries (LICs) and lower-middle-income countries (LMICs) (World Bank 2019). Spain, for instance, increased the value-added tax on sugar-sweetened beverages from 10 to 21 percent in 2021. When longer-term health gains are factored in, pro-health taxes can be expected to deliver most of their benefits to lower-income populations and their net effect is progressive (Fuchs, Icaza and Paz 2019).

Carbon Taxes: Conceived of raising the price of emitting CO₂ to reflect the social costs, carbon taxes clearly also count as a source of revenue. Nevertheless, to date, there are few examples in LAC of experiments with carbon taxes. The section below on eliminating energy subsidies makes clear that the revenues involved are very significant.

Tax Compliance: As a final point, raising tax collection efficiency would dramatically increase revenues. As an example, the average rate of evasion of VAT in LAC is 29.4 percent, and of corporate income taxes is 49.2 percent (CEPAL 2000). Both the use of new technologies as well as measures to boost tax morale could reduce evasion substantially.

Figure 2.5: Latin America Taxes Property Less than Comparable Countries



Sources: Birdsall and Gupta (2018), Lincoln Institute of Land Policy.

Gains in Spending Efficiency

Large potential gains in spending efficiency offer an important complement or alternative to raising revenues. Cutting spending across the board, as has been done many times in the past, especially in a recessionary environment, has strong contractionary effects (Riera-Crichton, Vegh, and Vuletin, 2015). Nonetheless, there is substantial space to switch from wasteful and inefficient government spending to spending that contributes to growth, without adding to inequality (Izquierdo, Pessino, and Vuletin, 2018). Figure 2.6 shows that the estimated inefficiencies in procurement, civil service, and targeted transfers represent an *average amount of waste in the region of 4.4 percent of GDP*, larger than current average spending in health (4.1 percent) and almost as large as average spending in education (4.8 percent), and account for about 16 percent of average government spending. Estimates range from a low of 1.8 percent of GDP in Chile to more than 7 percent of GDP in Argentina.

Public procurement, including the purchase of goods and services and capital equipment, such as buying computers for primary schools and building a highway or an airport, represents, on average, about 30 percent of total spending in LAC countries (Pessino, Badin, et al., 2018). As discussed in Izquierdo, Pessino, and Vuletin (2018), public procurement is a magnet for various inefficiency risks originating in waste, mismanagement, and corruption. The waste originating in bribes and padded budgets appears to be enormous: about 26 percent over the cost of projects.

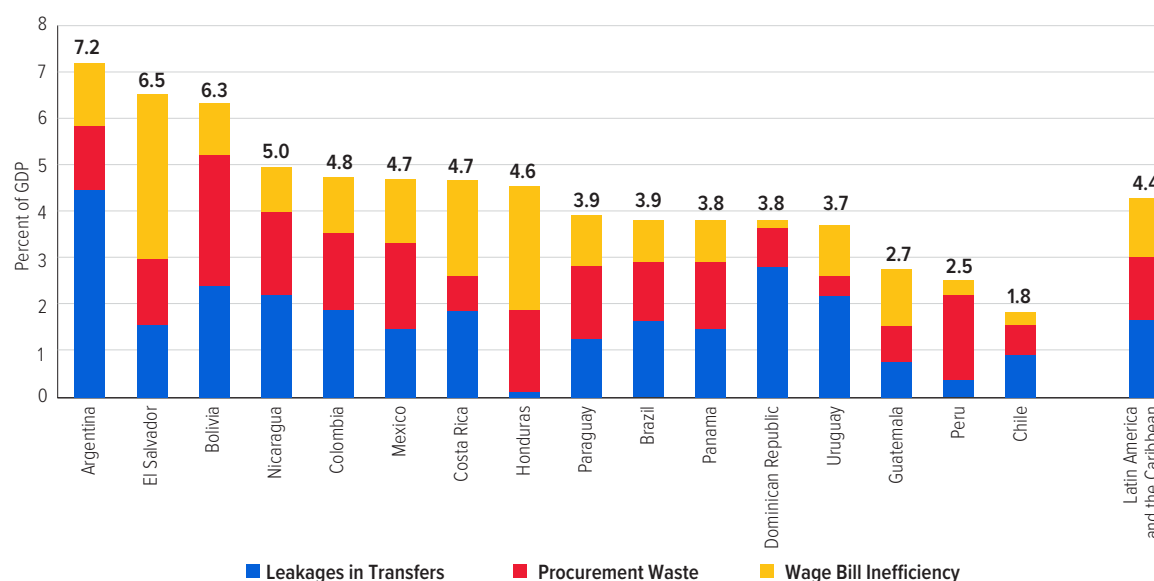
The World Bank undertakes reviews of procurement practices and simulations of possible savings. For three countries in LAC, savings of 16–22 percent were estimated on purchases with straightforward modifications of practices and without changing existing procurement laws. As examples, in one country savings of 7 percent of purchases were estimated purely from consolidating purchases across government (bulk buying), 2.5 percent from the use of electronic catalogues, better use of reverse auctions, and avoiding non-competitive contracts, 1.3 percent from more timely processing of contracts, and 1 percent from avoiding seasonal bunching of procurement. Indirectly, eliminating barriers to bidding on government contracts and hence increasing the number of bidders was estimated to generate potential savings of 2.4 percent, and developing special procedures for especially concentrated markets another 1.8 percent.

On average, in LAC, the wage bill consumes 29 percent of general government spending and public employees represent about 13 percent of labor force. The average wage premium in LAC is about 34 percent in favor of public sector employees in LAC (Cerdeira and Pessino, 2018, World Bank Bureaucracy Lab) and is one of the highest in the world (IMF, 2016). Measures of wage bill inefficiency identify that part of this wage bill

premium is not driven by skills but rather mainly by higher union density in the public sector and political economy considerations. According to Izquierdo, Pessino, and Vuletin (2018), the overall wage bill inefficiency in LAC is on average 1.2 percent points of GDP (14 percent of wage spending).

About 30 percent of public spending on average in LAC are transfers including social programs, firm subsidies, and contributory pensions. Transfers targeting errors or leakages-defined as fraction of program funds that do not reach the intended beneficiaries, typically the poor- are at the core of transfers economic inefficiencies. Main inefficiencies in transfers, including energy subsidies, cash transfers, non-contributory pensions, and tax expenditures to the non-poor, represent about 1.7 percent of GDP in LAC.

Figure 2.6: LAC Suffers Large Waste and Inefficiency in Public Expenditure



Source: Izquierdo, Pessino, and Vuletin (2018).

Rethinking Spending Priorities

The way to improve outcomes of spending is to ensure that the marginal resources are devoted to the activity yielding the highest social rate of return, whether being growth promoting or supportive of greater equity. We examine six areas. Again, it is impossible to thoroughly describe reforms of an entire sector of the economy in a few pages. The goal is to put some “big ticket” items on the table with a brief explanation of why World Bank or other experts believe there are wins, quick or over the medium term, that could advance growth and equity by rethinking spending priorities.

A. Strengthening the Health System - Quick Wins to Improve and Expand Services

Over the long term, Latin America and the Caribbean countries will need to spend more and better on health to effectively face major health emergencies like COVID-19. Ensuring LAC is prepared to meet further outbreaks, and over the medium term, improve the wellbeing of the population, is critical. A well-performing health system is also necessary to ensure a healthy work-force essential to labor productivity and growth. The *Health at a Glance* report from the OECD and World Bank (2020) showed that health spending in LAC was about USD 1,000 per person in 2017, only a quarter of what was spent in OECD countries (adjusted for purchasing power). Government spending and compulsory health insurance represent an average of 54.3 percent of total health spending in LAC, significantly lower than the 73.6 percent in the OECD. These data show that health systems in the LAC region are heavily dependent on out-of-pocket expenditures or supplemental private insurance from households.

Important gains can be made in rationalizing current spending. For example, it is estimated that if LAC countries brought their health efficiency to the frontier, average life expectancy could be extended by four years. A recent multiregional study from the Inter-American Development Bank (Izquierdo et al., 2018) uses data envelopment analysis (DEA) to assess efficiency across eight health system outputs, grouped in three categories: a) health (life expectancy at birth and at age 60, under-five mortality, Disability Adjusted Life Years); b) access to services (DPT immunization, skilled birth attendance); and c) equity of access to services (ratios urban/rural and poorest/richest of skilled birth attendance)⁸. Chile is the only LAC country in the top 25 percent of the average efficiency ranking, 22 (out of 27) LAC countries are in the bottom half, and 12 in the bottom 25 percent. The LAC efficiency performance is particularly poor for equity of access to services.

Poor allocation of health spending is slowing down if not halting the path towards universal health coverage in LAC. OECD/World Bank (2020) suggests several opportunities where immediate action on the appropriate policies can represent quick fiscal wins from the health sector.

- *Benchmarking procedures and policies can reduce costs and improve outcomes.* As an example, the average of caesarean section rates among 27 LAC countries is 32 per 100 live births, above the OECD average of 28, and twice as high as WHO's recommendation of no more than 15. Excessive use of antibiotics has no positive impact on patients and causes harm in the form of antimicrobial resistance. Among the LAC countries with data available, Brazil, Bolivia and Paraguay consume more antibiotics per capita than the OECD average.
- *Health technology assessments can help ensure that public financing is prioritized and made available for those drugs, devices and procedures that have demonstrated effects in improving health and other outcomes, which also represents a good financial investment.* However, only 5 out of 21 LAC countries report using it systematically to make coverage decisions and no country reports using it for reimbursement purposes.
- *Health systems fragmentation in LAC is a key source of waste.* Most countries have subsystems with duplicated functions of governance, financing, and services provision.
- *Reconfiguring health service delivery will bring efficiency.* Investing more in primary health care systems based on the principles of patient-centered, first-contact, continued, comprehensive, and coordinated care. The effective implementation of such principles could be accelerated by the ongoing digital health transformation, which should be considered as a strategic and sustained process that is not limited to the immediate response to public health emergencies, such as the one imposed by the COVID-19 pandemic.⁹ The creation of a digital health strategy and of a digital ecosystem involving other sectors, such as education and connectivity infrastructure, are considered as effective steps for a sustained digital transformation process in the health sector.
- *Improving health information systems would raise understanding of public expenditures and their related results.* Across 22 LAC countries, an average of 10 percent of all deaths are never reported in public mortality databases.
- *Eliminating corruption and improving governance of institutions would lower costs and raise confidence in the system.* 42 percent of those interviewed across 12 LAC countries consider the health sector to be corrupt, higher than the 34 percent in 28 OECD countries. Moreover, bribery rate in public health centers reaches 11 percent across 18 LAC countries. In general, the IDB study suggests that efficiency can be improved by improving the quality of institutions.

B. Making Better Grades in Education Efficacy and Equity

The COVID-19 pandemic has dealt unprecedented blows to the region's growth and equity goals by effectively shutting down an education system that was already underperforming. Indeed, LAC employers struggle to find the qualified human capital essential to growth and improved productivity. Almost 30 percent of employers in LAC report that an inadequately educated workforce is a major constraint to their current operations relative to 20 percent in the world, the highest of all regions. As importantly, it has also long been

⁸ The input used for the efficiency analysis is pooled health expenditure, which is the sum of public health expenditure and private prepaid health expenditure.

⁹ <https://blogs.worldbank.org/health/digital-health-solutions-primary-health-care-during-covid-19-lessons-latin-america>

established that education offers the most effective path to upward mobility and lower inequality, but that uneven access and quality of educational services present a barrier to forming more equitable societies.

The present fiscal situation offers an opportunity to rethink both how educational resources are spent and how the quality of the outcome can be improved.

Primary and Secondary Schools in Crisis

COVID-19 led to school closures in all countries of the region, except Nicaragua, affecting 170 million students. These closures were the longest in the world, averaging 159 in person school days missed as of December 2020 and leading to over a year's loss in human capital accumulation in a region where, as figure 2.7 shows, 15-year-olds already lag 3 years behind their OECD comparators in reading, mathematics, and science. Further, remote learning is the most commonly used strategy to compensate for school closures, but, as noted above, most lower strata families lack access to the internet at modest costs and hence students cannot get access to on-line education platforms and download homework assignments on smart or flip phones or tablets. This has implied that losses from COVID-19 will further exacerbate what figure 2.8 shows to be an already highly unequal distribution of educational attainment. Students in the bottom quintile are lagging at least two years in many countries below their counterparts in the top quintile. The World Bank (2021)'s *Acting Now to Protect the Human Capital of Our Children: The Costs of and Response to COVID-19 Pandemic's Impact on the Education Sector in Latin America and the Caribbean* details first the tremendous costs of COVID-19 in these areas, as well as the agenda to recover.

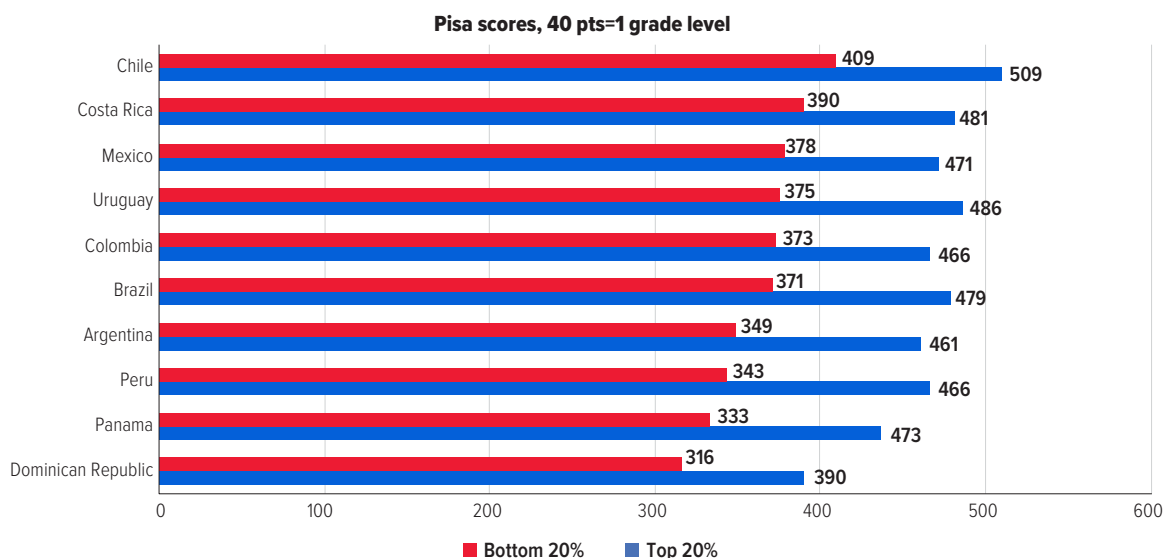
Figure 2.7: 15-Year-Old Students in LAC are, on Average, Three Years Behind OECD Students in Reading, Mathematics, and Science



Source: World Bank (2021)

Extending internet access, as discussed above, is an important medium-term goal, but not likely to solve the access problem in the short run. Perhaps more importantly, nothing replaces face-to-face education. Keeping educational institutions open is therefore fundamental. As much as countries have developed mechanisms to keep health professionals where they need to be, the same needs to be done with teachers. In the short run, as students return to school, they will require differential levels of remedial help given the disruptions they face, and many will need counseling and emotional support to overcome the traumatic effects of the pandemic. Content will need to be prioritized and curricula tailored and streamlined. More than ever before, schools will need to be engaging, challenging, and useful—in a word, worth attending, particularly for students at the highest risk of dropping out.

Figure 2.8: Wide Gaps in Education Outcomes Reveal Regressive Patterns of Access and Quality



Source: World Bank (2021).

Over the medium run, the present fiscal pressures dictate the need to build an educational system that forms human capital equitably and efficiently.

Prioritizing funding for hardest-hit schools and communities and exploring the potential for using resources more efficiently. In Argentina, for example, the Ministry of Education surveyed 24 jurisdictions in the country to assess school infrastructure, and funding for school reopening was allocated based on the identified needs. Chile, Ecuador and Peru have been able to allocate more resources to vulnerable areas in a progressive school finance model, which bodes well for addressing the new challenges.

Teaching better through data and technology. The pandemic forced the adoption of several innovations in education, the most important of which may be the use of technology. Besides being an indispensable tool for online teaching, technology can be extremely fruitful in three other ways. The first is the use of adaptive technology to teach at the right level, usually through software that offers material adaptively, based on the student's competence level. The second is the use of technology to track students' attendance and progress—for instance, to implement early warning systems based on students' attendance patterns to prevent them from falling behind or dropping out. The third is the use of data-driven instruction that analyzes patterns of students' performance and uses them to inform teaching.

Allocating resources better through data and technology. New technologies could support efficiency improvements as schools reopen to recover from learning losses, especially in under-served areas and schools. Using satellite internet to connect its best teachers to more than 100 million rural students, China managed to improve their learning outcomes while helping address the urban-rural gap in teacher allocation and realize efficiency gains in the use of resources. A comparable strategy, albeit on a much smaller scale, will also be implemented in Guyana.

Over the longer-term, improved monitoring and reporting of educational outcomes together with greater access to data on education finance and resource utilization would help identify and correct spending inefficiencies and inequalities, ultimately improving spending decisions and educational outcomes. In Brazil, the state of Ceará has a system of results-based intergovernmental transfers where municipalities compete for a fixed pool of funds by achieving improvements (not by being the best) in key indicators such as learning scores and progression rates. Among all Brazilian states, Ceará achieved the highest improvements in learning outcomes in recent years.

Improving educational leadership is critical to longer-term efficiency and learning gains. International and regional evidence increasingly suggests that educational leadership is critical in both the public and private sectors, with three broad approaches.

- *Improving leader selection processes.* In countries across LAC and the world, many school directors are politically appointed without merit-based criteria, or they earn their position solely by being the longest-serving teacher. Research on recent changes in school director selection methods in Brazil, Chile, and Peru show that moving away from political appointments can change who is selected to lead schools and their subsequent performance, but consideration of the quality of the candidate pool, local conditions, and broader political economy are critical to the reforms' ultimate impacts on student outcomes.
- *Developing and implementing practical, coherent training and support for school leaders.* Practical pre-service, induction, and in-service training programs that focus on practices tied to student outcomes can have sizable impacts on managerial practices and student outcomes. In the United States, an intensive, two-year in-service training in instructional leadership, delivered to school directors who remained in the same school for both years, raised student test scores by 0.15–0.30 standard deviations. In Argentina, providing school leaders with easy-to-understand student performance data and guidance on how to use those data raised subsequent student test scores by about 0.3 standard deviations. In Guatemala, a short, practice-oriented training program for school leaders to prevent student dropout reduced dropouts by 4 percent.
- *Better defining and allocating roles at all levels of the education system and addressing incoherence.* In many LAC countries, the quality of services provided by public schools depends as much on the educational authorities who sit above the school level as it does on school directors themselves. New data from Brazil, the Dominican Republic, Guatemala, and Peru show that when school leaders and educational authorities above them do not share a common understanding of their roles and responsibilities, student learning is lower. In Brazil, an impact evaluation found that a program that aligned school directors and local education authorities around specific student achievement targets increased student test scores by about 0.1 standard deviations and was highly cost-effective.

Higher Education: The Paradox of LAC's Generous but Ineffective Higher Educational Spending

The problem of persistent higher level skill scarcity offers a great paradox, since the higher education gross enrollment rate in LAC is 52 percent—higher than the world's average; only second to Europe and Central Asia (ECA) (which includes Western Europe) and North America—and LAC countries spend more resources in higher education than comparable ECA or East Asia and Pacific (EAP) countries. Indeed, as table 2.1 shows, whereas the average LAC country spends 1.04 percent of GDP on higher education, the average ECA and EAP comparable country spends 0.69 and 0.49 percent, respectively.

Table 2.1: Higher Education Spending and Distribution of Students Across Fields

REGION	% OF GDP	% IN ENGINEERING	% IN SS, BUSINESS, LAW
LAC	1.04	13	38
ECA	0.69	20	34
EAP	0.49	22	28

Sources: UNESCO, World Bank Enterprise Surveys.

The paradox can potentially be explained by two factors. The first is the mix of fields being studied. In the average LAC country, 13 percent of higher education graduates major in Engineering or Science compared to 20 percent in ECA and 22 percent in EAP. Meanwhile, LAC trains relatively more students in Social Sciences, Business, and Law.

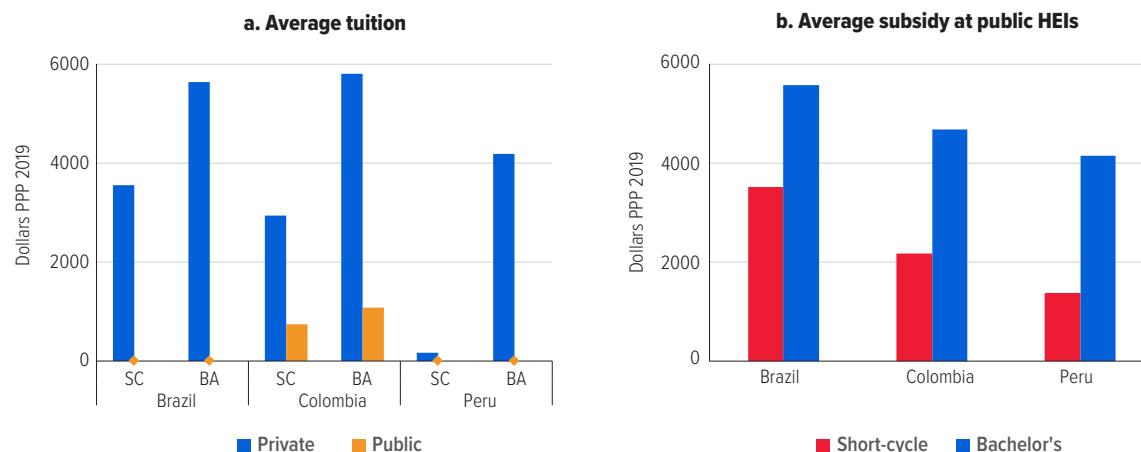
The second is the type of educational programs being attended. Though the vast majority of LAC higher education students see a 4–6-year bachelor's degree as the only path to advanced education, globally 25 percent of higher education students attend 2–3-year short cycle programs (SCPs) that focus on very practical and occupationally targeted training, both in traditional fields such as advertising, hospitality, physical therapy, and electronics but also in newer ones such as digital animation, app design, big data, and cybersecurity. LAC is the lowest in the world at 9 percent. This, combined with the ineffectiveness of many training programs, implies that LAC firms are starved for the necessary technical skills. A recently launched World Bank study *The Fast Track to New Skills: Short-Cycle Higher Education Programs in Latin America and the Caribbean* lays out how LAC arrived at this situation and possible reforms (Ferreya et al. 2021).

At the core of this problem is the structure of public spending in higher education. In LAC countries, most public spending in higher education consists of transfers to public higher education institutions so that students can attend them at subsidized or zero tuition. This spending has several features (Ferreya et al. 2017; Ferreya et al. 2021).

- *Weak targeting toward priority fields and programs.* Per-student public spending varies little or nothing depending on the field of study. LAC needs more engineers and fewer accountants or lawyers, but that is not reflected in per-student public spending. Further, there are excessive incentives to enroll in bachelor's programs rather than SCPs. A poor student faced with attending a weak bachelor's program at a public institution or a high-quality SCP is pushed toward the former.
- *Regressive subsidies.* Across the world, heavily subsidized tuition for bachelor's programs winds up being regressive simply because the taxation that finances the subsidies is not very progressive while those who enroll in bachelor's programs tend to be from higher income households. Some form of means testing for public support would both free up resources for other types of education and be less regressive. The same pattern occurs with bachelor's programs vs. SCPs - the public subsidy as shown in figure 2.9 is far less per student-year even though SCP students are usually more disadvantaged. This effect is, of course, compounded by the fact that the subsidy to bachelor's programs lasts up to twice as many years. And as one further compounding effect, among bachelor's students, those from higher-income families are more likely to enjoy the total subsidy because they are more likely to graduate. Indeed, students from the top income quintile are approximately 20 percentage points more likely to graduate, on average, than those from the bottom two quintiles.
- *Low graduation rates.* Despite their higher per-student subsidy and their more advantaged student population, bachelor's programs have lower graduation rate than SCPs. On average, only 46 percent of bachelor's students obtain their degree relative to 57 percent of SCP students. Moreover, a comparison of SCP graduates with bachelor's programs dropouts (which account for about a half of all higher education students) shows that the former attains better labor market outcomes than the latter in terms of employment, formality, and salaries (figure 2.10). In fact, well-designed SCPs can provide the full set of competencies—technical, cognitive, and socio-emotional—required to succeed in the new world of work.
- *Lack of accountability and information.* Public funding directed to students and institutions is rarely subject to performance evaluation. Institutions often receive funding regardless of their students' academic or labor market outcomes (which are, in most cases, not known or published), and students often receive funding regardless of their performance (measured, for instance, by annual progression). In addition, the proliferation of private “garage” universities with no evaluation or published track record often attract low-income families with little information or access to quality institutions. Underneath these issues is a systemic lack of information, as in many LAC countries students and their families have no information on the academic or labor market outcomes of specific institutions and programs—either public or private. In many countries, this is compounded by the unwillingness, on the part of the educational authorities, to act against poorly performing institutions and programs.
- *Uneven playing field.* While countries subsidize students in public higher education institutions (HEIs) quite generously, most of them provide little to no subsidies or funding mechanisms for students in private HEIs, even though the latter account for about half of the higher education enrollment in the region. These students might have attended public HEIs if they had enough capacity, had offered their desired program, or had been located in a convenient area. The emergence

of high-quality private institutions has offered an important source of healthy competition to traditional public universities and provided high quality options for students for whom public institutions did not meet their needs. Of course, expanding the support for students in private institutions would require a thorough and transparent evaluation of their quality.

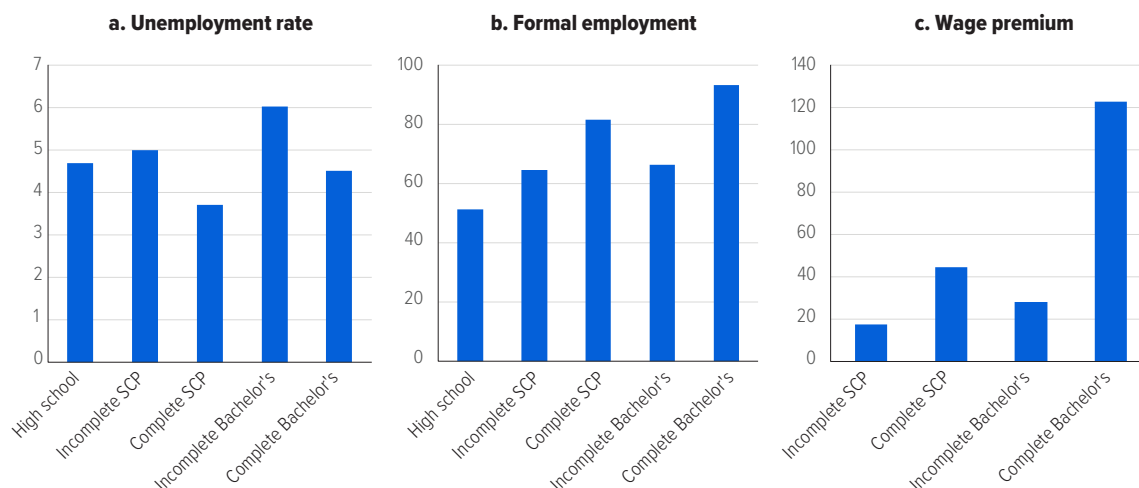
Figure 2.9: Public Subsidies for SCP Students are Lower than for Bachelor's Students in LAC Countries



Sources: Ferreyra et al. (2021) based on countries' administrative information.

Note: All averages are simple averages over programs. In panel a, the orange diamonds indicate zero average tuition. For Colombia, average tuition at public institutions includes SENA programs, which charge zero tuition. In panel b, for a given country, the average subsidy at public higher education institutions (HEIs) for bachelor's programs equals average tuition in public HEIs, and similarly for SCPs. The figure includes all programs (licensed and non-licensed) in Peru. All monetary values are in dollars (PPP 2019).

Figure 2.10: In LAC, SCP Graduates Attain Better Labor Market Outcomes than Dropouts from Bachelor's Programs



Source: Ferreyra et al. (2021) based on SEDLAC.

Note: The figures depict average labor market outcomes, circa 2018, for the working-age population, defined as individuals between ages 25 and 65, given educational attainment. Complete bachelor's includes individuals with graduate degrees. For each level of educational attainment, the corresponding bar shows the simple average outcome over countries. Panel a shows the unemployment rate (percentage of unemployed individuals relative to the labor force). Panel b shows the percentage of employed individuals who have formal employment. Informal workers include salaried workers in firms with up to five employees, self-employed workers with at most a high school diploma, and workers with no reported income. In panel c, the wage premium in each category reflects the percentage by which the average (hourly) wage in the category exceeds the average (hourly) wage for high school graduates. The difference between outcomes for complete SCP and incomplete bachelor's is significantly different from zero in panel c, but not in panels a or b. Comp. = complete; Incomp. = incomplete; SCP = short-cycle programs.

In sum, LAC's present spending on higher education is bloated relative to comparator countries, inequitably distributed, and does not provide the needed skills for rapid growth. Taking relatively inexpensive actions to increase transparency and accountability and explore the reallocation of public higher education funding among students, programs, institutions, and fields would be a step in the right direction, from both a growth and equity perspective.

Increasing Information for Efficiency and Equity. Students, universities, governments, and the private sector would benefit from a credible and far-reaching information system that provided accurate and widely disseminated measures of output quality. Such a system would measure learning, attainment, and long-term (e.g., job market) outcomes, which are fundamental to know whether the system is meeting its goals. At the primary and secondary levels, for instance, through the PISA scores we know that LAC's education system is failing relative to comparators. In such a system, the information collected through measurement would be easily available, and prospective college students who are choosing a college major would know the employment outcomes of alternative higher education programs. Since this type of information is harder to process by less educated parents, these would be assisted by others—such as secondary school teachers and staff. Not only do information policies yield better, more efficient decisions; they also increase equity because students from more advantaged backgrounds can typically gather information through their own channels.

Accountability for Efficiency and Equity. A good higher education system would include strong accountability, holding institutions and programs—especially those with public funding—accountable based on their outcomes. The regulatory authority (for instance, the Ministry of Education) would monitor institutions and programs periodically—not just at the accreditation stage—and these reviews would be publicly available. The regulatory authority would screen new institutions thoroughly to avoid the opening of “garage” universities, and only authorize the opening of the most solid, promising ones. At the primary and secondary level, for instance, this type of system is effective for charter schools in some jurisdictions of the United States. In those places, aspiring charter schools submit detailed, exhaustive educational and business proposals to the charter school authorizer, which reviews the proposals and authorizes the entry of only the most promising ones. Further, the authorizer monitors the institutions annually based on multiple criteria, and if necessary, closes underperforming schools. The United Kingdom's inspectorate, carried out by the Office for Standards in Education, Children's Services and Skills (Ofsted), takes equally seriously the task of periodically monitoring elementary and secondary schools. Accountability matters not only for efficiency but also for equity, because more affluent parents can always hold an institution accountable by paying for a different one. Low-income families, in contrast, do not have such an option.

If institutions and programs were evaluated by the educational authority (and the students) based on student outcomes, they would have greater incentives to interact closely with the private sector—to gauge its needs, assess the adequacy of the graduates, share knowledge, and cooperate on initiatives aiming at growth and development. Further, institutions would support their students' job placement—a task that most of them have historically not undertaken in LAC. Since countries are eager to implement the so-called “Education 4.0” systems to address the new world of work's needs, private sector engagement cannot be postponed any further. Moreover, the market can provide discipline to ensure the quality and relevance of programs even if governments lack the capacity to do so. For instance, permitting firms to use part of their mandated training budgets to subsidize workers taking courses at SCPs would both pressure those institutions to ensure greater matching of training investments to firm needs, and ensure that those programs were producing skills that workers need.

Targeting for Impact and Equity. While higher education serves society across all fields, LAC's bias away from sciences, technology, and engineering suggests that the system might reweight public funding to encourage those strategic fields, which are directly related to growth, as well as towards the highest-performing programs. From an equity point of view, overcoming the intrinsic regressiveness of the present system would again suggest shifting resources more toward high-need students, and particularly those attending SCPs which are both necessary and disproportionately serve disadvantaged populations. This was the spirit of Colombia's program, *Generación E-Excelencia* program, which sought to help highly talented, low-income students attend accredited, high-quality institutions through loans covering tuition and living expenses, that were converted to grants upon graduation. The combination of targeting talented disadvantaged students, supporting quality universities, and promoting degree completion all work in the right direction. Looking forward, since public funds will not be enough to support the growing higher education enrollment, it will be imperative to design and implement viable student loans—for instance, income-contingent loans.

Using Technology to Reach More Students and Offer Flexibility. As in elementary and secondary education, it is important to capitalize on the technology and information and communication technology (ICT) investment recently made by the institutions to promote a flexible delivery, particularly for students who work or have family obligations, facilitate remediation, and develop information systems.

Box 2.1. Finland: Building a World Class Education and Research System

After the Second World War, Finland looked much like Latin America - highly resource-dependent, with a largely agrarian society shifting to a more urban, industrial society. Perhaps the best symbol of that shift is the development of a world class telecommunications industry led by Nokia, a forestry company that over several decades steadily raised its technological capabilities and diversified its production.

A growing middle class started to demand a more equitable education system; at the same time, firms were demanding workers who would be better trained for industry and services. After much consideration and research, in 1968 parliament introduced legislation to reform the K-12 education system. The reforms implemented a system of free comprehensive schools for children between seven and sixteen. While the system was centrally controlled at first, over time authority was transferred to local municipalities and teachers. Multiple constituencies worked together on the reform, including governments, unions, and employers. Since the reform was implemented gradually, it was critical to sustain the engagement and commitment of all relevant parties. Crucial to the reform were the adoption of relevant curricula to fulfill the needs of all stakeholders, and the measurement of outcomes. Today, Finland boasts one of the best educational systems in the world.

Since the 60s, Finland has also implemented reforms in higher education. Through reforms introduced in the 80s and 90s, the government steers universities to meet social goals, such as student training in research in specific fields, through a performance contract signed with individual institutions. Funding formulas include basic funding, performance-based funding, and funding related to new projects. Every institution negotiates its budget and goals with the government and is held accountable for its outcomes.

This proved especially important to ensuring that research was both relevant and found its way to the private sector. The percentage of government financing to university research that was structured as competitive and matching grants rose over time to ensure that researchers sought collaborators in the private sector and nudged their research towards greater relevancy given the needs of the country.

Perhaps the main lessons from Finland's reform for LAC are the need for a deep, sustained commitment; the ability to engage all relevant stakeholders, ranging from parents to teachers to employers; the willingness to implement a comprehensive—as opposed to marginal—reform; and significant autonomy for local jurisdictions and institutions. In fact, all new Parliamentarians take a course in the “Finnish Model of Innovation” so they understand the overall growth, labor market, and equity strategy that necessarily spans generations of governments.

C. Repurposing Innovation Resources

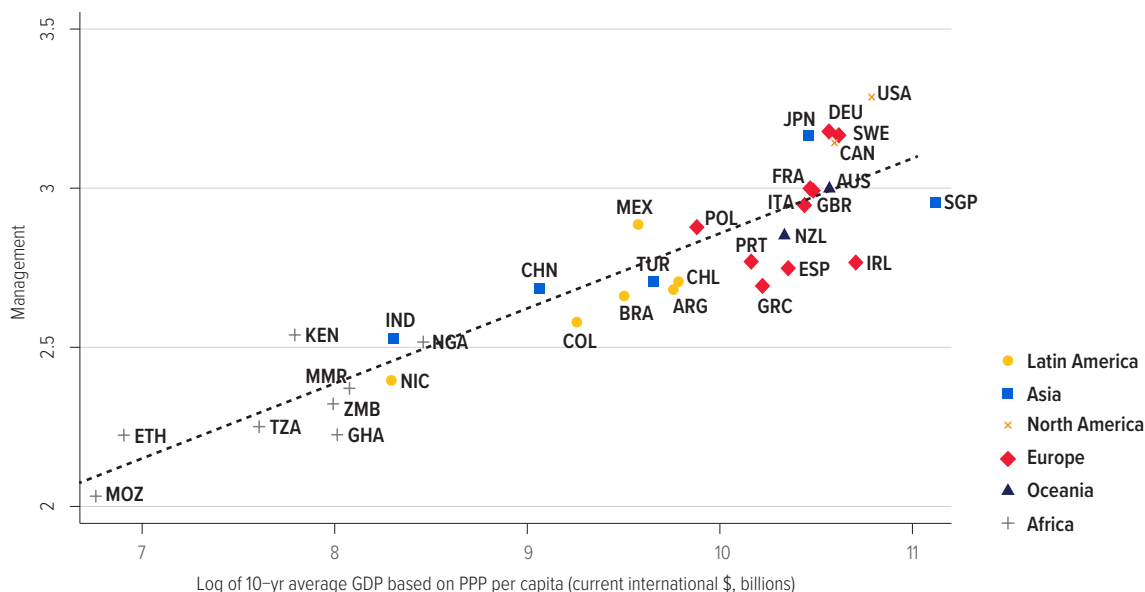
Increasing technological adoption is critical for raising productivity and product quality, creating better jobs, making growth more environmentally sustainable, and providing better services to citizens. The best identified recent estimates of the returns to Research and Development (R&D) for the US are around 55 percent (Bloom et al. 2013). Advanced countries further from the frontier show even higher rates of return, reflecting their ability to borrow existing technologies (Griffith et al. 2004); and extrapolating to Latin America, the rates would dwarf the returns to any other investment. Further, recent studies suggest that Latin America's historical underinvestment in technical capabilities proxied by the density of engineers, can explain much of the dramatic divergence of LAC from the now advanced natural resource-based countries, such as Denmark and Sweden, across the 20th century (Maloney and Valencia 2020).

The paradox, then, is why Latin America invests so little in innovation capabilities and R&D, both absolutely and relative to its level of income. As a proxy, average R&D expenditures are 0.6 percent of GDP compared to double that (1.2 percent) for middle-income countries and 1.4 percent for upper-middle-income countries. The World Bank's *Innovation Paradox: Developing Country Capabilities and the Unrealized Promise of Technological Catch-up* suggests that part of the reason is that governments and firms do not expect the promised

expected returns, and this points to four critical areas of reform to improve the impact of funds before increasing their quantity (Cirera and Maloney 2017, Goñi and Maloney 2017).

- *Improve access to the necessary complements to innovation spending.* The absence of well-functioning markets, highly educated workers, high levels of managerial capabilities, and quality infrastructure to allow firms to take advantage of scale in markets means that the marginal investment in, for instance, R&D will have much lower rates of return. Further, low levels of domestic competition imply little incentive to raise quality in domestic markets. The implied reforms to the national innovation system in LAC, hence, entail a much broader agenda than, for instance, innovation subsidies.
- *Readjust the mix of spending.* The discussion around innovation often centers on very sophisticated investments in R&D. However, comparative statistics from the World Management Survey and on the ground interviews with firms suggest that most SMEs struggle with even very basic managerial tasks and are unlikely to be able to plan and execute R&D projects. Figure 2.11 suggests that the region as a whole is only slightly higher than much poorer countries like Kenya or India in terms of managerial capabilities. Most should probably be focusing on more prosaic advances in adoption of new processes and products, including those that would enable more green recoveries. But this in turn suggests that more “innovation” funding should, in fact, be directed to raising the capabilities of firms to identify new processes and products and implement them. Recent RCTs from India and Colombia suggest that well-designed managerial extension programs can importantly raise the uptake of good managerial practices, and potentially with very high rates of return. Over time, this may boost the private sector contribution to R&D spending (See Iacovone, Maloney and McKenzie forthcoming).
- *Rethink the execution of spending and consolidate.* The World Bank has pioneered Innovation Public Expenditure Reviews (iPERs) that track the flow of innovation financing across ministries. What consistently emerges from these iPERs is a plethora of underfunded programs, fragmented across ministries without a clear strategic framework for spending. In addition to providing this information, the iPER exercise can play a catalyzing role in the discussion across ministries on how to improve coherence among programs and what the national strategy should be. As Finland also shows, maintaining a political focus on this strategy over decades is a critical ingredient to success (box 2.1).

Figure 2.11: LAC Lags in Firm Management Practices Necessary to Innovate

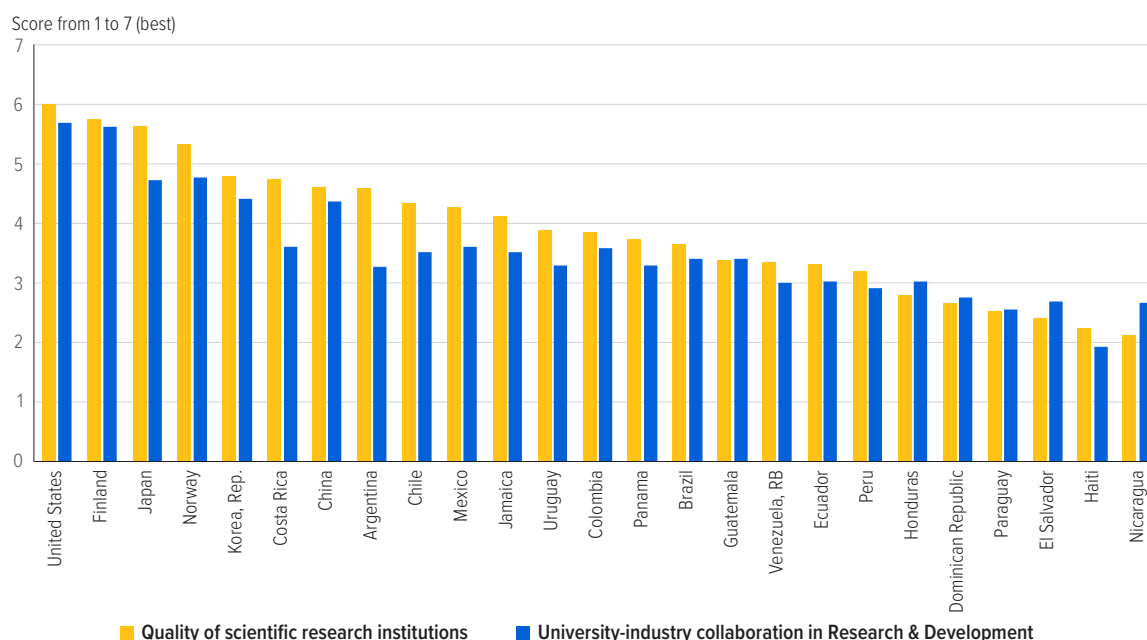


Source: World Management Survey.

Note: Management refers to average management practices.

- *Redesign incentives to ensure research resources benefit national objectives.* If new ideas do not reach the private sector or the relevant public sector agencies, there will be no impact on growth or improved public services. As figure 2.12 suggests, Latin American firms think less of the quality of their national research establishments than the US, Finland, Norway or Japan, and report far lower levels of collaboration with universities. Tuning incentives to both raise the quality of research institutions and increase the flow of relevant knowledge from them to the private sector are critical. For instance, often LAC research institutes have poorly defined or no mission statement, and funding sources do not encourage them to seek out private sector partners. To turn again to Finland, in the crisis of 1990s government shifted some university funding into competitive matching grants to encourage collaboration with the private sector. Public research institutes rely both on matching grants and private sector contracts to cover their budget. Tax write-offs for R&D were eliminated as not incentivizing collaboration. All these reforms both created incentives to raise the quality of the research, and to ensure tight collaboration between researchers and those taking ideas to market.

Figure 2.12: Subjective Firm Opinion of the Quality of Scientific Research Institutions and the Degree of Collaboration of Firms with Universities



Source: World Economic Forum Global Competitiveness Report 2017-2018.
Note: Score from 1 to 7 (best).

D. Public Transfers for Equity: Converting Short-Term Stimulus to Long Term Growth

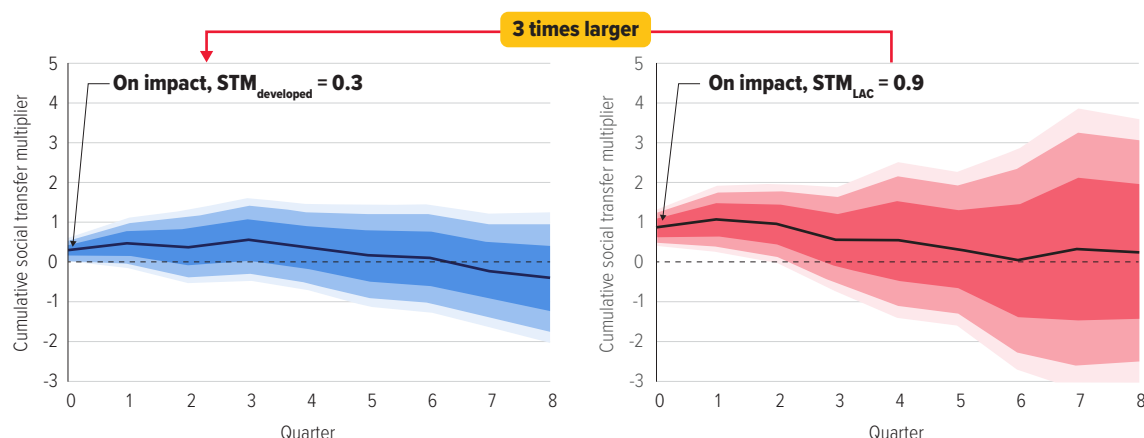
Transfers constitute large shares of government budgets, although their role in Latin America is modest compared to the OECD. The World Bank showed that in LAC in the 2000s, taxes and transfers created little wedge between the market determined Gini and that of disposable income after tax and transfer. By contrast the “pre-fisc” EU15 Gini of 0.47 fell by 14 percent points to 0.33 after taxes and transfers. Fully half of the difference in disposable income inequality between Latin America and Europe (or the United States) was attributable to the different effectiveness of tax and transfer systems (Perry et al., 2006).

Still, the question “what do we know about the impact of such transfers on growth” remains. Figure 2.13 shows the size of social transfer multiplier (STM) in developed (blue color) and Latin American (red color) countries, respectively, from Bracco et al. (2021). The size of the STM is much larger in Latin American countries than in developed economies, particularly in the short- and medium-term. While the STM in developed countries is 0.3 on impact, it is 0.9 in Latin American economies. In both sets of countries, the peak is reached after one quarter, coming to 0.5 and 1.1 in the developed and Latin American sets, respectively,

after which the output effects tend to decrease. In other words, while the temporal profile of the STM is similar in both sets of countries, the size of the STM in Latin American countries is about three times larger overall than the estimates for advanced countries found here or elsewhere. The novel evidence of such large STM on a set of emerging markets -Latin American countries in this case- contrasts sharply with the more modest size of the STM obtained in developed economies (e.g., Gechert, 2015; Romer and Romer, 2016; Alesina et al. 2017; Pennings, 2020). This difference may be explained by the larger share of households that are financially constrained (Bracco et al. 2021). Where a larger share of the population lives hand-to-mouth, social transfers are directly channeled into consumption with attendant effects on output. Evidence from Brazil's Bolsa Familia Program also suggests that such transfers lead to increases in local formal employment (Gerard, Naritomi, and Silva 2021). Overall, the substantial social transfers during the COVID-19 emergency, and during downturns in general, are effective in preventing vulnerable families from falling into poverty, and also help the economy to recover faster.

Having said that, because most of the effect of a social transfer shock impacts the economy especially in the short and medium-run and through private consumption, as opposed to via increasing the economy's productive capacity and investment, this type of fiscal policy tool does not contribute to laying the foundation for long-term growth and productivity. To the degree that the increases in social transfers during COVID-19 will persist, and in contemplating transfers more generally as a tool for reducing inequality, linking them to accumulating human capital, for instance, to support remedial education measures or vouchers for short cycle programs is more likely to have a longer-term effect on growth.

Figure 2.13: Social Transfers Have Three Times the Impact on Output in LAC as in Advanced Countries



Source: Bracco, Galeano, Juarros, Riera-Crichton, and Vuletin (2021)

Note: The Multiplier represents currency units increase in real GDP after a one currency unit increase in real social transfers. Dark, medium, and light areas show standard errors at 68, 90, and 95 percent confidence intervals, respectively.

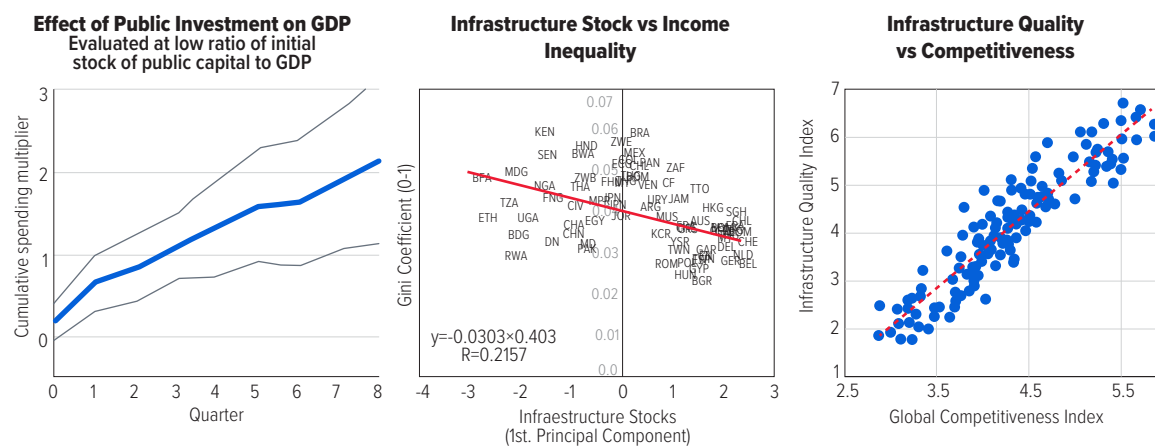
E. Smart Public Investment in Infrastructure

Infrastructure moves center stage as a medium-term agenda because it is a well-documented ingredient to growth, because taking advantage of reshoring opportunities will require lifting the region's game in terms of logistics and mobility costs, and because both climate adaptation and carbon emission reduction will require new kinds of investment across sectors. In a tight budgetary environment, understanding how this can be achieved requires understanding, in particular, how more can be done with less, and the opportunities offered by new technologies.

Figure 2.14 re-establishes long understood facts. Infrastructure multipliers are high in underinvesting countries and they increase over time, there is a correlation of infrastructure's stock and equity, and infrastructure is an essential element of competitiveness. World Bank estimates suggest that the low infrastructure stock in many countries of the region drive multipliers between 1.2-2.

Figure 2.14: Infrastructure Investment is Correlated with Higher Growth, Equality and Competitiveness

RECOVERING GROWTH:
REBUILDING DYNAMIC
POST-COVID-19 ECONOMIES
AMID FISCAL CONSTRAINTS



Source: Izquierdo et al. (2019).

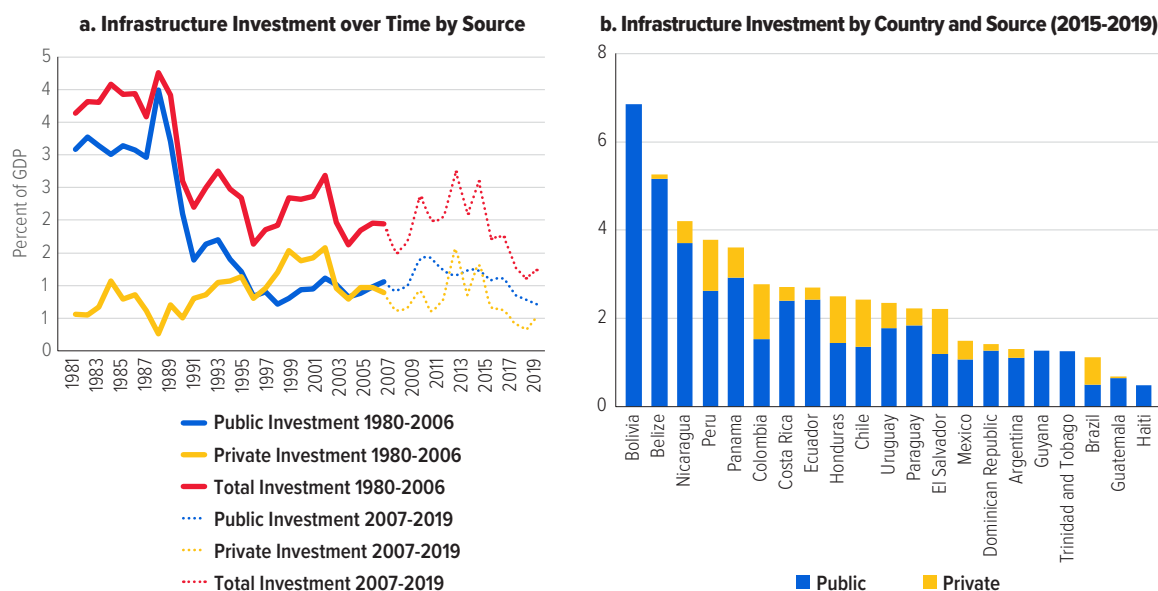
Note: Evidence from European Countries. Evaluated at high, 95th percentile, and low, 5th percentile, initial stock of public capital over GDP ratios.

Source: Calderon and Servén (2004).

Source: World Economic Forum (2017), Perception-Based Infrastructure Index.

Yet, as figure 2.15a shows, public and private infrastructure investment in LAC has been falling steadily from roughly 4 percent in 1980 to 1.3 percent by 2019. With perhaps the exception of Africa, Latin America invests the least in infrastructure among developing regions as a share of GDP—that commonly invest 4–7 percent. Households in LAC spend more on infrastructure-related services than other regions at roughly 14 percent of household income. Much of the fall in investment over time has been driven by the retrenchment of the public sector from 3 percent of GDP to 1 percent that has not been offset by the moderate increase in private sector investment. As figure 2.15b shows, with the exception of Peru, Chile and Honduras, private sector participation remains small.

Figure 2.15: Private Sector Investment Has Not Offset the Fall in Public Infrastructure Investment



Sources: World Bank staff elaborations based on data from Calderon and Servén (2010) for 1980-2006, INFRALATAM for public sector data 2007-2019, and PPI Database for private sector for 2007-2019 (except for Chile, which is not reported in the PPI database).

Note: Includes telecommunications, water, energy, and transport (only roads and railways from 1980-2006). Country-level data is weighted by GDP and includes ARG, BRA, CHL, COL, MEX, and PER.

Sources: Data from INFRALATAM for Public Investment. Data from PPI for private Investment, except for Chile, Uruguay, Panama and Trinidad and Tobago, for which IADB (2020) data is displayed.

Low levels of infrastructure investment in the last decades contributed to the widening infrastructure gap needed which is estimated to be 3.4 percent of GDP in capital and 1.1 percent in maintenance (Rozenberg and Fay 2019). Together, needed investment would be 2.0 percent in transport, 1.4 percent in energy, 0.7 percent in water and sanitation, 0.3 percent in flood protection, and 0.1 percent in irrigation, which are significantly above current levels. As a longer-term goal, 16 countries in LAC would need to invest at least 2 percentage points over current levels to close the infrastructure gap (Castellani et al. 2019).

In the short to medium term, the gap in infrastructure services can be narrowed, by ensuring that spending is well targeted and that it is efficient. Recent World Bank and Inter-American Development Bank studies have identified key whole-of-government challenges that are problematic for public investment management including:

- Weak planning, project appraisal, and preparation capacity;
- Overly rigid or myopic budgeting designed to control fiscal deficits rather than promote efficient spending;
- Difficulties with budget execution;
- Unclear project sustainability, often due to imbalances between capital and current spending on infrastructure, often arising, again, from overly rigid budgets and suboptimal planning;
- Weak procurement practices; and finally,
- An uncompetitive construction industry.

None of these issues require more resources to be resolved, but they do require building government capabilities and altering some procedures (Fay et al. 2017). Quite a few also involve sector reforms, with the traditional recommendations regarding independent, well-performing regulators, and better corporate governance still applicable. Box 2.2, for example, suggests that adopting Performance-Based Contracts for road maintenance can save between 10 and 40 percent over conventional contracts.

Could the private sector do more? Investments captured through the World Bank's private participation in infrastructure (PPI) database have ranged from 0.5 to 1.2 percent of GDP per year since 2006. But with about one-third of this financing coming from public sources, and about half of the deals requiring public guarantees, PPI expansion is constrained by limited public finance. In other words, while PPIs may help improve performance, they do not leverage significant amounts of private capital and are best seen as a complement to, rather than a substitute for, public investments (Fay et al. 2017). Box 2.3 describes Colombia's present system in what has perhaps become best practice in the region in structuring and encouraging private participation. However, the complementary government guarantees, and co-participation still imposes a limit on private funding.

Box 2.2. Improving the Sustainability and Efficiency of Road Expenditures: Performance-Based Contracting

What are Performance-Based Contracts (PBC)?

PBC is a type of contract in which payments for the management and maintenance of road assets are linked to the Contractor successfully meeting specific performance indicators. The work selection, design, and delivery are all the Contractor's responsibilities, and payments are not related to the number of workers and services executed. They differ significantly from traditional method-based or input-based contracts, where the client specifies the techniques, technologies, materials, and material quantities, and payment is based on the amounts delivered.

The development of PBCs started in 1988 in British Columbia, Canada, by contracting out road maintenance to the private sector and introducing some performance levels for routine maintenance. During the 1990s, PBCs developed in Australia, New Zealand, and the United States, and this expansion would continue rapidly throughout the world in the 2000s. In the developing world, Latin America was a pioneer. In 1997, with the World Bank's support, Argentina contracted out around 11,000 km under its own PBC model, the 'CREMA' (Contrato de Recuperación y Mantenimiento). By 2010, around 24,000 km of Argentina's road network was maintained under a CREMA. In the region, the model was taken up by many countries such as Brazil, Chile, Peru, and Uruguay. The rapid adoption of PBCs worldwide indicates that they can bring significant benefits and may eventually replace the traditional way of contracting out road maintenance.

Table 2.2: Cost Savings of Different Countries Under PBC over Conventional Contracts

COUNTRY	COST SAVINGS, %
Norway	About 20-40%
Sweden	About 30%
Finland	About 30-35%
Holland	About 30-40%
Estonia	20%-40%
England	10% minimum
Australia	10-40%
New Zealand	About 20%-30%
United States	10-15%
Ontario, Canada	About 10%
Alberta, Canada	About 20%

What are the Benefits of the PBCs?

PBCs offer significant advantages over more traditional approaches:

- a) Cost savings in managing and greater efficiency:** They are achieved through reduced workforce requirements on the side of the roads agency and by streamlining services through a single, dedicated contractor. Contractors carry out detailed engineering designs before initiating the work, which minimizes the risk of delays and thus improves the overall efficiency of implementation. Besides, fixed-price contracts reduce the risk of cost overruns. According to different sources (See table 2.2), PBCs can lead to savings of between 10 and 40 percent over conventional contracts.
- b) Stable long-term maintenance financing:** A PBC covers several years, which obliges the government treasury to make a multi year funding commitment for road maintenance. The experience in Argentina showed that even during times of tight fiscal constraints, the budget process honored the CREMA contract as a long-term commitment, and allocated funds. PBCs can become a useful mechanism to ensure some minimum level of maintenance funding.
- c) Guarantee of quality and better users' satisfaction:** Contractors' obligations to maintain the roads and ensure a certain level of service over several years create an incentive to provide good quality rehabilitation work. Thus, the Contractor takes long-term responsibility for the quality of all inputs. This guarantees a better condition of the roads and therefore a greater satisfaction of the users.
- d) Economic opportunities:** PBCs with capital-intensive, high value rehabilitation works and labor-intensive low-cost routine maintenance encourages large contractors to subcontract the latter activities and helps promote the development of small local contractors. For the Contractors, guaranteeing a consistent workload over a long period is an excellent opportunity for business growth.

- e) **Innovation and enhanced asset management:** PBCs stimulate innovation in contractors who are encouraged to continually seek the most cost-effective solutions to achieve maintenance objectives. Besides, the road agencies benefit from applying fundamental Asset Management skills in the preparation of a PBC.
- f) **Reduction of corruption:** PBCs offer a procurement model that is more resistant to corruption than conventional contracts because of fewer transactions involved and more transparency, which also facilitates better audits.

These many benefits explain the expanding interest in PBCs, which can provide solutions for road maintenance in the context of fiscal constraints that developing countries often face.

Box 2.3. New Strategies for Attracting Foreign Investment: the 4G and 5G Infrastructure PPP Scheme in Colombia

Colombia's national road network¹⁰ comprises primary roads (17,958 km, 9 percent), secondary roads (45,137 km, 22 percent) and tertiary (rural) roads (142,284 km, 69 percent). The primary road network is divided into concessional toll roads (6,999 km, 39 percent), managed by the National Infrastructure Agency (ANI), and publicly managed primary roads (10,959 km, 61 percent) managed by the National Roads Institute, INVIAS. The 4th and 5th Generation infrastructure PPPs (4G and 5G), featured in this box, are concessioned and supervised by ANI.

4G: An Ambitious Toll Road PPP Program

The 4G PPP program was launched in 2012 (including the 1508/12 PPP Law) as a strategy to reduce the country's infrastructure investment gap and modernize key road corridors. The 4G program comprises 40 road concessions and 7,000 km of road upgrading and construction. CAPEX amounts to USD 24 billion (COP 47 trillion) and an investment horizon of 8 years. As of 2020, ANI expects 18 of the 40 projects to be delivered by 2022.

The 4G program is a *Project Finance* scheme that has been internationally recognized for its ability to attract unprecedented levels of private sector investment in Colombia¹¹. Contractually, investors, through an SPV, are responsible for Engineering, Procurement and Construction (EPC), followed by a period of road operation and maintenance of up to 30 years. Financial closure requires a minimum equity/debt ratio of 20/80. Investors include institutional funds, capital markets, and multilateral and commercial banks. Key factors for 4G's success include (i) financial closure requirements for bidders, that demand upfront private sector investments against securitized toll roads and availability payment cashflows guaranteed by Colombia, mainly through FDN, a state-owned development bank, and (ii) an innovative risk allocation framework for the public and private sectors. Shared risks include land acquisition, permitting and force majeure cost overrun risks (during construction) as well as commercial and financing risk in the operation phase. Funding sources for debt servicing combine payments for the completion of functional units during construction; toll road revenues; annual availability payments through multiannual budgetary allocations (*vigencias futuras*); guaranteed minimum toll revenues (*diferencial de recaudo, DRs*), paid by ANI at years 8, 13 and 18 of the concession; and commercial exploitation rights. Concessions include step-in-rights and payments in case of early termination.

The 5G program was launched in 2020 to add fluvial, rail and airport concessions to the toll road PPP program, and learned from the 4G experience in managing risk to enhance the program's bankability. This includes improvements in early termination payments, annualized guaranteed minimum revenues (to improve cash flow), and toll risk compensation, for events exogenous to the concessionaire (i.e., lifting of toll charges by government, government failure to relinquish toll stations).¹²

10 All data by Ministerio de Transporte (2019), [Transporte en cifras](#).

11 Between 1994 and 2014, the Colombian transport PPP sector awarded concessions for nearly USD 9.5 billion; in contrast, 4G aimed to award concessions for nearly USD 25 billion in 8 years (around 50% awarded by June 2021).

12 See Philipp Prietocarrizosa Ferrero DU & Uri, date n/a. [Link here](#).

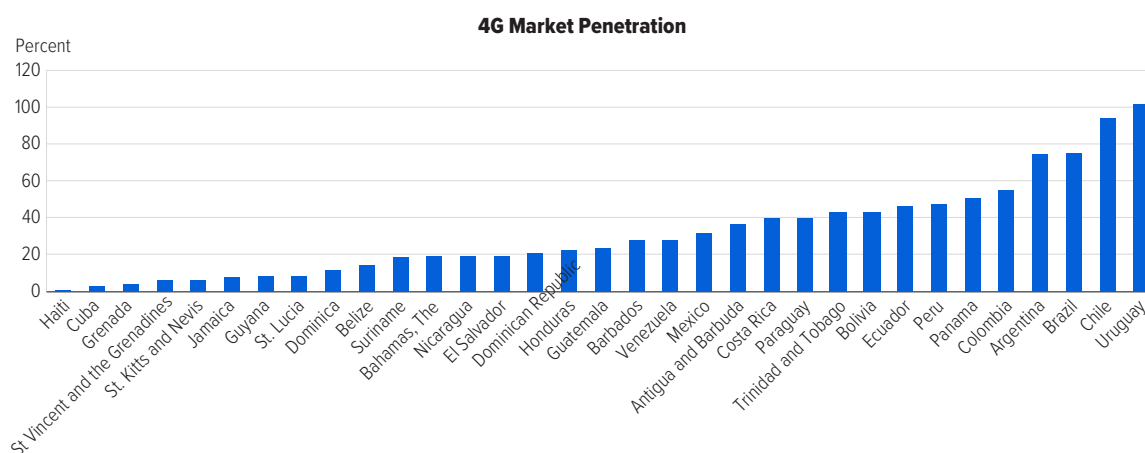
Digital Infrastructure: Low-cost Investments in Growth, Resilience and Inclusion

The promise of expanding digital infrastructure is great, although present coverage varies across the region (figure 2.16). Estimates suggest that a 1 percent increase in the penetration of mobile broadband would produce a 0.15 percent increase in GDP per capita while a 1 percent increase in the penetration of fixed broadband connections could increase GDP p.c. by 0.08 percent. Importantly, greater connectivity improves the resilience of households. Within groups of households that share similar socioeconomic characteristics, those with higher digital connectivity experienced noticeably lower job loss rates during the COVID-19 pandemic. More connected households also reported lower income losses and fewer instances of food insecurity. Of particular importance during the last crisis, households with access to the internet were able to continue remote learning, while those without lost over a year of education.

Digital connectivity offers a way of reducing the rural-urban income gap. While urban areas are often well covered with 60-80 percent access, with the exception of Chile, Costa Rica, and Uruguay, coverage in rural areas is generally far less, often around 20 percent. This is a vast lost opportunity. Clearly, communicating information on, for instance, health and weather-related risks is facilitated by the internet. In addition, the recent World Bank Publication, *Harvesting Prosperity: Technology and Productivity Growth in Agriculture* (Fuglie et al. 2020), suggests that digital infrastructure provides a cost-effective way of expanding agricultural extension services to far flung locales and potentially integrating more farmers in supply chains. Hence, both from a point of view of resilience, and of defending (and perhaps, addressing lost learning), digital access has become more critical.

The affordability of digital connectivity services should also be of concern to policymakers. World Bank studies show that the cost to poorer households of 1 gigabyte of connectivity (SIC) approaches 10 percent for households in the first quintile where it is well below 1 percent for the top quintile. Hence it is not only the expansion of the network, but ensuring economical access that becomes a policy priority. Fortunately, the costs are manageable given the scale of infrastructure spending. Over the next decade, universalizing broadband access in LAC is estimated to cost 0.12 percent of the region's annual GDP; deploying 5G in first- and second-tier metropolitan centers, 0.17 percent; and achieving OECD levels of connectivity, 0.62 percent (Katz and Callorda 2018). Reaching the lowest quintile requires special effort. For instance, the Government of Chile through the Subsecretary of Telecommunications (SUBTEL) has promoted its digital agenda with the primary objective of closing the existing digital gap, with particular focus on rural and remote areas of the country. Public funds are assigned to the bidder(s) able to meet SUBTEL targets with the minimum amount of subsidies which allows minimizing state intervention and leverages competition dynamics in the private sector. For instance, in the case of the Fibra Óptica Nacional (FON), the process allocated about USD 80 mil of public funds to the local provider WOM, which committed to invest almost USD 70 mil. The project – which allocated another USD 30 mil subsidies to Telefonica – will deploy more than 10,000 km of fiber optic cable reaching approximately 3 million final users.

Figure 2.16: Digital Connectedness Varies Widely across LAC



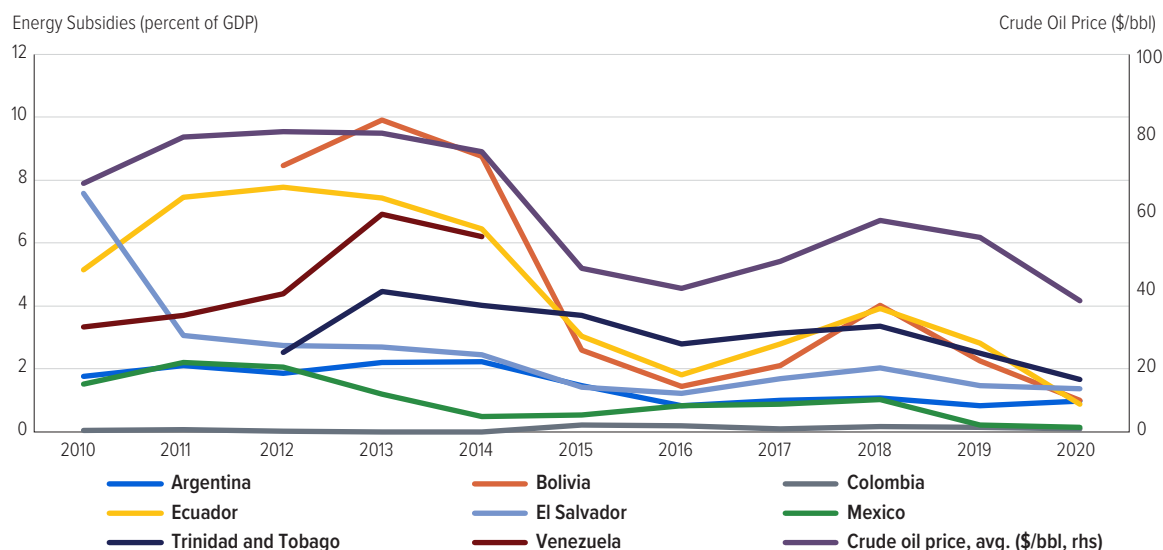
Source: World Bank staff calculations.

F. Powering a Sustainable Energy Future

As part of the policy package to support their populations through the economic and health crises resulting from the COVID-19 pandemic, many countries in the region instituted targeted subsidies and/or payment deferral policies for utility services, particularly in electricity. Over the medium term, however, limited government resources need to be used more strategically, both to better target the poor and vulnerable, and free up resources to lay the foundations for a more sustainable energy future. *Energy Pricing Policies for Inclusive Growth in Latin America and the Caribbean* (Beylis and Cunha 2017) lays out many of the choices and opportunities related to this agenda.

Although some governments have made progress in reforming energy subsidies, many countries still devote significant public resources to reduce the price of different energy products. Figure 2.17 shows a falling cost as a share of GDP of these efforts to roughly a still huge 2 percent of GDP. The decline in the subsidy cost is largely due to the fall in petroleum prices, which, should they rise again, will push the fiscal burden much higher. Energy costs are a large part of the budgets of poor households, but present approaches are often extremely inefficient ways of relieving the burden. Energy subsidies are highly regressive in an *absolute* sense—that is, the lion's share of every dollar spent on keeping energy prices low benefits wealthier households. Between 40 percent and 60 percent of gasoline and diesel subsidies end up favoring the richest 20 percent of households, and only 10–20 percent of the benefit goes to the bottom 40 percent. Even for liquefied petroleum gas (LPG), which appears to be one of the most progressive price subsidies, 34 percent of the benefits are captured by the wealthiest 20 percent on average, whereas only 23 percent is received by the bottom 40 percent. However, subsidies for fuels used widely for cooking and heating—LPG, natural gas, and kerosene, as well as electricity—can be *relatively* neutral or progressive, implying that lower-income households capture benefits that are proportionate to their expenditures. In other words, although poorer households receive very little from every dollar spent on energy subsidies, that small amount can represent an important share of their expenditures.

Figure 2.17: Energy Subsidies are High and Rise with Oil Prices



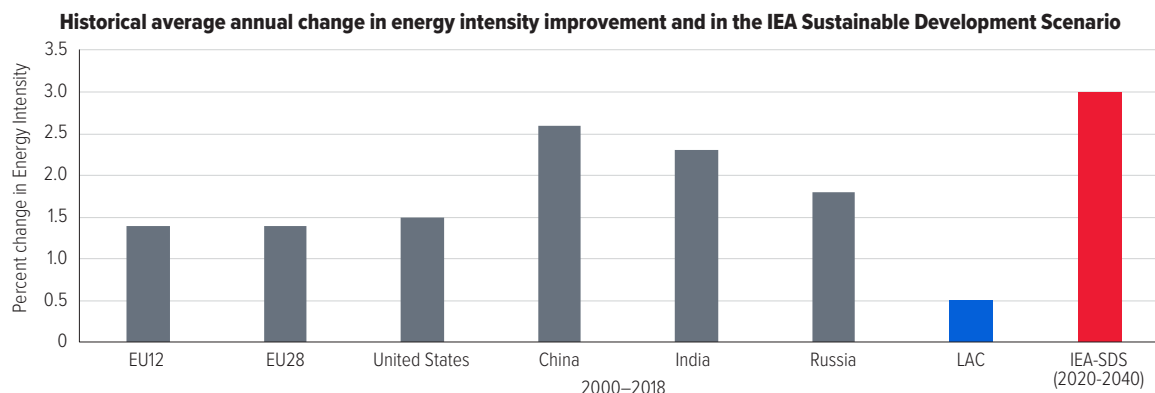
Sources: IEA Fossil Fuel Subsidies Database (2021) and World Bank.
Note: Crude oil price is the average of Brent, Dubai and West Texas.

For policymakers the message should be clear, reforming the energy pricing policy can result in significant fiscal savings while not sacrificing the welfare of vulnerable households. For reforms to be successful, however, educational and informational campaigns may be necessary to alert citizens to the large inequities that arise from price controls and subsidies. Specific compensatory mechanisms will be necessary for households and specific industries that may be adversely affected, such as direct cash transfers or consumption vouchers that target vulnerable households. The advantage of such transfers over subsidies is that they advance equity, reduce wasteful consumption, and have beneficial environmental externalities by realigning prices for the majority of the population.

Moving the Energy Efficiency Agenda Forward

The savings that result from energy subsidy reforms can be effectively invested in improving efficiency in the energy sector. Energy efficiency helps mitigate climate change, improve energy security, create jobs, and contribute to economic growth. According to the International Energy Agency, energy efficiency, as measured by primary energy intensity, needs to improve at a rate of 3 percent annually by 2030 to meet global climate and sustainability goals. However, over the past ten years, energy intensity in the Latin America and the Caribbean region improved just 0.5 percent per year on average, well below this target and well below many other regions in the world (Figure 2.18). While energy intensity in LAC is not among the highest worldwide, the lack of progress calls for significant efforts to put the region on a sustainable path to use energy more efficiently.

Figure 2.18: LAC Lags in Reducing Energy Intensity



Sources: International Energy Agency, World Energy Outlook 2019.

There are significant variations among countries and economic sectors. Countries such as Colombia and Mexico have reduced their intensity consistently over the past ten years, while additional efforts are needed in most of the other countries in the region, including larger economies such as Argentina and Brazil. Energy intensity in manufacturing increased by 17 percent regionally since 2010. Wasteful energy consumption in industrial processes reduces economic competitiveness, while households are increasing their energy consumption due to increased adoption of appliances and cooling and heating devices.

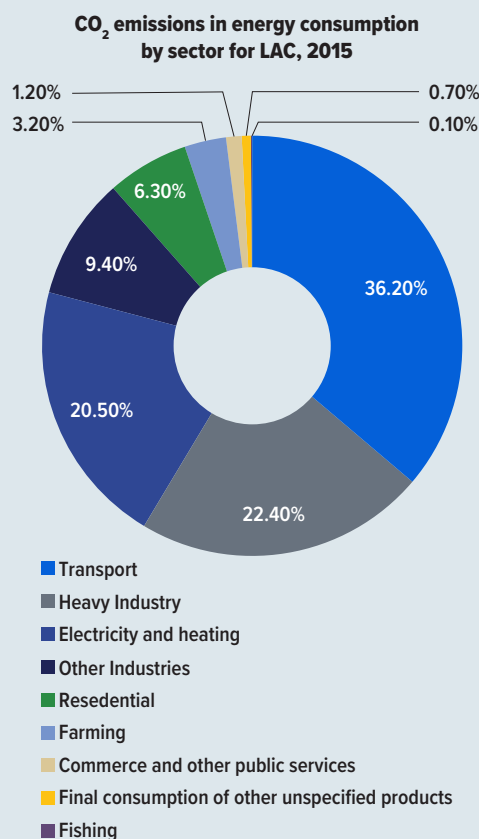
The COVID-19 economic reactivation programs represent an opportunity to reinvigorate the energy efficiency agenda in the region. The World Bank identified over 290 energy efficiency measures across 22 countries that could serve as a basis to scale up efforts in the Latin America region. Substantial progress is needed in critical areas, including developing building codes, setting minimum energy performance standards, and developing financial mechanisms to support investments. In addition, in many countries “shovel-ready” programs can be revamped to create green jobs and contribute to sustainable growth. Investing in energy efficiency is key because many energy-efficient products and services are cost-effective, and existing programs can be ramped up in the near term. For example, Argentina, Chile, the Dominican Republic, Ecuador, Guatemala, Nicaragua, Panama, Peru, and Uruguay have implemented Energy Efficiency Funds/Trusts and Energy Efficiency Credit Lines. This institutional setup and know-how could be leveraged to scale up financing. Moreover, energy efficiency projects are labor intensive, meaning for every dollar spent, a large amount goes into labor, hence helping to maintain existing jobs and create new jobs quickly. In some sectors, where skills barriers are minimal, energy efficiency investments can also provide employment for displaced workers.

Green hydrogen represents another opportunity for the region. Box 2.4 presents an example of how a rapid scale-up of green hydrogen production could drive down prices to competitive levels, contribute to lowering CO₂ emissions from local transport and industry, and generate a significant export industry.

Box 2.4. Green Hydrogen Exports from Latin America: a Pathway Towards a Green, Resilient, Inclusive Economic Recovery

Greening an existing industry and decarbonizing hard-to-abate sectors. Hydrogen production is a global industry producing 70 million ton (Mt) of hydrogen in 2019, primarily using fossil fuels as an energy source, to serve refining, chemical and steel manufacturing¹³. The largest demand comes from China, the US, and the Middle East. In 2017, global hydrogen production accounted for greater annual CO₂ emissions than either Germany or the global shipping industry¹⁴. Scaling the production and promoting the usage of green hydrogen will be critical to put the Latin America and the Caribbean region on a path toward decarbonization, as well as to develop innovative technologies supporting a green and resilient economic recovery. Green hydrogen, produced using electrolysis powered by renewable electricity, can provide countries in the region with a zero-carbon energy carrier to support their national determined contribution objectives and overcome their fossil fuel dependence. Moreover, green hydrogen offers a solution to decarbonize hard-to-abate sectors that cannot be readily electrified, including parts of transport (long-haul shipping and aviation) and heavy industries (cement, iron, steel, mining, and agrochemicals to produce green fertilizers). Green hydrogen can help reduce such hard-to-abate emissions. In Colombia, for example, the introduction of low-emission hydrogen can avoid the release of 13 Mt CO₂eq per year from transport and heavy industries by 2050. Chile projects that green hydrogen can help the country reduce 21 percent of its national greenhouse gas (GHG) emissions¹⁵.

Unlocking new global trade opportunities for LAC. Green hydrogen and its derivatives (such as ammonia, methanol or e-fuels) can help countries develop green energy value chains across different productive industries. The introduction of green hydrogen in Latin America's key industries can help the region maintain its competitive edge in the production of low-emission steel, copper, ammonia, fertilizers or agricultural products, which are traded internationally. Moreover, green hydrogen and its derivatives can be a source of export revenues by strengthening the region's access to developed markets willing to pay a premium that guarantees green value chains, such as EU member states¹⁶. The International Energy Agency (IEA) has identified Argentina, Brazil, Chile, Colombia, Trinidad and Tobago, and Mexico as having the potential to become global green hydrogen exporters and offer competitive prices to importers in Europe and Asia, with the potential to reach a competitive Levelized Cost of Hydrogen (LCOH) of about USD 1/kg H₂ by 2050¹⁷. As of September 2021, thirteen countries have expressed their interest in developing a national green hydrogen industry¹⁸.



Source: León and Cárdenas 2020.

13 IEA (2020), Hydrogen at <https://www.iea.org/fuels-and-technologies/hydrogen> and <https://www.iea.org/reports/hydrogen>.

14 Wood MacKenzie (2020). The future for Green Hydrogen. <https://www.woodmac.com/news/editorial/the-future-for-green-hydrogen/>.

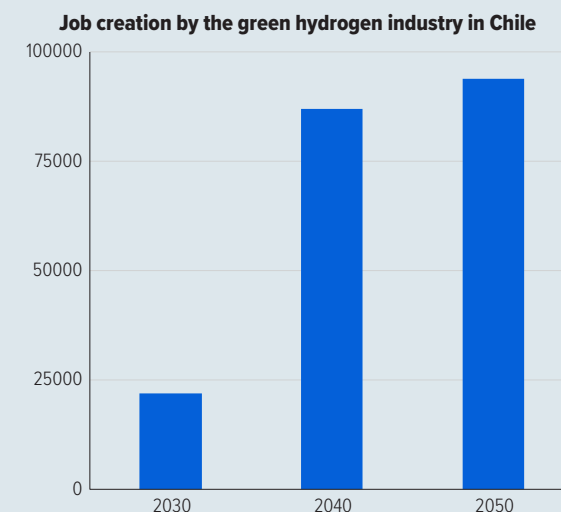
15 Ministerio de Energía (2021) *Hoja de Ruta del hidrógeno en Colombia*.

16 For instance, a Carbon Border Mechanism (CBAM) is an instrument that ensures that imported products sold to EU consumers face similar levels of carbon pricing in the European Union as similar domestic products. See regulation at European Commission (2021). *Proposal to set up a Carbon Border Adjustment Mechanism on selected sectors*, at https://ec.europa.eu/info/sites/default/files/carbon_border_adjustment_mechanism_0.pdf.

17 IEA (2020), Latin America's hydrogen opportunity: from national strategies to regional cooperation, at <https://www.iea.org/commentaries/latin-america-s-hydrogen-opportunity-from-national-strategies-to-regional-cooperation>.

18 H2LAC (2021), Participating countries, at <https://h2lac.org/#>.

Creating enduring local green jobs. Accelerating the green hydrogen industry will also be crucial to bolster Latin America's economic recovery, as it can attract investments and create new green and skilled jobs. Green hydrogen can create new local jobs, both directly for the production, transport, and distribution of hydrogen, and indirectly in the renewable energy sector to power electrolyzers with clean energy. For example, in Chile, the development of a local value chain in the green hydrogen industry is expected to generate 22,000 new jobs by 2030 and 94,000 by 2050 (GIZ 2020). Notably, green hydrogen also offers a path to achieve a just transition as it can create jobs to shift employment from sectors that will be downsized as a consequence of the region's trend to phase-out coal and other fossil fuels¹⁹.



Source: GIZ (2020).

¹⁹ European Parliament (2019), A just energy transition, opportunity for EU industries, the role of hydrogen in the future and the example of energy transition in Germany, at [A just energy transition, opportunity for EU industries, the role of hydrogen in the future and the example of energy transition in Germany \(europa.eu\)](https://europa.eu).

CONCLUSION

LAC is facing a truly challenging moment. COVID-19 has killed many, and left scars in terms of increased poverty, lost human capital, indebted firms, and overextended government budgets. And we are not yet out of the woods. Vaccination campaigns will need to be pursued with vigor, and with luck, will defend against emerging variants of the disease.

Growth was lackluster before COVID-19—too low to make progress on the long-standing social issues facing the region—and it appears weaker during the recovery than would be predicted given the favorable tailwinds. The challenge, then, is laying the foundations for a more dynamic, sustainable, and inclusive growth in a context of very limited fiscal resources. This volume has sought to highlight areas where existing resources could be used more efficiently or reallocated to areas where they would contribute more to growth and social well-being. In many cases, the political economy confronting such changes may be complex to navigate, but it is precisely the imperative that the 2020s will be a more prosperous decade for LAC that dictates attempting them.

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