



UNDP LAC C19 PDS N°. 14A

Lessons from COVID-19 for a Sustainability Agenda in Latin America and the Caribbean

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Abstract

This document explores the challenges for the region in terms of a possible sustainability agenda that could emerge as lessons from the COVID-19 pandemic. Economic recovery after the ravages of the virus will be one of the greatest challenges that humanity has ever faced. However, we have an opportunity in front of us of a throbbing economic recovery in a more sustainable path. The document is divided into three sections¹. The first section includes a compilation of the immediate impacts that the pandemic and government measures have had on household and firms behavior, and how they have been reflected in some environmental indicators that are observable today. Building on that pre-pandemic baseline, and reflecting on the lessons associated with these shocks, we focus on a series of public policy recommendations that might be explored to take as much as possible advantage of this sudden disruption. This window of opportunity for reconfiguring economic and social activities might be supported by eventual changes in individual preferences and by the ways in which production factors are organized to generate goods and services that have had environmental impacts on the wellbeing of the population and ecosystems. This is an opportunity to take advantage of this crisis, given that we have already had to endure the costs of seeing the pandemic's impact on economic activities affecting the environment, by exploring the possibility of doing things differently when reactivating the economy. By following a more sustainable path, we will be able to reap the social benefits of continuing with better preferences, consumption patterns, and better technologies that can keep environmental costs low.

¹ This document is complemented by another one prepared by the authors, entitled "Latin America and the Caribbean: Natural Wealth and Environmental Degradation in 21st Century", where we examine recent history and the current state of the region's principal indicators associated with its natural capital and its environmental degradation processes.



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Introduction to the series:

Evidence, Experience, and Pertinence in Search for Effective Policy Alternatives

The COVID-19 pandemic is one of the most serious challenges the world has faced in recent times. The total cost in terms of human lives is yet to unfold. Alongside the cost of lives and deep health crisis, the world is witnessing an economic downfold that will severely impact the wellbeing of large parts of the population in the years to come. Some of the measures that are currently being used to counteract the pandemic may impact our future lives in non-trivial ways. Understanding the association between different elements of the problem to broaden the policy space, with full awareness of the economic and social effects that they may bring, is the purpose of this series.

Thus far, the impossibility of targeted isolation of infected individuals and groups has led to policies of social distancing that impose a disproportionately high economic and social cost around the world. The combination of policies such as social distancing, lockdowns, and quarantines, imply a slowdown or even a complete stop in production and consumption activities for an uncertain period of time, crashing markets and potentially leading to the closure of businesses, sending millions of workers home. Labor, a key factor of production, has been quarantined in most sectors in the economy, borders have been closed and global value chains have been disrupted. Most estimates show a contraction of the level of output globally. For the Latin America and Caribbean region, the consensus forecasts are at -3 to -4%, and it is not until 2022 that the region is expected to go back to its pre-crisis output levels in scenarios that foresee a U-shaped crisis pattern. According to ECLAC, more than 30 million people could fall into poverty in the absence of active policies to protect or substitute income flows to vulnerable groups.

We face a crisis that requires unconventional responses. We are concerned about the level-effect: the impact of the crisis on the size of the economies and their capacity to recover growth after the shock. But we are equally concerned about the distributional impact of the shock. The crisis interacts with pre-existing heterogeneity in asset holdings, income-generation capacity, labor conditions, access to public services, and many other aspects

that make some individuals and households particularly vulnerable to an economic freeze of this kind. People in the informal markets, small and micro entrepreneurs, women in precarious employment conditions, historically excluded groups, such as indigenous and afro-descendants, must be at the center of the policy response.

UNDP, as the development agency of the United Nations, has a long tradition of accompanying policy-making in its design, implementation, monitoring and evaluation. It has a mandate to respond to changing circumstances, deploying its assets to support our member states in their pursuit of integrated solutions to complex problems. This series aims at drawing from UNDPs own experience and knowledge globally and from the expertise and capacity of our partner think tanks and academic institutions in Latin America and the Caribbean. It is an attempt to promote a collective reflection on the response to the COVID-19 health crisis and its economic and social effects on our societies. Timeliness is a must. Solutions that rely on evidence, experience, and reasoned policy intuition –coming from our rich history of policy engagement– are essential to guide this effort. This series also contributes to the integrated approach established by the UN reform and aspires to become an important input into the coherent response of the United Nations development system at the global, regional, and national levels.

Ben Bernanke, former Governor of the US Federal Reserve, reminds us in his book *The Courage to Act* that during crises, people are distinguished by those who act and those who fear to act. We hope this policy documents series will contribute to the public debate by providing timely and technically solid proposals to support the many who are taking decisive actions to protect the most vulnerable in our region.

Luis F. Lopez-Calva
United Nations Development Programme
Regional Director, Latin America and the Caribbean
New York, March 2020



Part I. Introduction

"Whatever it is, coronavirus has made the mighty kneel and brought the world to a halt like nothing else could. Our minds are still racing back and forth, longing for a return to "normality", trying to stitch our future to our past and refusing to acknowledge the rupture. But the rupture exists. And in the midst of this terrible despair, it offers us a chance to rethink the doomsday machine we have built for ourselves. Nothing could be worse than a return to normality. Historically, pandemics have forced humans to break with the past and imagine their world anew. This one is no different. It is a portal, a gateway between one world and the next. We can choose to walk through it, dragging the carcasses of our prejudice and hatred, our avarice, our data banks and dead ideas, our dead rivers and smoky skies behind us. Or we can walk through lightly, with little luggage, ready to imagine another world. And ready to fight for it."

Arundhati Roy, "The Pandemic is a Portal". *Financial Times*, April 3, 2020.

The SARS-CoV-2 virus made its public debut in the province of Wuhan (China) in December 2019, and four months later it had already spread across the globe (WHO, 2020). This pandemic has provoked unprecedented economic and social costs in a very short time, including its obvious cost in human lives. The UNDP "COVID-19 Policy Documents Series - Proposals of solutions for the crisis" aims to contribute to the debate with proposals to guide the region into taking a path of inclusive progress and wellbeing. The current document seeks to propose a series of reflections and paths of action that also open up opportunities during the recovery phase of the economies in Latin America and the Caribbean, taking into account the environmental sustainability of such paths.

Part of the economic recovery after the pandemic will need to include strategies that take into account the environmental threats that we have been facing, from the local aspects of life in urban and rural households to the challenges of climate change that the region cannot avoid. In this document, we believe that, as the adage goes, no crisis should go to waste, and we offer a light of careful optimism that we will be able to reorient our path toward a new normality.

We can take advantage of this pandemic to take decisions with a structural response to the region's sustainability challenges in various aspects of the public sphere. In this document, we want to go one step beyond any euphoria or skepticism about what SARS-CoV-2 may be generating in the environmental dimension. The feeling that the planet is taking a breather may lead us to stray from the central purpose of the public policy discussion on a sustainability agenda. First of all, we must beware about over-interpreting anecdotal mentions of apparently more frequent visits from wildlife in public areas and urban parks that were previously dominated by humans, although these general perception have helped to remind us that we share urban and rural ecosystems with a biodiversity that has undergone the pressures of transformations generated by material economic progress. Secondly, we must also be cautious of this favorable conditions to environmental degradation process due to the necessary redirection of public resources and governmental action towards health care because the pandemic. Illegal mining and deforestation processes are threatening protected areas and valuable ecosystems throughout many territories in the region, and especially in tropical forests. The FCDS estimates that, as of April 15, nearly 75,000 hectares had been lost in the Colombian Amazon, in contrast with a reduction in such loss in 2019.¹ Legal mining also is threatening the ecological integrity of some valuable ecosystems, especially in high mountain territories with an important hydrological role in the tropical Andes or, in tropical rainforest areas with adverse effects on indigenous populations and biodiversity with high levels of endemism. The sudden reduction in eco-tourism activities in many protected areas creates a pressure on local communities in favor of extractive activities in order to find some kind of sustenance and cope with the economic crisis. In the midst of these extremes of euphoria (e.g., apparently bluer skies or wildlife visiting environments visible to humans) and pessimism (e.g., increased deforestation and arson or extractive activities), we also observe clear processes of the

¹ fcds.org.co/reporte-deforestacion-amazonia-colombiana-2020



impacts reduction of economic activities over air or water quality, due to the sudden drop in transport and industrial activities that have reduced emissions into the atmosphere and water bodies.

The decisions made during this third decade of the twenty-first century are critical for the future of the planet (IPCC, 2018) and the pandemic should not postpone that urgency. If anything, it should speed up proactive climate and environmental actions. Although many governments have made efforts to legislate policies in line with the goals of the Paris agreement (Nachmany, 2019), we are still far away from the path that would lead us to achieving them. However, the rapid spread of this new virus and its effects on health have led to the implementation of prevention and containment policies that generate an unprecedented disruption that is affecting behavior, economies as we know them, and our impact on the environment. We see a window of opportunity as a result of this disruption, since it has allowed us time to reflect and also to see that changes in behavior and technology can generate different positive impacts on ecosystems. We can achieve a planetary impact to the extent that the recovery of the economy is redesigned with strategies to achieve changes in consumption patterns and technological processes, that consume resources and energy, and generate impacts on the environment. The International Monetary Fund itself is encouraging a greener economic recovery, based on government actions to limit emissions, right carbon pricing schemes, and generate financing mechanisms for infrastructure and relief for more sustainable activities². The report of the Global Commission on the Economy and Climate, entitled “The New Climate Economy”; calls for accelerating the pace of change in the economy with substantive decisions about carbon pricing, investment in more sustainable infrastructure, reducing pollution, and creating green jobs, continuing with the idea of generating sustained growth.³ A recent study, with the participation of Cameron Hepburn, Nicholas Stern, and Joseph Stiglitz, asks whether fiscal economic recovery strategies are going to slow down or speed up a possible change in economic models, based on interviews with economic teams and central banks around the world, suggesting that investment strategies in green infrastructure, technological transition, and investment in natural and human capital, with education and training, will be essential for a sustainable recovery (Cameron et al., 2020). The most affluent societies, and the most affluent groups in society inside emerging economies, have a responsibility to see the effects of their consumption patterns on the rest of society. Such emulation, legitimized from the perspective of people’s freedom to choose consumption patterns for their way of life, cannot be ignored the responsibility of their market decisions’ impact on the rest of society and the spillover role of these patterns on other society groups when their incomes grow. The great achievements in reducing poverty in the world, whose the Latin American and Caribbean is a great example, bring with them this emulation process of those who lifted out poverty to consumption patterns, and hence results in industrial production to supply those needs, with direct environmental consequences. The consumption patterns of the most affluent not only have an impact of their own, they also affect, through emulation and social norms, the consumption patterns of those who aspire to these levels of material prosperity, adding to the pressure on ecosystems (Wiedmann et al., 2020).

This pandemic has brought a sudden halt to many of these consumption and production activities and it is giving us time for reflection. Times of economic slowdown and recession usually result in a drop in CO₂ global emissions (Peters, G; Marland, G; Lé Queré, C; et al, 2012) and a different pattern is not expected in this pandemic. In fact, the Climate Action Tracker (2020) estimates a drop in CO₂ emissions of 4%–11% for 2020 and 1%–9% for 2021, compared to emissions in 2019. However, the trends in previous post-crisis periods show a rebound in GHG emissions and other environmental impacts can be a result of economic recovery (Jotzo et al., 2012).

However, several aspects of the SARS-CoV-2 crisis are different from the last 21st century’s economic crises. In particular, this pandemic has significant and unprecedented changes in society, opening up new opportunities for structural change as part of recovery strategies that avoid a returning to the old model of economic growth. In other

² For more, see IMF (2020)

³ For more, see New Climate Economy (2020)



words, taking advantage of these changes and making them part of health and economic stabilization measures in order to create a new, more sustainable normality can result in development paths for the region that respond to the challenges of the new century. Goldberg (2020) suggests that this pandemic has already generated technological and cultural disruptions due to isolation that we should take advantage of. Air and land transportation, e-work, and e-learning have forced us to reevaluate how we will be able to operate in the future. Some will adapt better than others, and public policy, as Goldberg suggests, will have to act to protect those who most affected.

In the next section (Part II), we present the disruption's changes caused by the pandemic in some environmental indicators for which we have empirical evidence. In Part III, we propose a serie of window of opportunity for the region and, based on the current situation⁴ and learning from this "natural experiment" with COVID-19 (Part II), policies for cultural technological, and economic change might be implemented that make it possible to redirect economies towards a more sustainable path.

Part II. What disruptions did Covid-19 provoke in environmental terms?

Pandemic prevention and containment measures taken by governments have produced drastic changes in the behavior of the world's population. In particular, this is due to confinement and social distancing measures that have paralyzed 'non-essential' activities, which represent up to 50% or more of economic activity (Ocampo, 2020). With the halt to these activities and compulsory social distance significant reductions in emissions have been achieved in just a short period of time, especially from cities. With more than 80% of the Latin American and the Caribbean population living in urban centers, the consequences of changes in economic and social activities in the cities can have significant impacts on the consumption of certain goods, the use of private and public transport, emissions to water bodies, energy consumption in commercial and industrial sectors, waste production, air pollution, and greenhouse gases emissions.

Changes in air quality

Air quality has become one of the symbolic aspects of the "respite" that the COVID-19 has provided in people's daily lives. During this last century, the region's demographic transition process has also implied an increase in economic activities in these areas, which generates pressure on air quality and the need to provide public services, such as drinking water and power, in the cities.

■ Figure 1. Air in downtown Bogotá before and after the pandemic



⁴ See Leon & Cardenas (2020) "Latin America and the Caribbean: Natural Wealth and Environmental Degradation in XXI Century." UNDP.

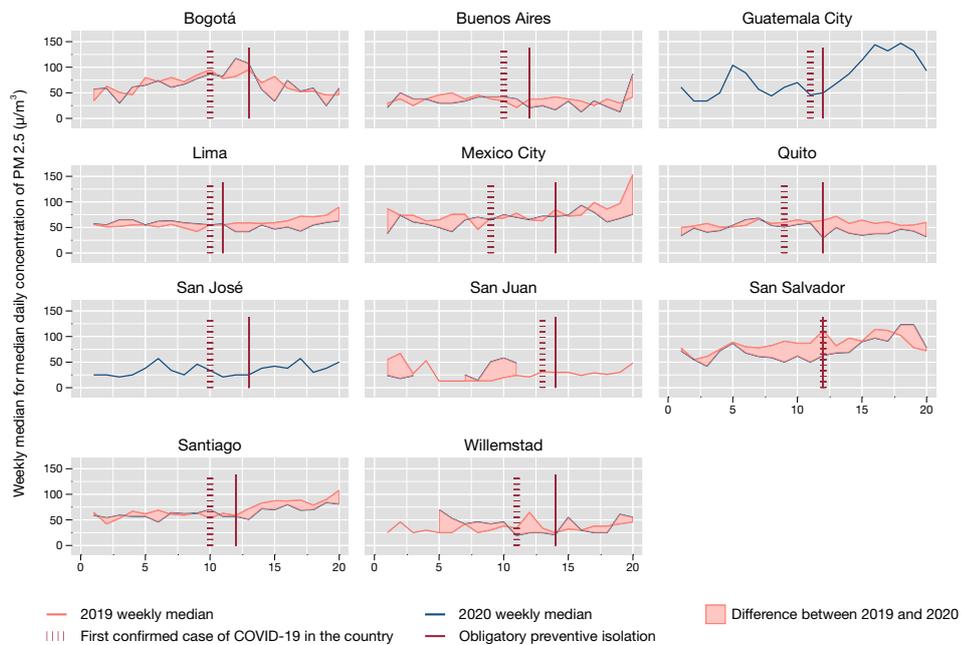


This Bogotá picture with its pollution strip on the horizon, days before the beginning of quarantine measures in the city, is just an example of many other cities in the region, with an increased urbanization and use of cargo and passenger transport (the main source of emissions), have seen a cleaner air views after lockdown measures. On the right side, there is a picture of the same place in the city at the same time, but after almost a hundred days of confinement. The data that we will show later on shows the changes in air quality in this and other cities in the region.

Based on high-frequency data such as the Google mobility report and data from air quality sensor networks in different cities, we have been able to estimate some sudden changes in activity in these cities and their effects on some environmental indicators. We start with air quality data to get an initial idea of the measurements that have been collected by public and citizen networks monitoring air quality in Latin American cities. We will use the averages of the medians in the same weeks of the previous year as a counterfactual, but we will also compare data for the weeks before and after the first cases of the virus were reported and the beginning of the confinement measures.

The following figures show, for the cities capable of generating this data,⁵ the measured daily median for median daily concentration of PM2.5 and PM 10, as two of the most significant indicators of air quality and also of health due to its serious consequences. In these cities, we compare the average of the weekly medians for 2020 compared to the same weeks in 2019. The colored areas represent the “gains” in air quality as long as the blue line (2020) is below the area. If it is compared to the weeks prior to when the confinement measures were decreed, it would reflect improvements in air quality attributable to a reduction in the polluting activities being analyzed.

■ Graphic 2. Weekly median of daily concentrations of PM2.5.

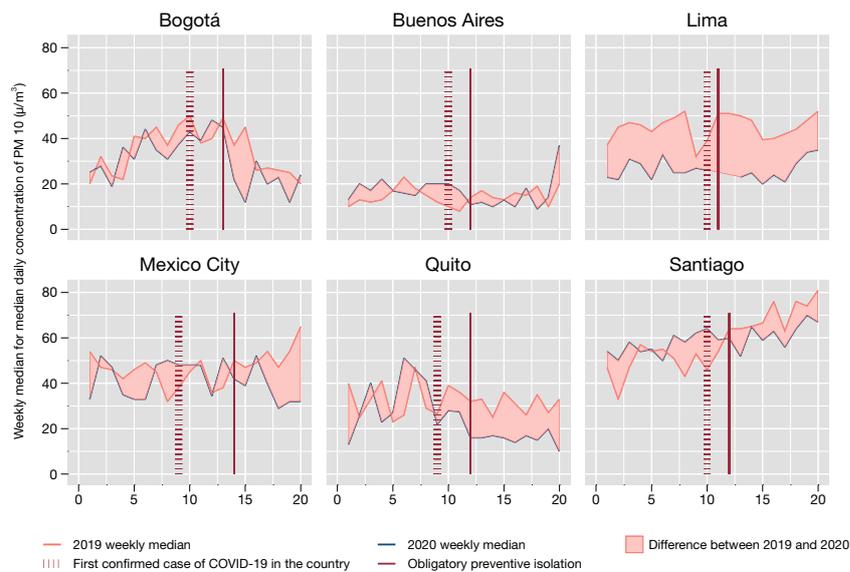


Source: World Air Quality Index (2020). Weekly data from Monday to Sunday. PM2.5 air quality data for San Jose and Guatemala City are only available as of December 4, 2019, and December 5, 2019, respectively.

⁵ See Appendix 2



■ Graphic 3. Weekly median of daily concentrations of PM10.



Source: World Air Quality Index (2020). Weekly data from Monday to Sunday. There is no data available for Guatemala City, San Jose, San Juan, San Salvador, and Willemstad.

From this data, we can see that the possible “gains” in air quality associated with confinement vary greatly from city to city, most likely because there are atmospheric and geographic conditions in each city that affect the possibility of changes in air quality due to changes in their citizens’ behavior. Similarly, other events than the pandemic can alter air quality, such as in the case of Bogotá, where forest fires in the region to the east of the city gave rise to the presence of particles in the city’s air, due to the wind direction.

Changes in mobility and air pollution

Changes in citizens’ movement and transportation can be estimated from the information in the Google Mobility Report (2020) by comparing it with the same reference period for the previous year. In the following figure we show, on the vertical axis, the percentage change from the baseline⁶. Positive values represent a greater frequency of citizen travel or reporting from locations in regard to these activities, and negative values mean reductions in such reports. In general terms, there is an evident increase in the amount of time spent at home and a decrease in trips to stores, public parks, workplaces, and transport stations, which is consistent with confinement measures. These measurements are shown below for the capital cities in the region with available information. For each one of these, we have included a dotted line that marks the day when the first positive case of COVID-19 was reported in each country and a solid vertical line that marks the day the lockdown measures ordered by the authorities started in each case.

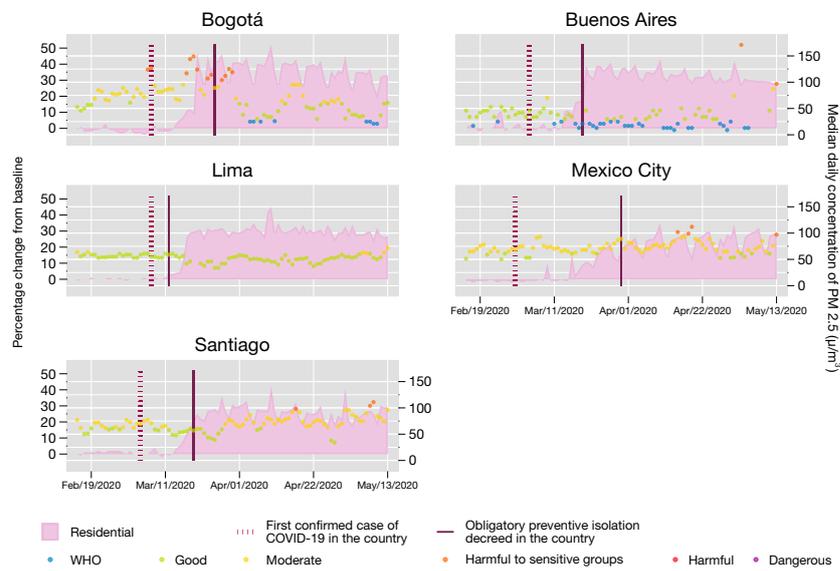
Among the most interesting patterns that we can observe in the data is the shift in mobility towards residential spaces and the reduction in the presence in shopping and public areas, even before the authorities decreed confinement measures.

⁶ Google Mobility Report (2020) takes as baseline days before February 16th.



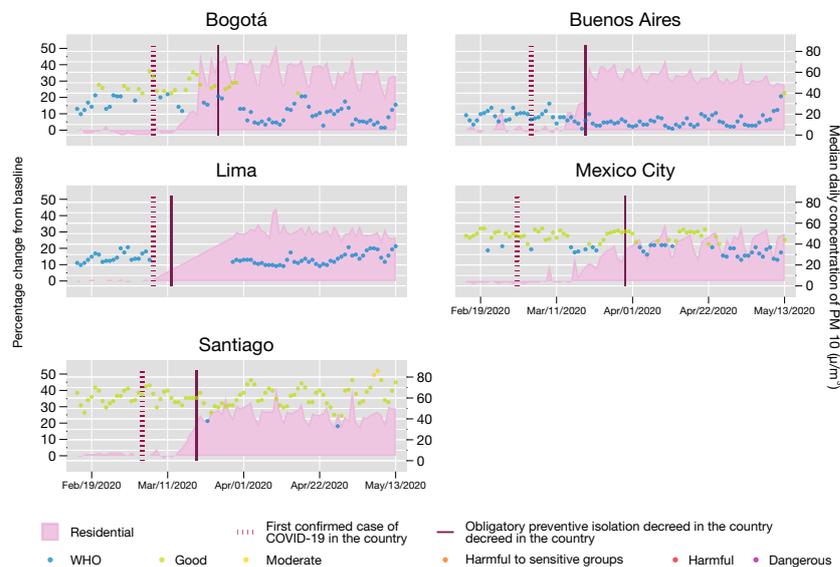
In the same figure we observe that the change in the air quality reports, based on the daily median concentrations of PM2.5 and PM10, varies greatly from city to city. While in cases such as Bogotá, Buenos Aires, or Lima there have been moderate reductions in pollution since the arrival of COVID in these countries, cases such as Santiago and Mexico City – cities with historically worrisome levels of air pollution – seem not to show any changes attributable to the reduction of economic activities as a result of the pandemic.

■ Figure 4. Residential – PM2.5



Source: World Air Quality Index (2020) and Google Mobility Report (2020)

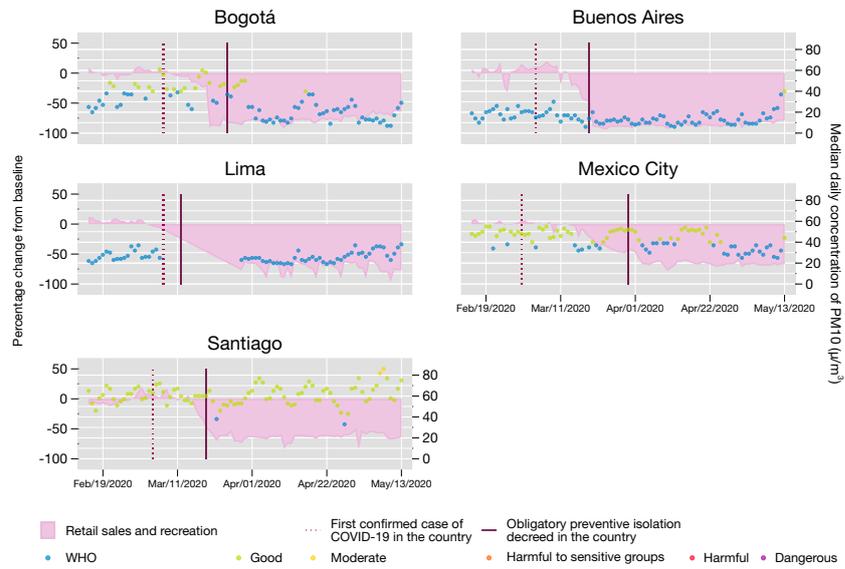
■ Figure 5. Residential – PM10



Source: World Air Quality Index (2020) and Google Mobility Report (2020)

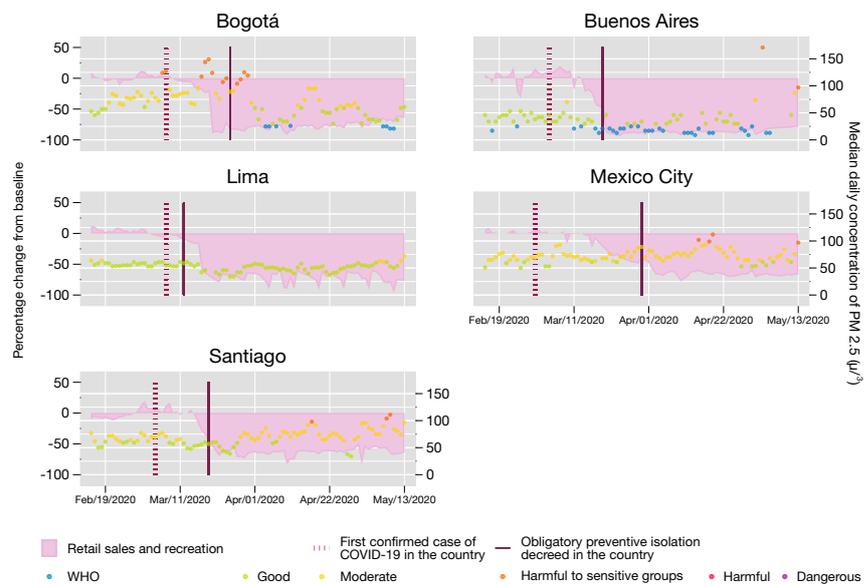


■ Figure 6. Retail sales and recreation – PM 2.5



Source: World Air Quality Index (2020) and Google Mobility Report (2020)

■ Figure 7. Retail sales and recreation – PM 10



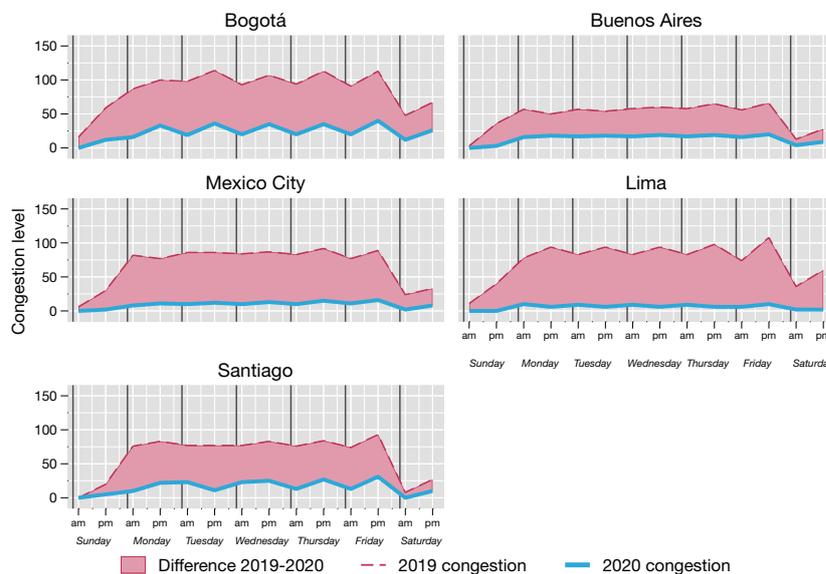
Source: World Air Quality Index (2020) and Google Mobility Report (2020)



Transportation congestion

During 2019, Latin American cities topped the traffic and congestion rankings. Bogotá is the city with the most traffic congestion in the region and the third in the world. It is followed by Lima (7th in the world) and Mexico City (13th worldwide). The confinement measures and the population's fear of contagion have generated a substantial change in the levels of congestion in terms of excess time dedicated to transportation when it is compared to trips during non-congested off-peak hours. The following figures show this drop for all the cities for which information is available.

■ **Figure 8.** Traffic congestion⁷ levels in cities for an average day in 2019 compared to congestion during the week of May 10 to May 16, 2020.



Source: Tomtom Traffic Index. Congestion levels are only compared for peak hours in the morning and afternoon. For all cities, the peak hours are 8 am and 6 pm, with the exception of Bogotá, where it is 7 am in the morning.

The available data on changes in behavior and economic activities focuses on what has been observed in the cities. We should remember that not only do a large percentage of people live in urban areas today, but that is also where we find consumption and pollutant expulsion processes that affect the health of urban and rural ecosystems. Having said this, we are not unaware that, associated with these times of the pandemic, there are processes of environmental degradation in rural areas, where the region's wealth of natural capital is associated with activities oriented toward the expansion of the agricultural frontier by means of deforestation, in addition to mining, which is illegal in many cases, taking advantage of the government's attention being concentrated on the health sector crisis.

What we can conclude from this data analysis is that, throughout the period marked by social isolation health measures and people's own fear of exposing themselves to infection, changes have occurred in activities that are associated with processes having a negative environmental impact, including pollutant emissions from the use of transportation, manufacturing production, and power consumption in general. These abrupt changes in day-to-day activities have had an enormous economic impact on employment, production, and companies' income and earnings, and have implied a change in households' daily routine, especially for those who do not have the option of working online

⁷ The level of congestion in a city determines the extra time that a journey takes due to congestion. For example, the average level of congestion in Bogotá was 68% in 2019. This means that a 30-minute journey without congestion took an average of 50.4 minutes, due to the level of traffic congestion in the city.



or who, due to their degree of informal employment, have lost their means to make a living. However, the reduction of these economic activities may also be having a positive impact on important aspects of the economy, health in particular. Cicala et al. (2020) estimate certain reductions in deaths and respiratory diseases. By making use of cell phone and mobility data, they estimated changes in ground travel between February and April this year in the United States. For electrical power use, they used data on changes in consumption per hour during the same period, and therefore of emissions derived from such consumption. With these emission estimates they were able to calculate reductions in PM2.5 particulate matter and then estimate certain reductions in respiratory diseases associated with these emissions and pollution. With a reduction in mobility of about 40% and a 6% reduction in power consumption, they were able to estimate a reduction of 360 deaths per month associated with exposure to PM2.5, compared to an average of 1,500 deaths a month in that country. Furthermore, their calculations suggest that the pandemic and associated mobility restriction measures, either self-imposed or regulated by the authorities, might be contributing to a 19% reduction in CO₂ emissions per month, just in relation to driving vehicles and consuming electricity.

Deforestation

Another factor that also influences city air quality is forest fires in rural areas. During the first days of confinement, in countries like Colombia, the improvement in air quality was not immediate because forest fire that began to go off.

Environmentalists have emphasized that preventive isolation and social distancing policies in the region have not stopped deforestation there. Experts point out that the pandemic may halt, or even reverse, government efforts to control deforestation (Open Democracy, 2020). The following map shows the hotspots⁸ in the region between May 13 and June 13 of this year. In particular, northern Colombia and Venezuela show a strong presence of forest fires.

■ **Graphic 9.** Fire hotspots between May 13 and June 13, 2020



Source: VIIRS – FIRMS (2020)

An analysis by Open Democracy (2020) indicates that forest fires have grown by more than 200% compared to last year's rates in the same period. The same report pointed out that deforestation in April 2020 increased by 64% in the Brazilian Amazon. Given the season of the year, this growth in forest fires is alarming since the Amazon region is currently experiencing its rainy season and river flooding, which helps prevent the spread of such fires. However,

⁸ A fire "hotspot" is an area of 0.25 x 0.25 degrees where there have been more than 100 forest fires alerts in the previous month.



when drought comes to the region, the impact of forest fires will become particularly worrisome due to the spread of uncontrolled fires.

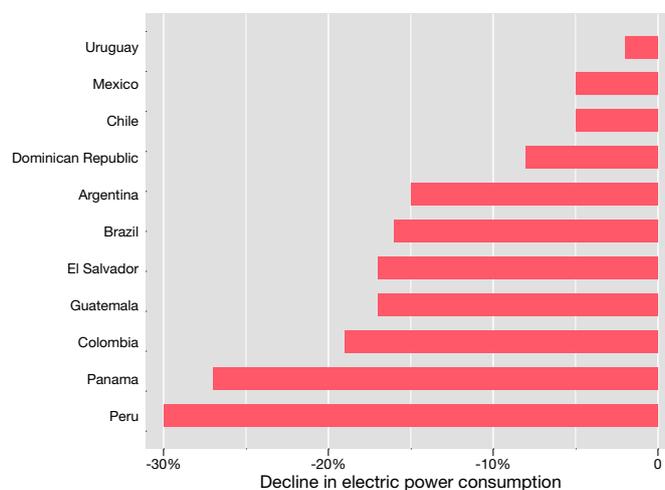
Because of the pandemic, much of the media's attention has been diverted away from environmental issues. As the COVID-19 pandemic continues and without media warnings about deforestation, the decisions made by governments may be perverse⁹ and especially harmful to the environment. Although the pandemic has slowed many economic activities and generated a feeling of overall environmental wellbeing, this relief continues to only be temporary. There are still sectors of the economy that have not shut down, but when the pandemic is over, the lack of intervention during this period may exacerbate the climate crisis.

Land use, changes in land use, and forestry are areas of great importance for climate change mitigation. In contrast to urban areas, extensive areas of forest are usually inhabited by ethnic communities and are designated as protected areas. Such protection and conservation have blocked human access, in one way or another, to such forest ecosystems. These measures have also represented protection for carbon stocks in the forest biomass that, if exploited through deforestation, would accelerate the planet's current climate change process.

Declines in power consumption

Latin America and the Caribbean have played an important role in generating sources of renewable energy. Currently, more than a quarter of primary energy sources in the region are renewable, more than double the world average. However, the halt to normal daily activities implies a slowdown in consumption, and although household activities have increased, this does not compensate for the decline in energy consumption in other sectors, such as transport and industry. The stricter the containment measures and the measures restricting commercial and industrial activities, the greater the impact on energy. The following figure shows the impact on electrical energy consumption in the region, which, although it does not contain information on other uses of energy, may serve as an indicator of their expected behavior.

■ Figure 10. Declines in electrical consumption in the region



Taken from La República (2020). Data from March 23 to April 26.

⁹ On April 22, 2020, a recording video where the Brazilian environmental minister pointed out to President Bolsonaro that he should take advantage of the fact that the media is concerned about the pandemic to make changes to environmental laws that in a normal situation would be highly questioned in court (Globo, 2020)



Green energy market during COVID-19

Before the COVID-19 outbreak, the IEA (2019) forecast a growth in renewable energy of about 3% in the world, led mainly by the new biofuel policy in Brazil. However, during this pandemic, two of the largest biofuel markets, Argentina and Brazil, have faced a drop in demand and therefore in prices in their domestic and foreign markets. It affects this sector whose technology is relatively expensive. Also, fossil fuel prices have fallen, making biofuels less competitive. It should be noted that this type of energy is a source of economic growth and employment in rural areas. The crisis in the sector strongly affects the region, especially in terms of energy security, emission reductions, and economic development and employment¹⁰ in rural areas dependent on this sector (Berkenwald & Le Feuvre, 2020).

We should not ignore the fact that, although the reduction in economic activities may be contributing to lower environmental and health costs, this is not a stable or sustainable situation given the dependence of households on these activities to support their livelihood. However, this change in everyday life has also shown that the relationship between economic activity and environmental impact invites us to reflect on the possibility of generating changes in behavior and production functions that might open windows of opportunity. That will be the purpose of the next and final section of this document.

Part III. Can we generate a post-COVID sustainability agenda?

The challenges ahead for the region are immense, but so are the opportunities for being able to go forward in the right direction (See León and Cardenas, 2020b). The 2019 Sustainable Development Goal (SDG) Index for Latin America and the Caribbean (CODS, 2020) has just been published, making it possible to analyze the current situation, trends, and progress in the 2015–2019 period for most of the region, wherever it was possible to obtain data. In regard to several of these indicators directly associated with our central theme of an environmental agenda, we see opportunities for reinforcing positive trends or altering negative ones. This is the case with SDG 3 (Good Health and Wellbeing), SDG 6 (Clean Water and Sanitation), SDG 7 (Energy), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), and SDG 15 (Life on Land).

¹⁰ According to the Brazilian sugar industry association (UNICA), this sector provides at least 2.3 million direct and indirect rural jobs.



■ Graphic 11. Trend table by country for the 17 SDGs (Taken from CODS, 2020)

	ODS 1	ODS 2	ODS 3	ODS 4	ODS 5	ODS 6	ODS 7	ODS 8	ODS 9	ODS 10	ODS 11	ODS 13	ODS 14	ODS 15	ODS 16	ODS 17
Argentina	↑	↔	↔	↔	↔	↔	↑	↔	↔	↔	↔	↔	↔	↔	↔	↔
Belize	↓	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↓	↓	↑
Bolivia	↔	↔	↔	↔	↔	↔	↔	↔	↔	↓	↔	↔	↔	↔	↔	↓
Brazil	↔	↔	↔	↔	↔	↑	↑	↔	↔	↔	↔	↑	↔	↔	↔	↔
Chile	↑	↔	↔	↔	↔	↑	↑	↔	↑	↔	↑	↔	↔	↓	↔	↔
Colombia	↑	↔	↔	↔	↔	↑	↑	↔	↔	↔	↔	↑	↔	↓	↔	↔
Costa Rica	↑	↔	↔	↔	↔	↑	↑	↔	↔	↓	↔	↓	↔	↓	↔	↔
Dominican Rep.	↔	↔	↔	↔	↔	↔	↔	↔	↔	↑	↔	↔	↔	↔	↔	↔
Ecuador	↔	↔	↔	↔	↔	↑	↑	↑	↑	↑	↑	↔	↔	↔	↔	↔
Guatemala	↔	↔	↔	↔	↔	↔	↔	↔	↔	↑	↔	↑	↔	↓	↔	↔
Guyana	↔	↔	↔	↔	↔	↔	↑	↔	↔	↔	↔	↔	↔	↑	↔	↔
Haiti	↔	↓	↔	↔	↔	↔	↓	↔	↔	↔	↔	↔	↔	↓	↔	↔
Honduras	↔	↔	↔	↔	↔	↑	↔	↔	↔	↔	↔	↑	↔	↔	↔	↔
Jamaica	↔	↔	↔	↔	↔	↔	↑	↔	↔	↔	↔	↔	↔	↓	↔	↔
Mexico	↑	↔	↔	↔	↔	↑	↔	↔	↔	↓	↑	↔	↔	↔	↔	↔
Nicaragua	↔	↔	↔	↔	↔	↔	↔	↑	↔	↔	↔	↑	↔	↔	↔	↔
Panama	↑	↔	↔	↑	↔	↑	↑	↔	↔	↓	↑	↔	↔	↓	↔	↓
Peru	↔	↔	↔	↑	↔	↔	↑	↔	↔	↑	↔	↔	↔	↓	↔	↔
Paraguay	↑	↔	↔	↔	↔	↑	↔	↔	↔	↔	↑	↑	↔	↔	↔	↔
El Salvador	↔	↔	↔	↓	↔	↔	↔	↔	↔	↑	↑	↑	↔	↔	↔	↔
Surinam	↓	↔	↔	↔	↔	↔	↑	↓	↔	↔	↔	↔	↔	↓	↔	↑
Trinidad and Tobago	↑	↔	↔	↔	↔	↔	↑	↑	↔	↔	↔	↔	↔	↓	↔	↓
Uruguay	↑	↔	↔	↑	↔	↑	↑	↔	↔	↑	↔	↔	↔	↓	↔	↔
Venezuela	↓	↔	↔	↓	↔	↔	↑	↔	↔	↓	↔	↔	↔	↔	↔	↓

↓ Declining ↔ Unchanging ↗ Moderate increase ↑ Expected trajectory ↔ No data available

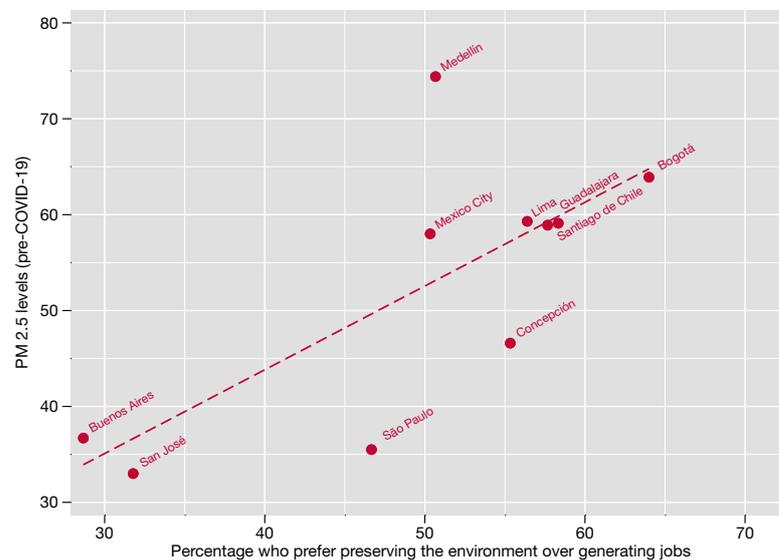
When countries find ways of adapting to the pandemic by managing contagion, physical distancing, and economic reactivation, many consumption, transport, production, and polluting activities will reappear. However, we are learning important lessons from the pandemic. The most important one is that changes in daily behavior at home, and changes in production or transportation technologies – to mention two examples of great relevance – can generate changes in the impact on the environment that could produce social and economic benefits with possibilities for changing the path of development. In addition, changes in public policies on the part of the authorities will depend on the support they have among the citizenry in terms not only of consumption preferences but also as voters.

In order to promote changes in consumer and voter behavior, citizens who are aware of environmental problems are needed. The Center for Sustainable Development Goals for Latin America and the Caribbean (CODS, the acronym in Spanish) carried out a survey in 2019 of more than four thousand inhabitants of twelve cities in seven countries in the region. We find some clues in this survey about citizens' feelings about the environmental challenge. The data suggests that there is a correlation between the severity of the problem and feelings regarding the severity of the problem that affords us some hope for a possible change in the path of development if it is possible to achieve an alignment of several forces that we will discuss in this section.



To consider citizens' preferences, the horizontal axis of the following figure represents the answers to the question "Do you think that the government should give priority to preserving the environment or generating more employment?", expressed as a percentage in each city that answered in favor of the environment over employment. Since it is a question with only two options for the answer, it is a reflection of priorities regarding a clear dilemma between two very important objectives. On the vertical axis is the most recent measurement, prior to COVID-19, of the air quality for the respective city.

■ **Graphic 12.** PM2.5 pollution (pre COVID-19) and preference for preserving the environment over employment (CODS Survey 2019)



Source: World Air Quality Index (2020) and CODS survey (2019)

Given this scenario, we have the possibility of finding political support to implement effective policies to create a more sustainable path for the region, thanks to learning from the shock that SARS-CoV-2 has generated in so many dimensions of society. The lessons about the relationships between economic activity and the health of urban and rural ecosystems and their effects on the quality of life for households are beginning to emerge. Air quality can change in a very short time if the technologies involved in industrial activity and citizen mobility change. Large city water systems are seeing a reduction in their wastewater treatment costs, which shows us the economic benefits of a conversion in treatment technology and industry processing. Urban green areas that have served as habitats for species that find it difficult to adapt to urban life send us signals that euphoric citizens report on through their social networks, as proof of their appreciation for environmental services that could generate wellbeing if significant investments are made in conservation and environmental education.

To the extent that economic activities that have been abruptly halted, and which therefore have had a positive impact on certain environmental indicators, can maintain their low environmental impacts, we will be able to explore structural changes in consumption, technology, and their effects on the environment. The use of more sustainable modes of transportation which may also afford a lower rate of contagion, such as cycling and micro-transport modes (e.g. skateboards), are good examples of this proposal. The economic costs of curbing these activities have been enormous. This unexpected experiment shows us that, with changes in behavior and technology, we can generate a better relationship between economic activity and the environment, to the benefit of society's wellbeing and sustainability.



As more data emerges on changes associated with this natural pandemic experiment, we will learn more about the relationships among the natural environment, individual preferences, and how different technologies improve not only economic efficiency but also ecological effectiveness so as to maintain the capacity of natural capital to sustain life and the economy. New data emerging from these pandemic months will make it possible to calibrate models to estimate the benefits and costs of promoting changes in individual consumption or promoting technological changes for a reconversion of technologies that affect water bodies, the atmosphere, or the air that we breathe.

In this regard, we have identified a series of proposals that might be considered by policymakers at the local and national levels in the countries of the region. Each one of these measures is going to have a different political, legal, economic, cultural, and even geographical context and so we should not be led to infer that all of these measures should be applied as a template for action without considering these particularities in each case and time. We propose that they can be read as windows of opportunity to reflect on the possibilities of not returning to a “normality” that was generating significant environmental and social costs.

An example of taking advantage of these windows of opportunity is the decision by cities like London to encourage increased use of bicycles as a measure representing a combination of strategies to reduce contagion, thanks to social distancing, and therefore reduce congestion in mass transport systems, which in turn reduces emissions and pollution from traditional forms of mobility. With a planned investment of \$2.5 million dollars for the UK’s post-COVID transport strategy based on walking and cycling as means of mobility, resources and public areas and roads will be redirected so as to prioritize these forms of mobility, which may also help to facilitate social distancing rules on public transport.

The windows of opportunity that we list below are part of the possibilities arising from the lessons of the disruptions that COVID-19 provoked in both life at households and in firms.

Window of opportunity N°. 1: Rethink transportation in cities

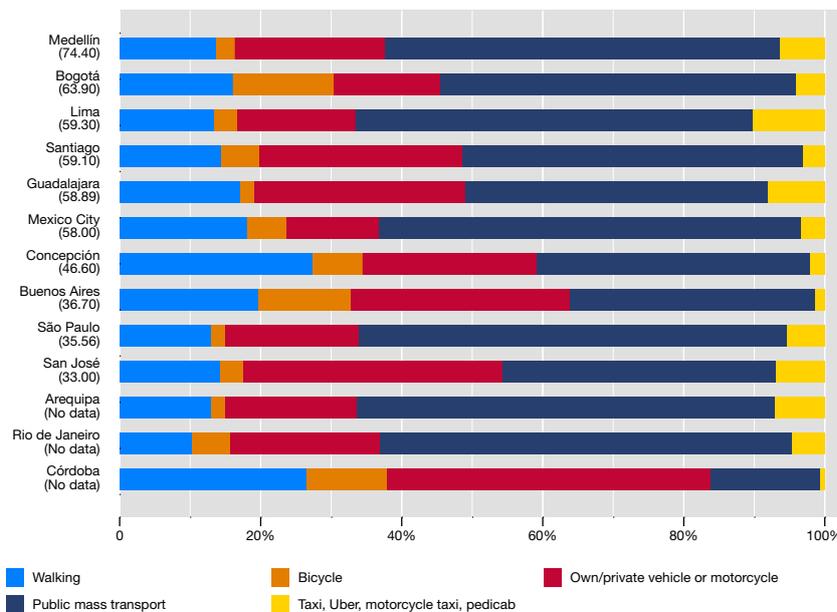
Considering that there is a clear causal relationship between modes of transportation, air quality, and human health, the possibility of generating changes in people’s daily transportation practices opens a window to generating structural and sustainable changes over time. Such changes should be promoted through a combination of monetary and non-monetary incentives that complement people’s different motivations to satisfy their needs and in turn promote the common good. Changes in modes of transportation may be accompanied by other urban planning measures where the routes between living place, work, social services, and areas for commerce and recreation become shorter and healthier. An example of this idea is what Anne Hidalgo, the Mayor of Paris, has called the “city of a quarter of an hour”.

The CODS survey (2019) collected data on modes of transportation from more than four thousand respondents in twelve cities in the region, which we summarize in the following figure. Massive transportation in these cities dominates Latin America’s preferred means of transportation,¹¹ and this will be one of the risk areas for contagion that will require health measures and restrictions on the use of space in such means of transportation. Although it varies from city to city, around 16.5% of those surveyed in the 12 cities report walking as their main means of mobility, while 5.8% ride bicycles. Within the framework of this window of opportunity, cities can explore the possibility of reactivating public transportation with a much larger electrification component, both in terms of vehicle engines and the generation of power to drive them.

¹¹ The CODS survey (2019) contains information on 12 cities in the continental (Latin American) region.



■ **Graphic 13.** Answers to the question: “Which of the following is your primary form of transportation?”



Source: COPS survey (2019). Median pre-COVID-19 concentration of PM2.5 per city in parentheses.

If we take into account the traffic problems in our cities (see the table below), congestion means that citizens of several Latin American cities lose an average of 7 to 9 full days per year due high congestion at peak hours. The contribution of a mobility strategy based on walking and riding bicycles, with maneuvering space in many of the region’s cities, could generate social benefits by reducing excessive mobility times, reducing emissions, and reducing morbidity and mortality due to respiratory diseases. The physical activity involved also provides considerable improvements in people’s health. In addition, benefits for commerce have been documented as a result of an increased flow of cyclists and pedestrians (Carmona et al., 2018; Forbes, 2018).

■ **Table 1.** Traffic reports for 2019

City	World traffic ranking	Extra time per year due to congestion when driving at peak hours
Bogotá	3	9 days, 14 hours.
Lima	7	8 days, 17 hours.
Mexico City	13	8 days, 3 hours.
Rio de Janeiro	20	7 days, 4 hours.
Sao Paulo	24	7 days, 9 hours.
Santiago	26	7 days, 16 hours.
Buenos Aires	66	7 days, 13 hours.

Source: Tomtom Traffic Index (2020)

Planning car-free cities, or at least ones with fewer cars to free them up from congestion, also poses urban challenges to improve the quality of life and lifestyle of their inhabitants. One of them is to guarantee 15–20 minute neighborhoods. That is to say, neighborhoods where all basic needs, except for work, can be found within a quarter of an hour walk. For this, it is necessary to design neighborhood areas where people can engage in social life in safe



and clean areas, and encourage the growth of retail sales, entertainment, and other services. Although this may seem utopian, this hyper-locality proposal has been implemented in places like Barcelona, East London, and Portland, and other cities like Paris are putting it on the table for consideration.

Even in a hyperlocal setting, it is necessary to go places in a city that involve going beyond the 15-minute radius. In particular, many jobs require traveling to a workplace on business days. Although 68% of trips in the region’s cities are made on public transportation (Estupiñan et al., 2018), the quality offered on these means of transportation has not increased at the same rate as the demand for them (BID, 2013). Offering clean and safe public transportation is necessary when returning to the usual pace of life in the region’s cities. This implies a transformation of public transportation services, since they are responsible for a third of the region’s emissions and will continue to pose a risk of contagion due to crowding, whenever and to the degree that this persists. Even though the transition in the region seems to be a slow and expensive process, cities like Medellín, Cali, Guayaquil, Santiago, San Jose, and Buenos Aires already have electric buses (NRDC, 2019). In fact, the Santiago urban railway is the first in the world to operate with 60% solar and wind power (20 minutes, 2018).

The COVID-19 pandemic raised an alert about the prevention of contagion not only from the coronavirus but also from other infectious diseases in the population. Along with the region’s accelerated urbanization, these moment raise the need to rethink transportation in cities, from ‘self-sufficient’ neighborhoods to the sustainability of public transportation. Although this transformation of public transportation systems seems to respond more to the needs arising from growing demand than to taking care of their environmental impact, the region has been showing great progress in improving the sustainability of its means of transportation. Reducing pollution in cities also means improving the respiratory and mental health of their inhabitants and alleviating this burden on the health system.

Window of opportunity N°. 2: E-working

E-work possibilities may vary greatly from country to country, sector to sector, and for different income levels. Saltiel (2020) calculates for several countries, including Bolivia and Colombia (see table), the proportion of workers at different levels in organizational hierarchies who could access forms of e-working.

Table 2. Proportion of e-workers by occupation and country.

Occupation	Bolivia	Colombia
Managers	0.142	0.338
Professionals	0.283	0.325
Technicians and similar professionals	0.271	0.132
Cleric workers	0.438	0.376
Services and sales	0.044	0.103
Agriculture	0	0
Craft workers/Commerce	0.260	0.056
Machine operators	0.001	0.006
Unskilled labor	0.021	0.020

Taken from Saltiel (2020)

In addition, the following table with ILO data shows sections of workers by type of occupation, organizational level, and salary level for the region.



■ **Table 3.** Percentage of workers in each occupation in Latin America and the Caribbean, 2019

Occupation	Total	High Income	Medium-High Income	Medium-Low Income	Low Income
Managers	4.27%	3.8%	3.8%	2.4%	0.3%
Professionals	8.52%	12.4%	9.5%	6.1%	1.9%
Technicians and similar professionals	8.20%	10.4%	8%	5.3%	4.9%
Cleric workers	8.62%	9.3%	8.9%	3.1%	1.7%
Services and sales	20.22%	17.3%	22.9%	22.4%	23.8%
Craft workers/Commerce	12.64%	12.7%	12.6%	14.9%	11%
Machine operators	8.32%	8.7%	8.6%	7%	2%
Unskilled labor	29.21%	24.5%	25.6%	38.8%	54.4%

Source: ILO estimates.

These tables suggest that a significant fraction of employees who are in middle and higher positions in organizations may find an opportunity for e-work to reduce their mobility between home and work. Although it is a smaller fraction of the total number of workers in organizations, we must keep in mind that it may be a group that makes greater use of private cars and individual forms of transport (their own car, taxi, or Uber), thereby reducing the use of roads and the level of emissions from combustion engines in a proportionally greater way. Industries where e-working may be an option for reducing environmental impacts might also consider reducing their carbon footprint from traveling to meetings, conferences, and academic and occupational events that constitute a considerable addition to mobility emissions and involve additional consumption during these events. Industries that are able to promote e-work can find opportunities to redesign the use of office space and the power and space consumption that this involves.

E-work in Colombia

Certain non-priority occupations¹² in Colombia may be more easily adapted to e-working, at least during confinement (Fernández, 2020). These occupations include professionals, directors and managers, and administrative support. All of these workers taken together make up 18.09% of the Colombian labor force employed in 2019, but only a little less than half a million of them say that they do not need to travel to get to their workplace. The following table shows the means of transportation used by potential e-workers to get to their workplaces.

■ **Table 4.** Principal means of transportation used by potential e-worker to get to their workplaces in Colombia, 2019

Means of transportation	% of potential e-worker occupations
Walking	20.08%
Motorcycle	15.11%
Private automobile	14.98%
Urban bus	12.38%
Does not travel	12.05%
Interconnected transportation (Transmilenio rapid transit, etc.)	10.55%
Bicycle	3.05%

¹² These occupations are based on the national classification of occupations and the GEIH report (2019).



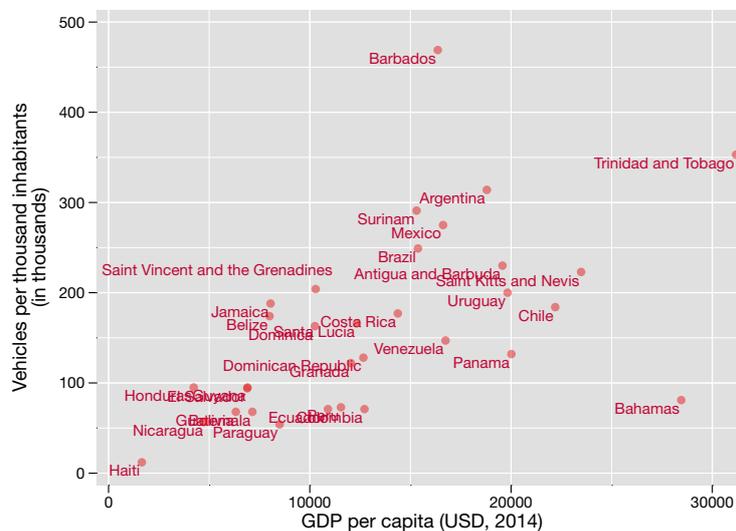
Intermunicipal bus	2.70%
Company transportation	2.36%
Motorcycle taxi	2.33%
Subway	1.98%
Taxi	1.76%
Other	0.53%
Boat, ferry, canoe	0.13%
Horse	0.01%

Source: Own calculations based on the GEIH 2019- DANE

According to Table 4, 27.62% of potential e-work occupations travel to work using public transport services and 32.44% use private means of transportation.

The number of private vehicles owned per inhabitant varies quite a bit in the region, as can be seen from the following graph. Based on this data, priority could be given to the cities in the region that have the highest proportion of private cars and work on these cases to explore the possibilities for e-working, along with the use of cleaner means of transportation and less exposure to contagion.

■ Graphic 14. Vehicles per thousand inhabitants and GDP per capita, 2014



Source: World Bank

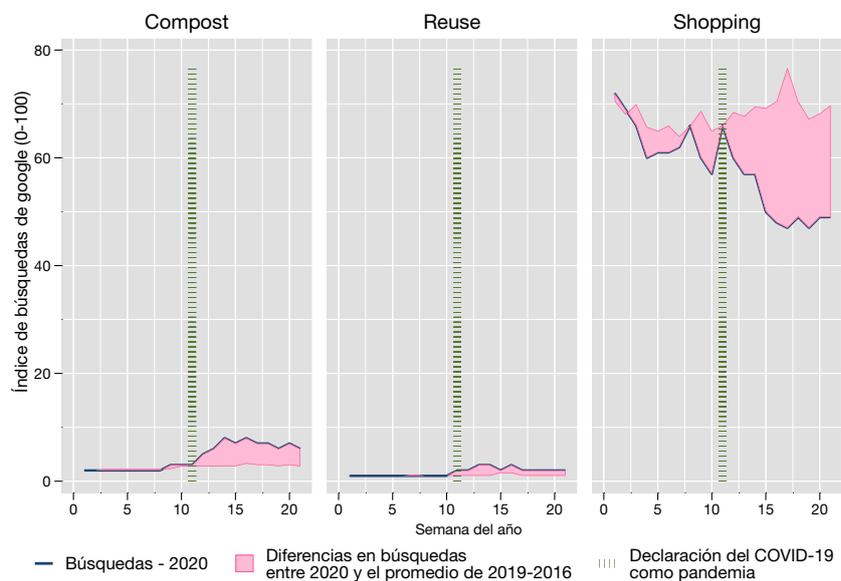
Window of opportunity N°. 3: Sustainable consumption and practices.

The pandemic has slowed consumption rates with retail sales establishments closing and people undergoing confinement, even self-imposed confinement due to the fear of contagion. It is difficult to predict what consumption patterns will be like once commerce reopens, and while some companies are already starting to launch their marketing strategies to invite consumers to “come back” from confinement, other voices are calling for reconsideration of whether it is necessary to return to the consumption patterns to which we used to be accustomed (Wiedmann, et al. (2020). In either case, confinement has forced people to engage in patterns of consumption for certain products that, given that they are less friendly to the environment, may become less necessary if consumer preferences change. Second,



the vastly greater time spent at home has sparked individuals' curiosity about certain activities that can reduce the ecological footprint of their actions. An example of this is composting, which has apparently aroused the curiosity of many people at home. Search data for terms such as *compost*, *reusing*, and *repurpose* soared this year when compared to searches during the same periods in recent years, while the word 'shopping' saw a decline in the same period. The graphic shows Google search indexes from 0 to 100, with pink areas and lines for the average between 2016 and 2019, and the same data with dotted lines for the current year, taking into account that the WHO declared COVID-19 to be a pandemic on March 11, when changes in searches for these terms are observed.

■ Graphic 15. Google searches (2016–2019 average vs 2020)



The data from the CODS survey (2019) can give us some clues about the behavior reported in the 12 cities in the sample, which is summarized in the following figure. In general terms, it can be seen that there is a greater frequency of practices such as limiting the use of water, turning off lights, disconnecting household appliances, and using reusable bags for shopping, if we compare these with the lower levels for recycling, shopping, or using products that reduce harm to the environment or certify environmental or social actions. Measures such as taxes on plastic bags have had positive effects in many of these cases. In this regard, there are opportunities for creating campaigns that promote more sustainable consumption, which could be combined with the concerns that seem to be reflected by internet searches.

One of the aspects where changes in consumption behavior can occur with a lasting impact on sustainability is in the demand for meat. When we analyze the case of Latin America and the Caribbean, we find that it is one of the regions with the highest consumption of meat per capita, with increasing rates in recent decades, and it is much more similar to industrialized countries than to regions with lower incomes (see table). We have already described the direct relationship between meat consumption, the agricultural sector, and the particular role that cattle play in deforestation, with 60% of greenhouse gas emissions coming from the agricultural sector. Changes in individual consumption of bovine meat could have a considerable impact on the pressure for large tracts of land for breeding and feeding livestock and also conserve forests.



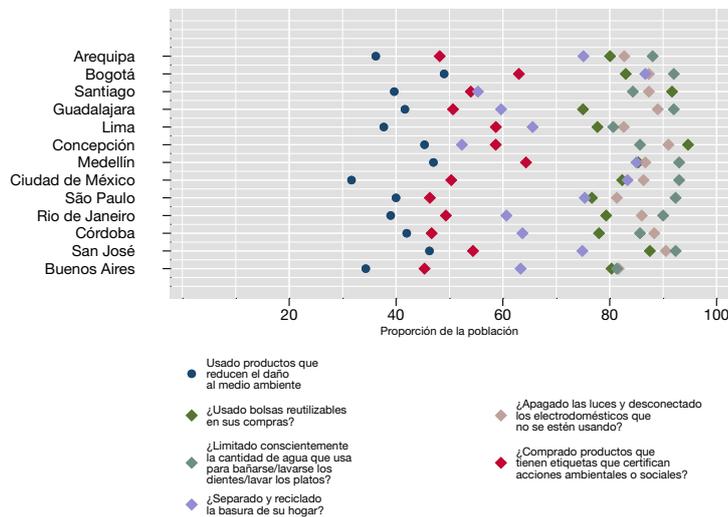
■ Table 5. Meat consumption by region (kg/person/year, carcass weight equivalent)

Region	1964/66	1974/76	1984/86	1994/96	1997/99	2015*
World	24.2	27.4	30.7	34.6	36.4	41.3
Developing countries	10.2	11.4	15.5	22.7	25.5	31.6
Sub-Saharan Africa	9.9	9.6	10.2	9.3	9.4	10.9
Mideast and North Africa	11.9	13.8	20.4	19.7	21.2	28.6
Latin America and the Caribbean	31.7	35.6	39.7	50.1	53.8	65.3
South Asia	3.9	3.9	4.4	5.4	5.3	7.6
East Asia	8.7	10.0	16.9	31.7	37.7	50.0
Industrial countries	61.5	73.5	80.7	86.2	88.2	95.7
Countries in transition	42.5	60.0	65.8	50.5	46.2	53.8

Source: FAO (2012).
 *Projections

If we look again at the data from the CODS Survey, we see bright lights of hope in a series of environmental behaviors that are in line with the possibility of designing mechanisms to exploit this window of opportunity based on more sustainable consumption patterns.

■ Graphic 16. Green consumption attitudes of individuals in Latin American cities, 2019



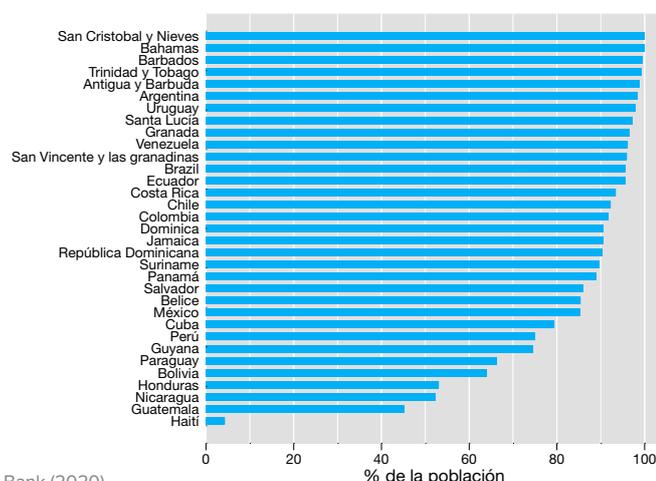
Source: CODS survey (2020)

The high percentage of use of reusable bags may be linked to regulatory policies that seek to reduce pollution. The pioneers of such policies in the region are the islands of Antigua and Barbuda in 2016. Soon after that, countries like Colombia began to implement policies to tax plastic bags or to completely ban single-use plastics, as has been done by the governments of the Bahamas, Belize, Bermuda, Chile, Uruguay, or as municipalities of other countries in the region have done independently (UNEP, 2019). Although there are no regulations of this kind to stimulate other green consumption attitudes, the cities of the region show a preference for paying attention to water and energy consumption.



In the case of energy consumption, access to clean sources will be important for taking advantage of the room for improvement in the case of the countries at the lowest levels, as shown in the following graph. Several countries in Central and South America have the opportunity to seek out cleaner energies that can reduce emissions caused by the use of charcoal and firewood and, incidentally, have fewer health impacts given the respiratory consequences of these cooking fuels.

■ Graphic 17. Access to fuel sources and clean cooking technologies, 2016



Source: World Bank (2020)

Nature-based tourism and conservation-oriented employment represent another possibility for new forms of consumption and for fair and green production chains in the context of this window of opportunity. When the pandemic has been controlled and opportunities for tourism based on non-material consumption to enjoy landscapes have reopened, the potential for Latin America and the Caribbean will be immense, for all the reasons described in the document accompanying this one (León and Cardenas, 2020b). Protected-area systems in these countries will be able to reactivate and promote tourist services that could absorb a significant amount of young labor that, with adequate training, could participate in this way in linking cities and rural areas where there is great tourism potential for bird watching and hiking. These enjoyment-based tourism industries will also require jobs to respond to the conservation needs of these ecosystems.

Window of opportunity N°. 4: E-commerce and fair and sustainable trade chains

In the face of the pandemic and the closing of conventional establishments, digital commerce and electronic payments have found an opportunity to expand their presence among consumers and firms that are beginning to explore the possibility of digital transactions in order to provide home services. Participation in digital banking on the part of a significant number of people from the most vulnerable groups in order to access to government aid through unconditional transfers is also expanding the possibilities of creating the means for growing direct trade between producers and final consumers, reducing the need for intermediation. Through these strategies for encouraging banking participation on the part of lower income groups, it will not only be possible to provide support through government transfers, but it will also be easier to access more agile credit markets for recovery after the pandemic and facilitate saving mechanisms to soften consumption against shocks. The financial system and the regulators will have a major challenge here in maintaining the potential for these strategies among the most vulnerable groups.



In this area of conditional transfers, there is an important opportunity to pay for environmental services or to condition transfers on supporting sustainable consumption activities that in turn meet basic needs. Orienting conditional transfers to populations that directly contribute to conservation, or in order to avoid activities that provoke environmental damage that are carried out due to urgent needs (illegal miners, land settlers, etc.) could help to increase interest in tackling poverty and also contribute to sustainability objectives at the same time. UNDP has had experience supporting conditional transfer programs to indigenous populations, including the Socio-Bosque program in Ecuador, Floresta+ in Brazil, and a PES program in Costa Rica. Ferraro and Simorangkir (2020) have evaluated a conditional transfer program in Indonesia that, without intending to, generated a reduction in deforestation of between 10 and 50% in different areas with direct impact on reducing emissions.

Many producers of green-label consumer goods or farm products who saw their conventional intermediation channels evaporate because of the pandemic began to search through social networks for ways to reach end consumers who appreciate more sustainable forms of production and fairer trade. As a result of the pandemic, there has also been a greater interest in accessing goods that directly support the needs of vulnerable groups that have been hit by the crisis. With the expansion of digital payment platforms for consumers and companies, the market for green products and fair trade could expand to also address the possible change in preferences and awareness for more responsible consumption.

The changes in consumption associated with agricultural-food chains will play an important role in the coming months. Sanitary control measures will greatly reduce import and export of agricultural products, creating a more closed economy, at least in the short term, which will provide us with opportunities to rethink the role that the agricultural sector can play in serving the domestic markets of the countries in the region. With such great agricultural potential, and with consumers who might reflect the possibility of preferences more associated with green consumption, very interesting opportunities open up for sustainable product chains and fair trade in the region. At this point, it will be important to ensure that this fair and sustainable trade meets both the supply and demand needs of the most vulnerable groups. These chains can take advantage of integrating small agricultural producers whose production has a smaller ecological footprint and who can benefit from these innovations.

COVID-19 is forcing many governments to accelerate electronic banking and mobile payments in particular, opening up enormous opportunities for facilitating financial flows and aligning them with more sustainable production and consumption objectives.

Window of opportunity N° 5: Green taxes and fair prices

It is possible to explore mechanisms for generating behavioral changes and at the same time raise fiscal resources for environmental action through taxes on activities that cause environmental damage. In the COPS survey (2019), data was collected in this regard that could shed light on these possibilities. In one of the questions, the respondents' willingness to pay more for coffee that guarantees better care of the environment is asked. Out of the total sample, 24% of those surveyed stated that they were not interested in paying extra for such a product, but the remaining 76% said that they were willing to do so, and 10.3% were even willing to pay more than a 15% surcharge. These numbers vary from city to city as shown in the following table.



■ **Table 6.** Willingness to pay a premium for coffee to guarantee better care for the environment

City	Would not pay	5–15% more	more than 15%
Bogotá	15.4%	72.8%	11.7%
Medellin	20.5%	65.9%	13.7%
Buenos Aires	22.3%	64.5%	13.2%
Córdoba	20.9%	66.1%	13.0%
Sao Paulo	23.8%	66.3%	9.9%
Rio de Janeiro	26.3%	55.6%	18.1%
Mexico City	28.7%	64.2%	7.2%
Guadalajara	31.3%	62.9%	5.8%
San Jose	22.8%	65.8%	11.4%
Santiago de Chile	37.7%	57.2%	5.1%
Concepción	30.7%	62.5%	6.8%
Lima	15.9%	74.1%	10.0%
Arequipa	17.9%	74.7%	7.4%
Total	24.0%	65.6%	10.3%

Source: CODS survey (2019)

Another question of a similar situation was asked, but in this case, in regard to a gasoline tax that would be used to reduce pollution, with the same response options. In this case, the percentage of those surveyed rises considerably, to 44.5%. The variation from city to city also reveals interesting patterns: Santiago is once again the city with the least willingness to pay this green surcharge, and Lima is among the most willing to contribute.

■ **Table 7.** Willingness to pay a green gas tax to reduce pollution.

City	Would not pay	5-15% more	more than 15%
Bogotá	52.2%	43.8%	4.0%
Medellin	42.7%	50.8%	6.4%
Buenos Aires	36.0%	53.4%	10.6%
Córdoba	35.2%	55.4%	9.4%
Sao Paulo	44.1%	48.5%	7.4%
Rio de Janeiro	48.5%	40.8%	10.7%
Mexico City	50.8%	44.1%	5.1%
Guadalajara	58.0%	36.5%	5.5%
San Jose	39.4%	50.7%	9.9%
Santiago de Chile	60.1%	35.9%	4.0%
Concepción	50.0%	47.6%	2.4%
Lima	29.8%	62.9%	7.3%
Arequipa	36.9%	58.9%	4.2%
Total	44.5%	48.6%	6.9%

Source: CODS survey (2019)



This difference in terms of willingness to pay a surcharge to support environmental causes give us clues about how incentives can be generated for changes in the supply of and demand for more sustainable goods or those related to fairer trade. Either way, a majority of people express a willingness to pay a premium to support sustainable production or preserve the environment. Concrete examples to explore may include taxes on tobacco, sugary beverages, or bovine meat, all with considerable consequences for health and the environment. Therefore, opportunities are opening up for local and national governments to continue delving into tax and incentive strategies that capture these benefits for the common welfare, learning from experiences such as taxes on plastic bags, always aiming to induce changes in technology and consumption while generating tax revenue oriented toward supporting governmental actions on environmental matters.

Taxes on fossil fuels and incentives for green technologies

Although some countries in Latin America and the Caribbean are beginning to use carbon price mechanisms, the price is still too low to be able to meet climate goals. The IMF (2019) notes that the average global carbon price is \$2 USD / tCO₂ which is well below the estimated average price¹³ that is needed to limit global warming to below 2 degrees Celsius. One of the challenges that the region faces is to take measures to recover from the pandemic without abandoning its climate pledges and goals and in some cases, increasing the firmness of these pledges.¹⁴ But, at the same time, governments are faced with a scenario where the efforts during recent decades to alleviate poverty are going to be dissipated, which is not a favorable scenario to the use of instruments that raise the prices of goods and services in the economy. One possible way of generating income which can also reconcile the need to serve the population affected by the pandemic and the fulfillment of environmental objectives is to increase taxes on sources of carbon such as fossil fuels.

The call from experts to start taxing fossil fuel activities is based on current low market prices of them. But it is also important to highlight the impact that this instrument can have on stimulating clean technologies. In comparison to the past, a huge progress has been made on the prices for clean and/or renewable technologies, such as wind and solar energy, which have decreased while their efficiency and productivity have increased. Taking advantage of the region's advantage in energy efficiency from primary renewable sources and the leadership of countries in the region in the production of biofuels, a push to achieve comparative advantages in clean sectors could be decisive for ensuring, for example, the future of biofuels in the region, energy transition and new cleaner growth path.

How can these changes be achieved?

The global scale impact of SARS-CoV-2 is inviting humanity to build a more sustainable path, with greater attention to the risks associated to a fragile and co-dependent relationship between the economy and nature. The biological capacity of this microorganism to break into all the social and economic dynamics in the world, that we believed to be "normal", in such a short time invites us to look more humbly at our dependence on nature. As we face the pandemic, we are more often realize that returning to the previous "normality" is an increasingly less desirable scenario for a sustainable future for the planet. The new development path must incorporate, on the one hand, a better understanding of the relationship between the economy and the natural environment. This greater interdependence and fragility are the result of globalization and the expansion of economic activities that, by generating greater pressure on natural capital and ecosystem services, have also generated a greater impact on local and global risks, where extreme events

¹³ The IMF estimates that the average carbon price that would achieve the climate goals of the Paris agreement for a reduction of 1.5 degrees, would be around \$75 USD / tCO₂

¹⁴ See more in León and Cardenas (2020b).



such as pandemics or natural disasters can proliferate and they will become more frequent in the immediate future (WEF, 2020).

To advance along a path toward an economic system that is better adapted to face these risks, it is necessary to build governance and financial systems with better responses to science recommendations, as well as better informed policies, where governments, companies, and investors can bias their resources to rebuilding the economy's interactions with natural capital where these risks are reduced and, medium and long-term resilience is strengthened with better adaptation measures (Cardenas, Guzmán, and Hernandez, 2020). Empirical evidence of a positive relationship between more sustainable and inclusive practices and corporations' financial performance is found in a meta-analysis of more than 2,200 studies analyzed by Friede et al. (2015).

The role of civil society in general, either as voters, consumers, or investors, may complement the price mechanisms of the market or the regulatory role of the state. Social networks, the media, and forums for deliberation can play a fundamental role in changing behavior in a long-lasting way and contribute to this new post-COVID path. The new bias of preferences and the social technologies that have been discussed in regard to these windows of opportunity cannot arise from top-down public policies that sometimes ignore individuals' ability to evade or adapt without achieving the objectives sought. It is essential to understand human behavior in spheres of action in the household, the market, the polling place, or communities. The evidence we have presented here suggests that citizens, upon entering these somewhat strange and uncomfortable times, have also adapted their actions to this difficult situation, reducing their presence in commerce or at work and increasing their activities at home, even before the confinement health measures began. These changes in behavior led to a chain of economic consequences that have hit the most vulnerable and, at the same time, these changes have generated positive effects on some variables such as congestion, pollution, and the consumption of goods and services that usually affect the environment.

Some of these changes in economic activity will be only temporary, but some of them could also generate a rethinking of preferences for some activities, for example, modes of transportation, or the consumption of certain goods and services that might replace others, with more lasting consequences for the environment.

Robert Frank (2020) has just published his book "Under the Influence: Putting Peer Pressure to Work," where he tells the multiple cultural, social, and economic changes that have marked recent history, where social pressure and the right mechanisms or signals have generated lasting changes in behavior. Examples such as reduced smoking, support for same-sex marriage, or trust in the government and the luxury spending paths are part of the phenomena where social pressure and available information can determine how individuals evaluate and decide on their consumption or activity patterns.

An interesting example of lasting behavior change has occurred with taxes on plastic bags. In particular, the example of the "PlasTax" in Ireland is in line with the proposals suggested in this document. The success of this tax, which managed to reduce the consumption of plastic bags by 90% in a very short time and with an operating cost of just 3% of the income generated, should not just be seen as a pecuniary mechanism, since, at cost of 15 cents per bag. Its success cannot be explained simply by substitution effects and consumer income. The Irish experience was accompanied by a process of consultation with the main actors involved, the creation of new social norms, and peer pressure in supermarkets. The case of plastic bags shares much in common with what Frank (2020) documents in the case of smoking, where the increase in taxes cannot fully explain the lasting effects on consumption, if it is not understood within a context of cultural changes in social norms.

Understanding how humans use available information and how they interpret the framework within which options are shown to them will be decisive for the success of programs or policies that seek to take advantage of these



windows of opportunity. We have already seen how the same price increase, framed as a tax or a price premium, can generate different levels of support from the population. Better information can influence people's beliefs about the importance of taking action in favor of a laudable goal, such as sustainability. This does not mean that providing information also does not have risks, as reported by Sustain et al (2016) on people's changing positions in response to information about climate change.

A possible next stage on these proposals would be to design pilot interventions, hopefully with experimental methods, to explore how individuals' behavior and preferences change as they go through the difficult times of this pandemic and as economic activities retake their dynamism. The possibilities for not returning to the same "normality" have been discussed throughout this document. A new, fairer, and more sustainable normality in relation to ecosystems and the common goods depends on how much we take advantage of the windows of opportunity that are open today, some of which we present in this document, with the aim of inviting policymakers to adapt them to their particular contexts.

Corollary

The natural sciences have been alerting humanity to the growing threat to the human race from infectious diseases, mainly due to the way in which economic activity has brought pressure on different areas of nature and regarding to the possibilities for the survival of the planet's biological diversity. About 75% of the infectious diseases that have affected humans have started in other organisms carrying them. The loss of biodiversity and of the associated ecosystems greatly increases this threat. One example in our region is the case of the transformation of Argentina's pampa region in order to use large tracts of land to corn monoculture during the 1950s, where nearly 777,000 km² were affected. This new form of land use favored a native mouse species (*Calomys musculinus*) and substantially reduced the presence of other species of fauna that maintained a more diverse balance of prey and predators. This mouse was the outbreak vector of Argentine hemorrhagic fever (AHF) caused by the Junin virus, with case fatality rates close to 15% (Molyneux et al, 2008). The lost balance, as a result of transforming an entire region to devote it to a monoculture with high financial profitability, created the ecological conditions for the outbreak of the Junin virus, which had considerable human impact while therapeutic measures and a vaccine were being developed to treat it.

The SARS-CoV-2 pandemic can be read as an invitation to recognize the fragile relationship between the economy and nature, and the power that a small microorganism to affect humans by altering their health and their means of making a living. The alteration of natural ecosystems and the ways in which agricultural and industrial activities are carried out, as well as the growth of cities, are changing the way in which humanity is exposed to risks where natural or geological cycles start different dynamics that we have very little knowledge and very little power to control. This happens for epidemics as for natural disasters. More and more scientific evidence is emerging that supports the idea that the frequency of these events will increase because planetary changes that we generated. Preserving forms of lives' diversity to have a more resilient economy will also depends on consumption and production behaviors that are more compatible with such biological diversity. This new global scale event is opening up several windows of opportunity for us to take a look, with greater humility, better science, and through cultural change, we can rethink how we relate to the natural environment that surrounds us.



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Appendices

1. Source of information on air pollution.

City	Source
Bogotá	Observatorio Ambiental de Bogotá (OAB)
Buenos Aires	Control and monitoring by the Autoridad de Cuenca Matanza Riachuelo (Acumar)
Mexico City	Instituto Nacional de Ecología y Cambio Climático (INECC)
Guatemala City	US Embassy Air Quality Monitor, Guatemala City
El Salvador	Ministerio de Medio Ambiente y Recursos Naturales (MARN)
San Jose	US Embassy Air Quality Monitor, San Jose
Santiago	Sistema Nacional de Calidad del Aire, Chile
Lima	Sistema de Gestión de Calidad del Aire, Peru
Sao Paulo	Instituto Estadual de Meio Ambiente e Recursos Hídricos
Willemstad	US Embassy Air Quality Monitor, Curacao

2. Standards for particle concentrations in the air.

Quality level	Range for PM 2.5 µg/m3 hourly average	Range for PM 10 µg/m3 hourly average
Good	<27	<40
Moderate	27-62	40-80
Harmful	62-97	80-120
Very harmful	97-370	120-240
Dangerous	more than 370	more than 240

Source: EPA (2020a) and EPA (2020b)



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