



Chapter 3

Regional integration and productive transformation for a resilient recovery

The COVID-19 crisis has strengthened the case for developing stronger productive capacities and regional value chains across countries in Latin America and the Caribbean (LAC). Before the pandemic, the region was already suffering from low productivity growth, with a growing gap with developed economies. The pandemic has emphasised the region's reliance on international production as many economies experienced import shortages. To foster deeper regional integration and increase productivity growth the region will need to promote trade integration and regional value chains by undergoing major industrial-policy efforts and converging the different existing integration mechanisms and institutions. Further regional integration in LAC could strengthen competitiveness and job creation, particularly, in key sectors such as the pharmaceutical, automotive, energy, the circular economy or sustainable agriculture. Moreover, fostering digital transformation and a digital single market could play a major role in boosting productivity and promoting regional value chains.

Regional integration and productive transformation to overcome LAC's structural weaknesses

Regional integration could be the engine to productive transformation

LAC's share in world exports of goods has not exceeded 6% since the 1960s



LAC has one of the lowest levels of intraregional trade worldwide



13% of its exports stay within the region

LAC's integration into global value chains is low



and has been mainly associated with the extraction and processing of raw materials

Intraregional trade has a higher manufacturing content than the exports to the rest of the world

On average, industrialised products accounted for



73% of intraregional flows



63% of extra regional exports

Digital transformation has been moderate

Average digital adoption in business, 2014-16



LAC's productive structure, sectoral specialisation and business structure do not contribute to regional integration

LAC average GDP growth in the past 20 years was generated



76% through the accumulation of employment



24% through increase in labour productivity

In comparison, the decomposition of growth of China's GDP was



4% through the accumulation of employment



96% through increase in labour productivity

Key sectors for productive integration and sustainable transformation in the aftermath of COVID-19 in LAC



Pharmaceutical sector



Automotive sector



Sustainable agriculture



Energy



Circular economy

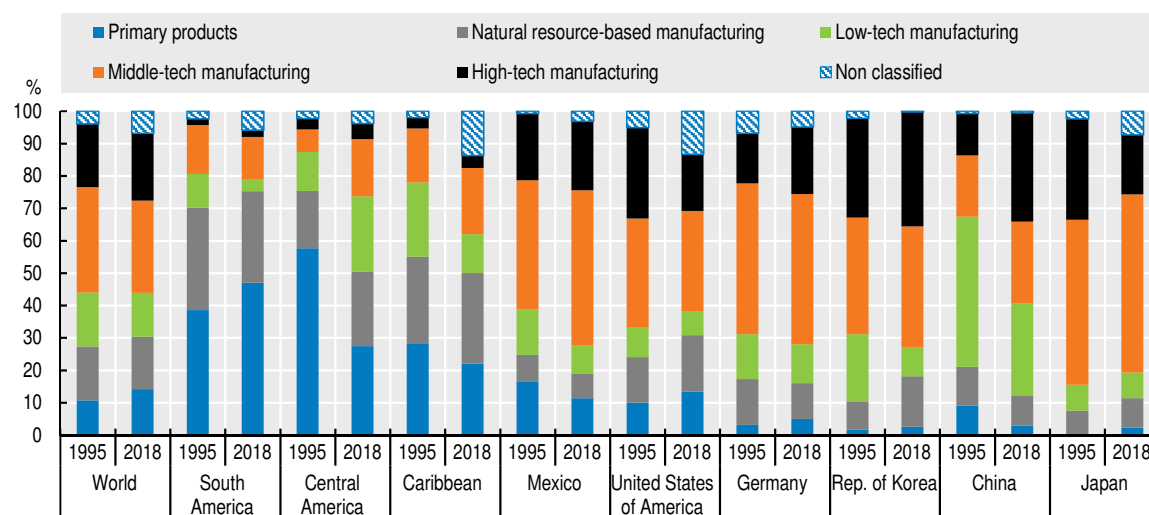
Promoting regional value chains and increasing LAC's participation in international trade as a means for recovery

Latin America and the Caribbean in Global Value Chains. A historical perspective

Since the 1990s, the increasing complexity of global production has transformed the nature and pattern of international trade leading to today's complex global value chains (GVCs). Driven by rising labour costs and the search for efficiency, regional and national export specialisation patterns have changed. This was the result of technological advances and geopolitical and economic changes that allowed the fragmentation and relocation of production, the reduction of trade-related costs and the co-ordination of complex cross-border supply networks (ECLAC, 2020^[1]). In some developed economies, such as the United States and Japan, the share of medium- and high-technology manufactures in exports declined as a result of the relocation of some manufacturing activities to emerging economies. In parallel, the share of medium- and high-technology exports has increased in some developing countries, such as China, which has rapidly moved from low-technology to medium- and high-technology manufacturing exports (ECLAC, 2020^[1]).

In the last decades, LAC's exports patterns have also changed. South America's specialisation in primary commodities and natural-resource-based manufacturing deepened, with these two categories accounting for nearly 75% of total exports (Figure 3.1): minerals in Bolivia, Chile and Peru; hydrocarbons in Colombia, Ecuador and Venezuela; and agricultural products in Argentina, Paraguay and Uruguay constituted the main export categories. While Brazil is also a major exporter of primary goods, its export basket is more diversified and includes manufactured products of varying technological intensity.

Figure 3.1. Exports of goods, by selected regions and countries and type of product, 1995-2018



Source: ECLAC (2020^[2]) based on United Nations Commodity Trade Statistics Database (COMTRADE) (online), <https://comtrade.un.org/>.

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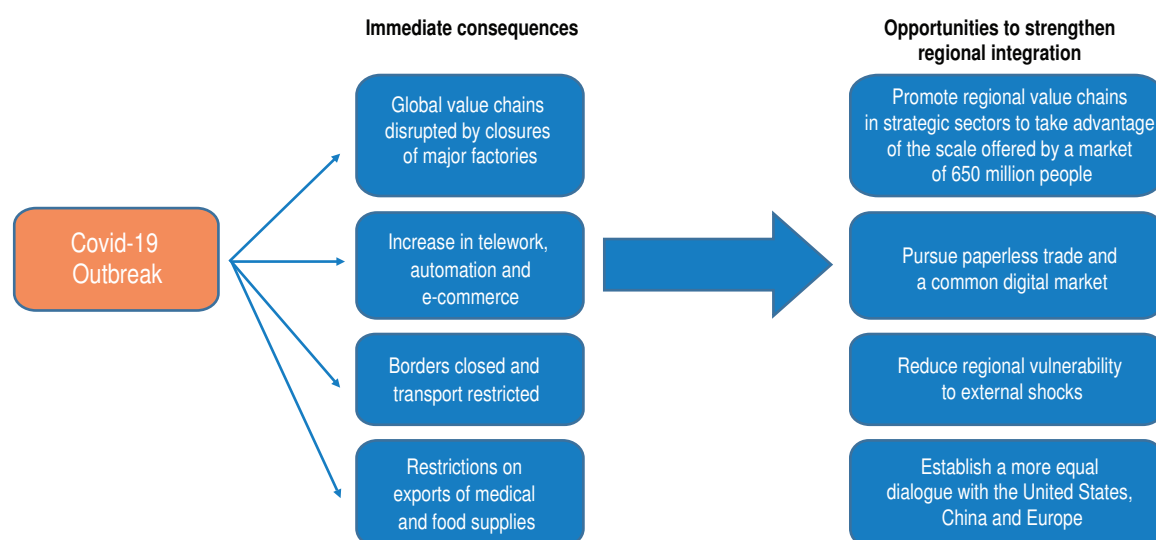
Central America's exports of manufactured goods (mainly low-technology products, such as clothing) increased, while the relative importance of primary commodities declined thanks to proximity to the United States and low relative wages (Figure 3.1). With the signing of the North American Free Trade Agreement (NAFTA), Mexico became a very important link in the regional value chains of North America and progressively increased the technological intensity of its exports, mainly to the United States.

Central America, particularly Mexico and the Caribbean have a close economic relationship with the United States that goes beyond trade including foreign direct investment (FDI), migration, tourism and remittances (ECLAC, 2014^[3]).

Global value chains in a new economic context

As a consequence of the COVID-19 outbreak, internationalisation of production has experienced a slowdown in LAC since 2010. The COVID-19 outbreak has deepened this trend although it has not yet triggered a major reconfiguration of global value chains (Figure 3.2). Advances in technology as well as geopolitical and other economic changes, such as increased protectionism, are some factors that explain this slowdown.

Figure 3.2. Immediate consequences of COVID-19 for trade and production, and opportunities to strengthen regional integration in Latin America and the Caribbean



Source: ECLAC (2020^[5]) Own calculation. "The effects of the coronavirus disease (COVID-19) pandemic on international trade and logistics", https://repositorio.cepal.org/bitstream/handle/11362/45878/1/S2000496_en.pdf.

Technological transformations, especially in communications and transportation, have enabled the increasing complexity of global value chains since the 1990s. Today, digital transformation is changing production possibilities across the world. However, its consequences for global value chains are still unclear. For example, lowering the costs of technologies that reduce the need for labour – such as digitisation, automation and additive manufacturing (3D printing) – tends to cancel out the disadvantage in labour costs found in the more industrialised countries, theoretically allowing reshoring – returning production and manufacturing back to a company's original country – or nearshoring, which brings them closer. The COVID-19 pandemic and the impact of new technologies on the labour market are consistent with the growing concerns among LAC workers about job losses or changes in jobs (Chapter 2).

Moreover, the pandemic has highlighted the vulnerability of global value chains, which were the main transmission channel for the economic effects of the COVID-19 crisis on world trade. The restrictions applied by China in January 2020 (the temporary lockdown of Hubei province and the closure of the country's borders) resulted in the suspension of exports of inputs for industries such as automotive, electronics, pharmaceuticals and medical supplies. Since China is the world's leading exporter of parts and components

with 15% of global shipments in 2018 (ECLAC, 2020^[11]), the suspension of exports triggered the shutdown of factories for several weeks in North America, Europe and Asia. In LAC, the trade in goods fell 17% between January and May 2020 and inter-regional trade fell even more, by 24%, in the same period. The contraction of intraregional trade was particularly hard for manufacturing. The automotive sector was the hardest hit with a fall of close to 55% of the value of exchanges between January and May 2020. Moreover, the contraction of intraregional trade affected all the main economic integration blocks with a year-on-year decrease of between 20% and 31% in the same period. The only exception was the trade level between the members of the Central American Common Market (CACM), which showed a higher resilience falling only by 5.6% (ECLAC, 2021^[14]).

The pandemic will likely reinforce two inter-related trends that were already emerging before the crisis. The first is a trend towards a lower level of productive, commercial and technological interdependence among the main world economies, in particular between the United States and Europe, on the one hand, and China, on the other. The second is a trend towards world trade with a lower level of openness, more permeated by geopolitical and national security considerations, more prone to conflicts and weakened multilateral governance. The net result would not be a reversal of globalisation, but a more regionalised world economy organised around three major productive hubs: North America, Europe and East and Southeast Asia.

For LAC, the ongoing transformations will bring important challenges but also unprecedented opportunities. In a context of geopolitical, technological and post COVID-19 changes, the region will be influenced by forces acting in opposite directions: one towards the reshoring of companies in countries of origin, and the other towards regionalisation. Indeed, supply chain integration is expected to grow at a regional level in response to the impact of COVID19. Regional integration must be expected to play a key role in the crisis-recovery strategies in Latin America and the Caribbean.

Latin America and the Caribbean's participation in GVCs has been uneven. Most of the countries participate in global production networks as suppliers of raw materials and basic manufacturing products and only a few countries have diversified their productive structure and become critical actors within global production networks.

As never before, the model of insertion into the international economy, based on specialisation in raw materials, assembly manufactures and tourism, is open to discussion. The disruption of various global value chains due to the pandemic has highlighted the risks posed by excessive regional dependence on imported manufactures. At the same time, the pandemic has laid bare the vulnerability of the region's productive structure. It is estimated that more than 2.7 million firms are at risk of shutting down because of the economic crisis, adding more than 8 million people to the ranks of the unemployed (ECLAC, 2020^[16]). The magnitude of the impact and the capacity of countries to react depend largely on the productive structure of LAC economies, the participation of companies in value chains, and the existing productive capacities (Box 3.1). In this context, industrial and productive policies are essential to allow the region to strengthen existing capacities and generate new ones in strategic sectors.

Regional integration and regional value chains should play a key role in the future development strategy of the region. An integrated market of 650 million inhabitants would constitute an important insurance against supply or demand shocks generated outside the region, and supports reaching the scale required to make new industries viable, promoting shared production and research networks. Regionalisation and regional production networks offer the opportunity to foster productivity growth, higher wages and inclusive labour markets while redefining the connection and integration of the region to international production and innovation hubs.

Box 3.1. The role of the external sector to boost economic activity and employment: the case of Costa Rica

The external sector has the potential to collaborate in a strong recovery. During the Covid-19 pandemic, three groups of products and services were identified: pro-cyclical, those that have suffered significant contractions in their export flows; countercyclical, which increased their exports; and neutral, which have remained stable.

In Costa Rica, exports of medical, surgical and veterinary instruments and apparatus (accounting for 10.7% of total goods exports in the period March-August 2020), unroasted and non-decaffeinated coffee (4.5% of total goods exports in the same period) and business services (64.4% of total services exports in the second quarter of 2020) showed a countercyclical behaviour. In contrast, exports of syringes, needles, catheters, cannula and similar instruments (12% of total goods exports in the period March-August 2020) showed a pro-cyclical behaviour.

In the context of post-pandemic, an array of policy actions are available to Costa Rica to strengthen the economic recovery through diversification and export-induced domestic value-added, as well as through employment.

- a) Strengthening and deepening linkages with national production. For instance, to explore increases in local production chains of the medical and dental instruments and supplies. This sector not only contributes in terms of gross exports dynamics, given its volume of trade and growth but also generates significant amounts of national added-value and employment.
- b) Continue deepening the diversification of agricultural exports. Data reveal that agricultural activities such as vegetables, chayote, cassava and watermelon, among others, show great potential in the generation of domestic value-added and employment.
- c) Promote the increase of exports in activities that, despite having lower employment generation, generate high domestic value-added. These activities include computer services or financial management, human resources and other sophisticated business services.
- d) Develop new skills and training to encourage the reallocation of the labour force to more dynamic activities, such as the services sector. Given the large indirect impact of export activity in the generation of value-added and employment in the services sector, the design and implementation of training programmes should facilitate the integration of people who have lost their jobs in primary and secondary activities into services activities. In this sense, it is advisable to facilitate the transition of highly qualified employment, linked to sophisticated services, as well as less qualified employment, which can be absorbed by activities such as tourism, with a special impact on non-urban areas.

Source: Based on COMEX and ECLAC (2021^[7]), Valor agregado y empleo inducido por el sector exportador de Costa Rica, Nota de política, <https://www.cepal.org/es/publicaciones/46922-valor-agregado-empleo-inducido-sector-exportador-costa-rica-nota-politica>.

Regional integration: An opportunity for LAC?

Regional integration has always featured in Latin America and the Caribbean's development agenda, although integration experiences have tended to prioritise trade and market integration over productive integration. A common market is an opportunity to develop: "[...] a more rational organisation of the productive system by means of which industry will attain more economic dimensions and will thereby be able to reduce its costs and utilise natural resources more effectively [...]. The putting into operation of the common market as speedily as possible will help to expand and diversify trade and to accelerate the economic development of each and all of the Latin American countries, with the consequent rise in the standard of living of its people" (ECLAC, 1959^[8]). In the COVID-19 crisis context, this view presents a strategy for recovery.

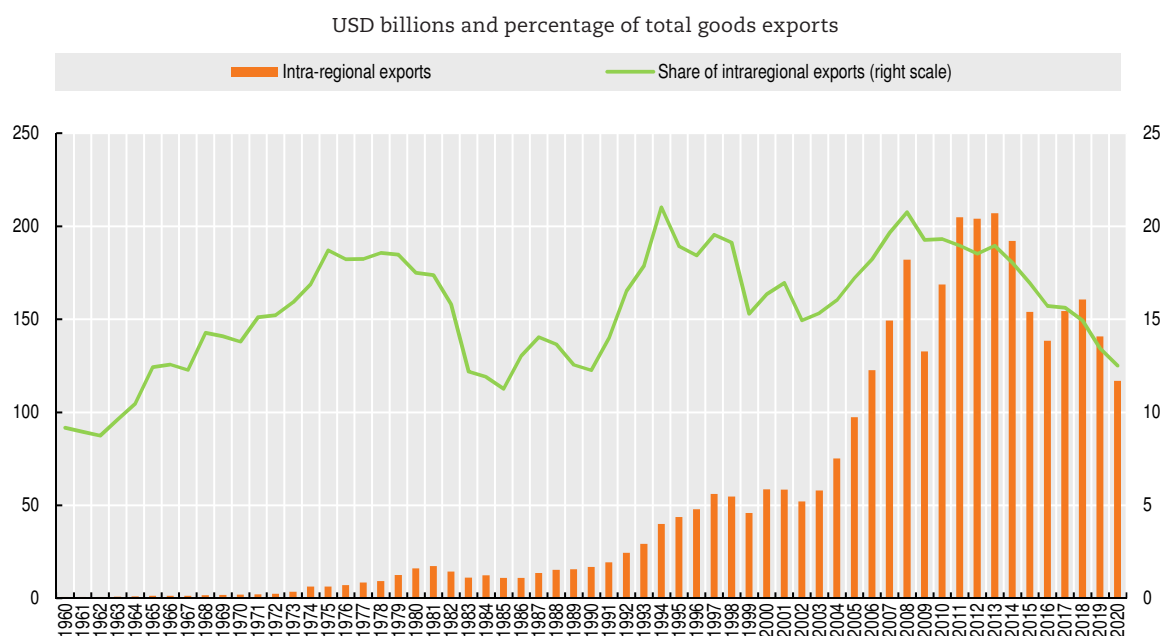
Five decades of regional trade and market integration in LAC

The first formal experience of regional integration came in 1960 with the Central American Common Market (CACM), and the Latin America Free Trade Area (LAFTA), which in 1980 evolved into the Latin American Integration Association (LAIA, or ALADI in Spanish). These initiatives were followed by the creation of the Andean Community (CAN) in 1969 and the Caribbean Community (CARICOM) in 1973.

The quest for trade integration gained renewed political and economic impetus in the aftermath of the debt crisis of the 1980s, leading to the creation of the Southern Common Market (MERCOSUR) in 1991. New trade initiatives have emerged since then, such as the Pacific Alliance (PA) in 2011.

Most LAC integration initiatives since 1960 have been focused on trade and market integration, with little focus on productive integration. This regional integration strategy has not injected energy into the regional economy, nor spurred integration into world trade: the region's share in world exports of goods has not exceeded 6% since the mid-1960s. Despite its many intraregional trade agreements, LAC has one of the lowest levels of intraregional trade in the world. Barely 13% of its exports stayed within the region in 2020, and that proportion has been declining steadily since 2014 (Figure 3.3). In comparison, trade among European Union (EU) countries as a share of total trade in goods ranged from 34% to 80% in 2020 (Eurostat, 2021^[9]).

Figure 3.3. Latin America and the Caribbean: Intra-regional exports, 1960-2020

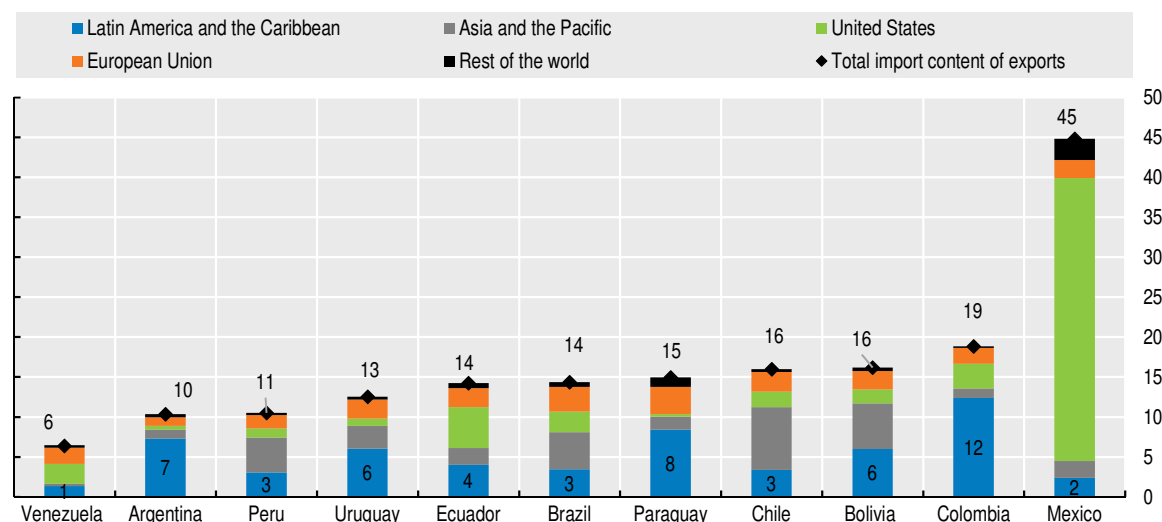


Source: ECLAC (2020^[2]), based on United Nations Commodity Trade Statistics Database (COMTRADE) (online) <https://comtrade.un.org/>, and Latin America and the Caribbean in the World Economy, Santiago, various years. The figures for 2020 are projections.

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Low productive integration among LAC countries is evidenced by the share of intra-regional imported content in total exports that reaches less than an average of 6.0%. The content imported from the rest of the region is particularly low in the exports of its two largest economies: Brazil (3.0%) and Mexico (2.0%) (Figure 3.4).

Figure 3.4. LAC: Structure of imported content in total exports by origin, 2017, selected countries (%)



Source: ECLAC (2017^[10]), *Global Input-Output Tables: Tools for the analysis of the integration of Latin America with the world*, <https://www.cepal.org/en/events/global-input-output-tables-tools-analysis-integration-latin-america-world>.
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LAC's integration into global value chains has been mainly associated with the extraction and processing of raw materials. Mexico's export manufacturing industry participation in North American production networks in the electronics and metalworking (especially automotive) sectors is the exception. Mining is the most integrated sector, in terms of forward participation, i.e. exports from this sector are incorporated into production processes in other countries for final consumption or re-export (ECLAC, 2020^[1]). As a result, LAC countries are mostly integrated into simple chain activities in natural resources and forward linkages which thus exclude the possibility for regional backward linkages.

Moreover, the declining trend of intraregional trade has been accentuated by the emergence of China as the region's second-largest trading partner. While China's burgeoning demand for commodities has reinforced the region's historical primary export pattern, especially in the case of South America, the large-scale arrival of Chinese manufactures has displaced trade within the region in a wide range of industrial sectors (ECLAC, 2021^[4]; OECD, 2007^[11]).

This regional scenario reflects the fact that, while market integration is necessary to boost trade performance, it is not enough. The development of regional productive capacities and regional value chains is key to boosting international productive linkages, fostering economic development and increasing the wellbeing of societies.

Linking integration processes and structural changes in LAC

The main rationale for regional economic integration is overcoming the limits imposed by the size of national markets, to take advantage of economies of scale and achieve sustained increases in productivity. Technological change and productive diversification acquire a fundamental role by altering the optimal market size. The challenge of integration far transcends the trade agenda, covering a wide range of development policies. In particular, during the pandemic there has been in the region growing recognition of the crucial role to be played by integration in reducing regional dependence

on international trade and increasing resilience to external shocks. The persistence of a poorly sophisticated productive structure, mostly characterised by natural resources driven sectors, has opened a debate about how integration policies must be grounded on structural change policies, unleashing processes that dynamise regional comparative advantages in more sophisticated sectors.

Historically, the manufacturing industry was the productive nucleus that benefited the most from market expansion because of its capacity to generate and take advantage of economies of scale. Manufacturing is an engine for the integration of new markets, first in national economies and then in large regional or global spaces. In that sense, regional integration could foster industrialisation in the region based on production complementarity, which would expand the intraregional trade of manufactured products. An additional benefit would be to reduce dependency on commodity exports, thus helping to overcome the external constraint that has long hindered regional development (ECLAC, 2021^[4]).

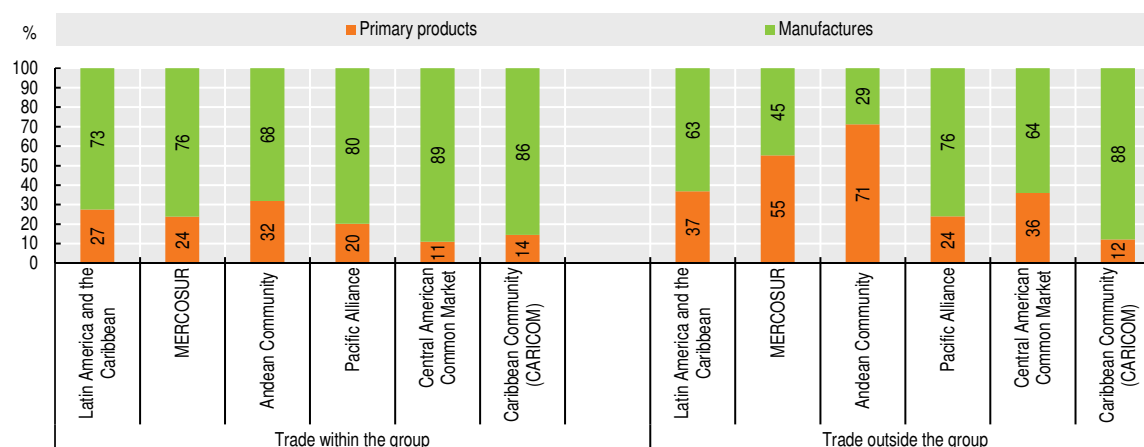
The limits that Latin American integration has faced are largely the limits of its industrialisation process. The brake on industrial expansion in the late 1970s meant the loss of a crucial engine for integration. For example, one of the most successful integration processes in the region took place in Central America; however, the productive integration of Central America with the world economy takes place mostly through manufacturing activities carried out in special economic zones (SEZ). Compared to the subregion of Central America and Mexico, South America registers lower levels of intraregional trade and productive integration. This is the result of various factors: its large territorial extension, complex geography, deficient transport infrastructure, the institutional fragmentation of its market, and its export specialisation in natural resources.

The relationship between manufacturing and integration is essential to understanding the advances and limitations of economic integration processes. In Western Europe and East Asia processes with a strong industrial component have been successful even with very different models of political articulation. With or without centralised formal institutions, successful examples of integration have been based on industrial production chains, among which: electronics, metalworking and textiles, and clothing.

The technological content of LAC exports is generally low. However, inter-regional trade in Latin America and the Caribbean has a higher manufacturing content than the region's exports to the rest of the world. On average, industrial products accounted for 73% of intraregional flows in 2018-19, but only 63% in the case of extra-regional exports (Figure 3.5). This same pattern applies to all the integration mechanisms, with a larger share of manufactures in exports within each grouping – especially among the Central American countries, where the figure rises to nearly 90%. These figures show the crucial role that intraregional trade plays in economic diversification and the internationalisation of small and medium-sized enterprises (SMEs).

Today, productive integration opportunities are not limited to manufacturing, sectors associated with natural resources also show a great scope for innovation and adding value. Technological content and knowledge intensity, whether in the manufacturing or other sector, are central elements in the proposal for integration and structural change advocated in the region in the last few years. There is no space for regional integration without productive diversification. Fostering regional integration entails encouraging the transition toward new activities characterised by higher levels of knowledge intensity and productivity. This requires targeted industrial policies to strengthen existing comparative advantages (incorporating technologies in existing sectors) or to create new competitive advantages (investing in new sectors).

Figure 3.5. Latin America and the Caribbean (main integration mechanisms):
Sectoral structure of goods exports, 2018-19



Source: ECLAC (2021^[4]), *International Trade Outlook for Latin America and the Caribbean, 2020* (LC/PUB.2020/21-P), Santiago, 2021, https://www.cepal.org/sites/default/files/publication/files/46614/S2000804_en.pdf.
StatLink <https://doi.org/10.1787/888934286236>

The weakness of LAC integration is linked to its productive structure, sectoral specialisation, and its business structure

Latin America and the Caribbean, as a region, has not been able to achieve long-term productivity gains that allow it to sustain higher growth (Chapter 1). A decomposition of GDP growth in the contributions of employment and labour productivity for a group of countries in the region and other countries and regions during the period 2000-19 shows that in LAC 76% of the average growth achieved in the last two decades was generated through the accumulation of employment and 24% through increases in labour productivity. This pattern contrasts with the decomposition of growth in economies such as China, India, Japan and the Republic of Korea. In the case of China, the contribution of productivity was 96% and that of labour, 4%; in India the ratio is almost 80% and 20%, respectively.

The productivity gap is explained by LAC countries' productive structure and structural heterogeneity – defined as a wide variation in labour productivity between and within sectors – (Pinto, 1970^[12]). The region has a poorly diversified productive structure, concentrated in sectors with low added value and exports are concentrated in goods with low technological content (ECLAC, 2020^[13]). Moreover, there is a close relationship between the productive structure and the structural heterogeneity of LAC countries. The impacts of the productive structure on average labour productivity at the country level are rooted in structural heterogeneity (Porcile and Cimoli, 2013^[14]; Cimoli, Mario, et al., 2005^[15]). This means that the sector in which a firm operates impacts the productivity level of the firm but also the productivity gap between companies of different sizes (Closset and Leiva, 2021^[16]). In Mexico for example some sectors have an average productivity 100 times higher than others, and, within these sectors, a high productive heterogeneity is also observed. For example, the average productivity of large mining companies is up to 200 times higher than microenterprises in the sector (Closset and Leiva, 2021^[16]). Structural heterogeneity is observed between and within the sectors in all LAC countries. The literature on the region shows that behind the stagnation of productivity there is a contrast between important dynamism in large and technology-intensive firms, with stagnant or declining productivity for the vast majority of small firms, which is often related to the lag in the adoption of new technologies. The size of the firm is a crucial

determinant of investment decisions in information technology across all economic sectors. Returns on innovation investment are linked to the presence of complementary inputs, such as skills and financial resources that are typically found in large companies.

The largest LAC companies are concentrated in the production and export of agricultural and mining products or low-tradeable services. Companies that participate in advanced manufacturing activities (for example, EMBRAER or Tenaris) operate with a world market perspective beyond regional integration, which, in any case, would be insufficient for their purposes.

The productive structure prevents the region from growing at a sufficient rate to absorb population growth. The low levels of dynamism and poor diversification of the economy due to the predominance of low technological intensity sectors limit formal employment and generate lower-quality jobs, often in the informal sector. This negatively affects wages and aggregate demand, which keeps the region in a vicious cycle of volatile growth and low productivity.

Likewise, the characteristics of the region's productive structure limit opportunities and incentives for technical change and diversification. The region's international insertion, which is characterised by a small number of large companies in sectors that are intensive in natural resources, offers few opportunities for broad participation in higher value-added activities. With little international competition and few incentives to invest in productive or technological capacities, the productivity of companies stagnates, and the region remains in the trap of low productivity and low value-added integration.

Increasing productivity while promoting the creation of intraregional productive linkages, requires industrial policies responsive to the global context characterised by the increasing centrality of digital technologies and environmental sustainability. These emerging trends make policy action at the national level relevant but insufficient. If the aim is to promote the development of productive capabilities, while shifting toward more sustainable and sophisticated sectors, industrial policies have to include multinational components, i.e. objectives and instruments shared by several countries. Opportunities and policies will depend on the specificities of each sector and the number of countries involved but could include the development of common technical standards, quality certification programmes, training programs, traceability, development of environmental and sustainability standards, etc. At the same time, the promotion of multinational development actions should be promoted, including trade and investment facilitation agreements, joint sectoral mechanisms to attract investments, joint financing of regional infrastructure, trade agreements to promote regional interlinkages and skills development.

A concrete example offered by regional or subregional co-operation for policy implementation concerns the creation of a single market to foster the adoption and development of digital technologies in Latin America and the Caribbean. Moving up regional value chains and SMEs competitiveness requires a deliberate and systematic effort to incorporate technology into agricultural, mining, forestry, energy and services.

A single market to foster technological development in Latin America and the Caribbean

Productivity growth is the central engine of sustained economic growth. Since the first industrial revolution, the introduction of new technologies has contributed to better productivity (Dossi, 1984^[17]). The development and incorporation of new technologies in production processes are essential for development. Digital technologies overall – the Internet of Things, big data analysis, cloud computing, augmented reality and platform usage – are changing the microeconomics of production and can play a key role in

productivity growth. However, those technologies are at different stages of development and penetration in the business environment. On one hand, they benefit firms in developing countries by reducing transaction costs and facilitating market access and integration into global value chains; on the other, they highlight and deepen the technology gap with industrialised countries and accentuate the market power of large digital platforms, stimulating economic concentration phenomena that penalise less-developed countries. Although in developing countries the impact of digital technologies on productivity is conditioned by the productive structure and structural characteristics of firms, the digital transformation is generating important changes in the organisation of companies and the functioning of market dynamics.

During the last decade, LAC experienced important advances in terms of digital transformation. Digital technologies can play an important role in the region's recovery by addressing the persistent challenge of low productivity. In a region where productivity disparities are considerable according to the size of the firm, the digital transformation brings opportunities, but also the risk of reinforcing these differences (OECD et al., 2020_[18]).

Despite progress in connectivity, the rate of digital transformation in the region has been moderate. The digitisation of production processes is strongly lagging behind other regions in LAC. The average growth of digital adoption for productive transformation in the region has been relatively moderate compared to the advances made in other emerging economies, particularly China and in Southeast Asia. In LAC, on average digital adoption in business was 4.5% between 2014 and 2016, well below highly dynamic countries in Southeast Asia (13.1%) or China (16.4%). Similarly, digital adoption has been heterogeneous among firms of different sizes. Larger companies have managed to have higher connection speeds, which also conditions the type of services they can access and offer and can create productivity gaps.

Even though the incorporation of digital technologies in productive processes is still lagging behind in the region, the COVID-19 pandemic has accelerated the process in business activities. The pandemic and subsequent containment measures have shown the increasing importance of new technologies for consumers and firms. The online interest for delivery services has increased since the beginning of the confinement measures in Latin American countries, showing a potential consumption habit shift towards e-commerce after the crisis (OECD et al., 2020_[18]). This greater use was also reflected by the increase observed in the number of firms with an online presence and by the sophistication of the online services offered by firms, represented by the transition from informative to transactional websites (ECLAC, 2020_[19]).

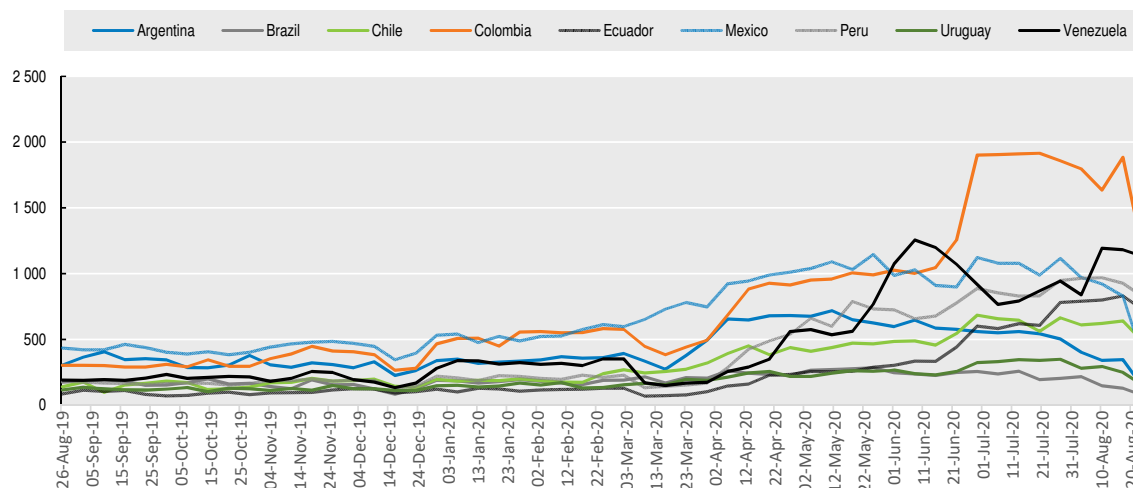
Comparing the pre-pandemic period, February-August 2019, with the same period in 2020, shows a strong increase in business websites. In Brazil, Chile, Colombia and Mexico, a significant increase was recorded in April 2020, followed by a decrease in May, but with a steady increase during the following months (ECLAC, 2020_[19]).

E-commerce platforms have also seen an increase in participation by firms, especially SMEs. During the pandemic, data captured from Mercado Libre.com, evidenced an explosion in terms of newly registered sellers. In countries with the most developed marketplaces, new sellers multiplied by 4, while in countries with less platform development, the growth was 6 times (Figure 3.6).

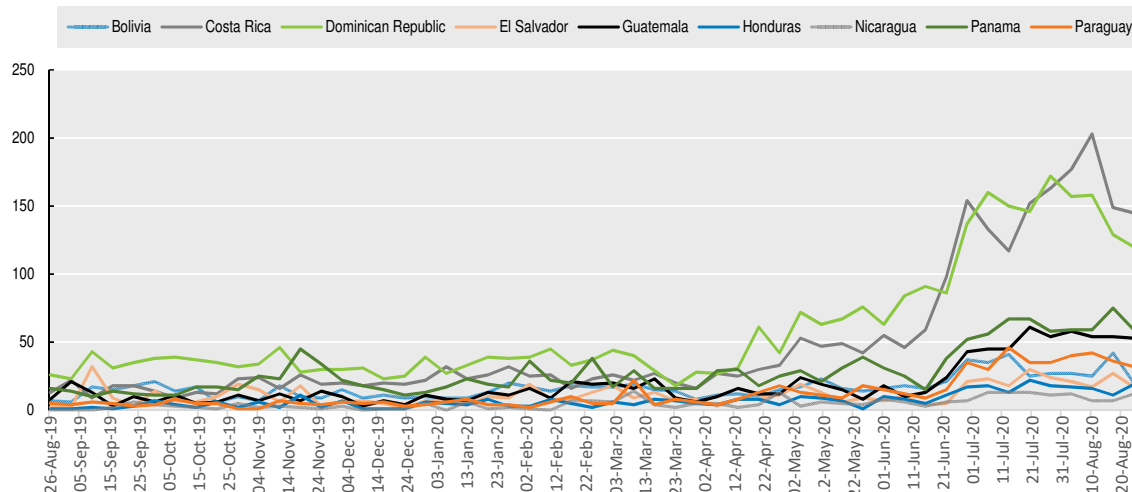
Likewise, analysing the product catalogues of SMEs that use Shopify as an electronic commerce platform shows that half of the products offered on line by SMEs in Brazil, Chile, Colombia and Mexico, as of October 2020, were published for sale shortly after the beginning of the pandemic.

Figure 3.6. Number of sellers in e-commerce in LAC 2019-20, selected countries

Panel A. Countries with greater marketplace development



Panel B. Countries with less marketplace development



Source: ECLAC (2021^[20]), *Post Pandemic COVID-19 Economy Recovery: Enabling Latin America and the Caribbean to Better Harness E-Commerce and Digital Trade*, Own calculations, https://www.cepal.org/sites/default/files/publication/files/46858/S2100269_en.pdf. StatLink <https://doi.org/10.1787/888934286635>

This accelerated digitisation occurred mainly in links of the production chain mostly related to the sale, commercialisation and relationship with suppliers and not in the incorporation of digital technologies in the production process itself. Furthermore, this digitisation is mostly linked to the use of mature technologies such as broadband and not to the use of advanced technologies such as big data, artificial intelligence, machine learning or the internet of things (ECLAC, 2021^[21]).

Regional integration and co-ordinated policy strategies will be key to ensuring the creation of digital opportunities. Fragmentation in different markets for the development of telecommunications infrastructures and the incorporation of advanced technologies can be a barrier to taking advantage of economies of scale and integrated digital markets (Cullen International, 2016^[22]). Harmonisation, co-ordination, and interoperability at the regional level are essential to facilitate the development of a digital single market, particularly in areas such as the protection of the consumer, personal data protection,

digital identity, digital payments, digital values, transport and logistics standards, and tax regimes (ECLAC and Internet & Jurisdiction, 2020^[23]).

An integrated market would also have economic benefits from the region. For example, since the creation of the digital single market strategy in the EU, its degree of digitisation grew more than that of other OECD countries that are not part of that space. The implementation of a digital market strategy among Pacific Alliance (PA) countries could increase the annual impact of digitisation on GDP from USD 9 620 million to USD 13 886, taking into account only the spillovers (ECLAC, 2021^[24]).

In the region, there is wide consensus on the need to foster digital integration, and several integration blocks are already designing their digital integration strategies, to support regulatory harmonisation and interoperability. For example, the proposed PA's digital market strategy would allow a larger market scale, better co-ordination of resources and fewer transaction costs. Increasing the market scale would allow a broader development of digital products and services, and would facilitate the creation of digital productive capabilities to compete in the content industry and platform development on a global scale. The digital market strategy could be an important instrument for co-ordinating resources from research and technological development and innovation to reduce the transaction costs for firms that could then operate in a harmonised regulatory framework.

In a similar vein, the Mesoamerican Digital Agenda articulates the digital strategies of the member countries of the Mesoamerica Project. One of its goals is to develop the infrastructures of telecommunications and the digital economy in the sub-region. The implementation of this Mesoamerican digital agenda could generate an additional value of USD 3 305 million in 5 years (ECLAC, 2021^[24]). In CARICOM, the single market strategy includes a chapter on the development of a unique digital space. The objective is to create an ICT space without borders that foster economic, social and cultural integration. The initiative includes policies, legislation, regulations, technical standards, best practices, networks and services of ICT to be harmonised regionally (OECD et al., 2020^[18]).

Another initiative is the MERCOSUR Digital Agenda Group (GAD) established in 2017 to promote “the development of a Digital MERCOSUR”. The GAD negotiated its first Action Plan (2018-20) in 2018, with commitments to digital infrastructure and connectivity; security and trust in the digital environment; digital economy; digital skills; digital government, open government and public innovation; technical and regulatory aspects, and co-ordination in international forums (MERCOSUR, 2020^[25]).

Recovery strategies to foster sustainable structural changes

The COVID-19 pandemic is having historic negative effects in the productive and social spheres, with lasting consequences on development and growth opportunities for the region. Regional productive capabilities are at risk, with productive chains facing constraints to reach the before-pandemic levels of activity, and external pressure on natural resources and commodity prices. There is a growing risk of regressive structural change, with market incentives pushing toward “reprimarisation”. In this scenario, active industrial policies will be needed to resume and support growth and productive activities and to promote an agenda for structural transformation.

Recovery strategies represent an opportunity the region cannot afford to miss. Co-ordinated policies at the regional level are needed to develop regional capabilities, promote structural transformation, and facilitate the integration of the region in global productive networks. To be competitive in the international context, the region needs to be able to anticipate structural changes in the global productive organisation.

The COVID-19 crisis has demonstrated that the current development path has reached a point that has put the survival of the ecological system that supports it at risk. Markets cannot stop these processes, as rates of return do not take into account the destruction of nature or many of its effects on health and well-being. Climate change caused by human activity is the clearest and best-known expression of the economic model's inability to incorporate environmental variables. Ecosystems and biodiversity are being reduced at alarming rates: more than 1 million species are in the process of extinction (IPBES, 2019^[26]). Global efforts towards curbing climate change and biodiversity loss will shape economies going forward. In the framework of the Paris Agreement, countries are expected to update Nationally Determined Contributions (NDCs) to combat climate change and are invited to formulate and communicate long-term development strategies aimed at lowering greenhouse gas (GHG) emissions and fostering resilient development.

In this context, a common feature of COVID-19 recovery strategies is the specific sectoral orientations with an emphasis on sustainability, green transition, a prominent role for industrial policy, and a big push towards greater national or regional self-reliance. These strategies aim to allocate resources to specific sectors to address national or regional development needs, taking advantage of positive trends accelerated by the pandemic, and adapting to the current geopolitical environment.

In July 2021, the European Commission revealed its ambitious plan to make the European Green Deal a reality. The plan for 2021-27 acknowledges the need to transform the economy to carbon neutrality by 2050 and proposed 13 policies, which, if adopted by the European Parliament, will not only reshape the European economy but will also have an impact on the EU's commercial partners. The plan includes the implementation of a carbon border adjustment mechanism. The plan will also ban *de facto* the sale of diesel and petrol cars by 2035 which will consequently influence the transformation of the global automotive industry.

China's plan for 2021-25, ratified in March 2021, aims to increase self-reliance and boost the domestic market. At the same time, the country's "dual circulation" strategy involves improving national productive capacities through industrial policies with a focus on sectors prioritised by the 2015 "Made in China 2025" policy and maintaining access to international markets. The plan also includes a strategy for reducing CO₂ emissions by 2030 and controlling non-CO₂ greenhouse gases.

In the United States, based on the USD 4.2 trillion in budget resources allocated to support households, protect businesses, and strengthen the healthcare system since the outbreak of the pandemic, the proposed American Jobs Plan would allocate nearly USD 2 trillion of spending on transportation infrastructure, utilities and digitalisation, as well as on manufacturing and innovation, with a strong orientation towards mitigating climate change and facilitating the energy transition. In G20 countries clean energy commitments have risen to USD 245 billion, 79% of which has been allocated as conditional support (Energy Policy Tracker, 2021^[27]).

In the context of reshaping the global economy, some current engines of growth for Latin America may suffer, but this transition also brings emerging opportunities. A significant challenge is to transform the carbon-neutrality goal from a challenge to an economic opportunity for the region. For example, oil and coal exports could suffer strongly in the long term; especially since international demand plays an important role in this sector (45% of the oil and 58% of the coal produced in the region is exported). If global demand for fossil fuels falls to levels consistent with the 1.5°C target, imports of them will decline dramatically (it is estimated that between 50% and 70% of oil reserves will be unused by 2035). Such a shift will depress global oil prices, have strong implications for

labour in the fossil-fuel sector, and will significantly affect fiscal revenues in oil-exporting countries (Solano-Rodriguez et al., 2019^[28]).

At the same time, countries in Latin America and the Caribbean face similar environmental challenges that are linked to their productive structure and the characteristics of their development model. Economic growth has mostly been based on a production structure with static competitive advantages based on natural resources. Despite the progress in the last years and the commitment of the region in pursuing the global agenda, natural resources have often been used in a way that has been detrimental to both the environment and the society: irreversible expansion of the agricultural land, pressure on woodland, coastal areas and biodiverse ecosystems, air and water pollution.

A change of development model will not be brought at the national level. Systemic change is required to develop competitive advantages that generate productive incentives toward more sustainable sectors.

The region is facing the challenge of the transition to sustainability inside its own boundaries and for its own needs, while simultaneously facing the challenge of having to reshape its economy to align it with the global challenge of addressing climate change and the economic transformation already happening elsewhere in the world. At the same time, the region needs a structural shift to overcome the limitations imposed by its development model (ECLAC, 2020^[13]). The production structure must shift towards more technology-intensive sectors with higher rates of demand and more skilled employment. The structural transformation must be achieved while preserving natural resources, biodiversity, and the environment. Since markets cannot drive sustainable structural transformation alone, these changes call for a co-ordinated set of policies, summarised by the Economic Commission for Latin America and the Caribbean (ECLAC) as a big push for sustainability.

The big push for sustainability consists of a set of co-ordinated technological and industrial, fiscal, financial, environmental, social and regulatory policies. It aims to establish a new structure of incentives for investment, the creation of higher productivity and higher-waged jobs within the development of local and regional production chains. It involves technological upgrades and environmental and climate efficiency (ECLAC, 2020^[13]).

The transformation of the productive structure and the development of local and regional production capabilities are at the essence of the big push for sustainability. Each country, given its productive structure and its societal priorities, needs to determine the activities and policies needed to foster progressive structural change and the big push for sustainability (ECLAC, 2020^[13]).

Seven sectoral systems can provide the basis for a big push for sustainability in the region: non-conventional renewable energy; electromobility; digitisation; the healthcare manufacturing industry; the bioeconomy; the circular economy; and tourism. Co-ordinating investments and industrial policies around these sectors provides ample scope to generate better quality jobs, pursue innovation, incorporate technological progress, diversify exports, adapt to and mitigate the effects of climate change and undertake regional integration efforts.

Building upon the analysis undertaken by ECLAC in *Building a New Future Transformative Recovery with Equality and Sustainability*, the next section analyses opportunities in regional capacity development and integration in five sectors: (i) pharmaceutical, (ii) automotive, (iii) renewable energy, (iv) sustainable agriculture, and (v) the circular economy.

This selection of sectors is meant as a guide to a sustainable transformation based on the development of regional capabilities. A combination of forward-looking investments,

together with industrial, fiscal, social and skill-development policies can spur the growth of new sectors as well as foster conversion and new branch development in existing sectors. Moreover, investment to promote climate efficiency and circularity within existing sectors can also offer new opportunities to diversify the economy while achieving low-carbon development. Productive integration around strategic value chains and sectors will speed up the transition and decrease its cost while increasing its efficiency.

From domestic to regional: Sectoral experiences as an opportunity for productive integration and sustainable transformation

There is no recipe for sustainable structural transformation and regional productive integration. The characteristics of each sector shape how countries integrate and strengthen their productive capabilities. Industrial structure, firms' size, trade agreements, and resource endowments are some of these characteristics. Hence, productive integration policy making requires an integrated approach, which is largely sector-specific. That makes it useful to focus on sectoral experiences in the region to draw lessons and identify future opportunities to develop regional capabilities while generating incentives for more sustainable and sophisticated productive models. This chapter analyses five sectors that could play a key role in transformative recovery strategies in LAC: pharmaceuticals, the automotive sector, renewable energy, sustainable agriculture and the circular economy.

The pharmaceutical sector: strengthening regional capabilities

In the last 18 months, all countries in Latin America have faced a singular challenge in sourcing the medical products required to launch systematic public responses to the COVID-19 emergency. Access to medicines in the context of the pandemic has highlighted health inequities globally. High dependence on imports of medicines in general, and COVID-19 critical-care products specifically, have constrained the ability of governments to guarantee essential protection for medical workers, enable access to tests, provide respirators and oxygen when required, and rally the arsenal of pharmacological agents used to combat the effects of COVID-19 (Delgado et al., 2020^[29]). In short, the global pandemic has exposed LAC's supply-chain vulnerability. Designing policies aimed at strengthening local pharmaceutical industries and investing in the development of local production capabilities will, at the same time, strengthen the reaction capacity of the region and foster knowledge and industrial development.

The pharmaceutical industry is comprised of public and private entities whose activities include research and development, manufacturing, packaging and marketing of medicinal products aimed at prevention and treatment of medical conditions. In Europe and the United States, these industries are significant drivers of economic and technological development. They fit tightly into a web of complex economic activities that include food processors, cosmetics, chemicals and paint, engineering and other interlocking technological activities.¹

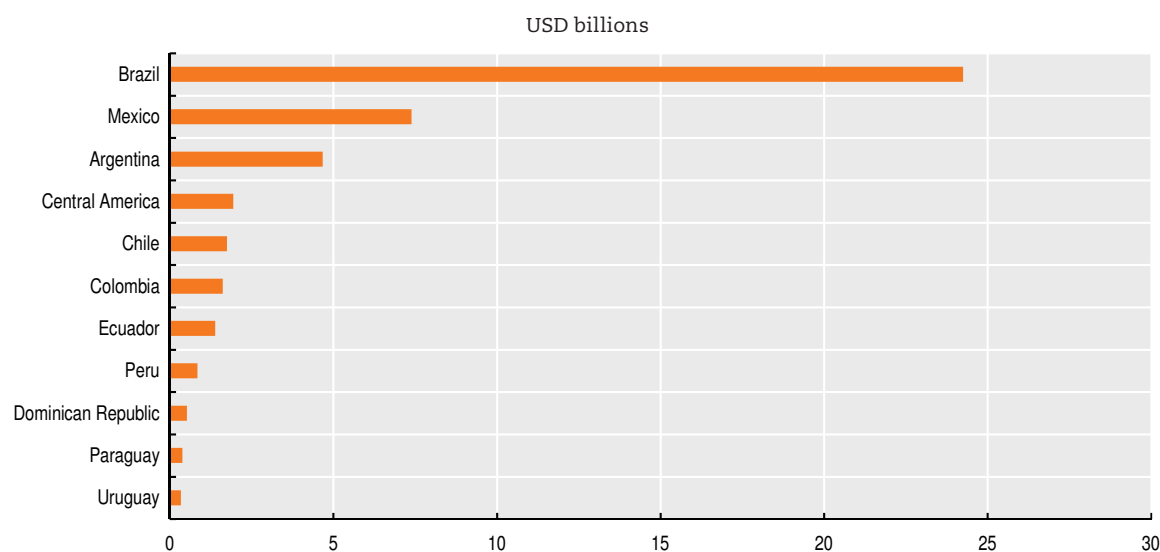
Across LAC, pharmaceutical production is highly concentrated in the final phases of the industry's value chain – namely, importation of active pharmaceutical ingredients, their combination, packaging, distribution and marketing. This reality shapes import and export patterns and the value of the pharmaceutical industry in terms of a percentage of national GDP.² Latin America and the Caribbean is not a leading region in pharmaceutical production; the share of the pharmaceutical industry as a percentage of GDP was 0.37% in 2017.

By contrast, in OECD countries, pharmaceutical industries represent more value in the overall economy, accounting for 0.83% of GDP. In LAC, there are no countries

with high aggregated value in the pharmaceutical industry. Argentina (0.7%) has the highest regional level, followed by Brazil (0.54%), Mexico (0.46%) and Chile (0.27%). Latin America's pharmaceutical market as a percentage of GDP contrasts markedly with small European countries such as Ireland (7.6%), Denmark (3.2%) and Slovenia (2.9%) where pharmaceutical industries deliver high value-added goods and create spillover effects for other technology-based economic activities (Feinberg and Majumdar, 2001^[30]; Grupp and Moge, 2004^[31]; Grupp, 1996^[32]).

Latin America's total pharmaceutical market value is dramatically weighted towards three countries that represent 80% of the regional market: Brazil (USD 24.6 billion), Mexico (USD 7 billion) and Argentina (USD 4.6 billion) (Figure 3.7). Market sizes in the region are a factor in determining the concentration of country-level pharmaceutical production and innovation systems. Still, Argentina, Brazil and Mexico that represent nearly 80% of the entire regional pharmaceutical market's value, are not significantly more export-competitive than their smaller-market neighbours. While the value of Central American countries' combined market value represents less than 5% of the regional market, there are notable cases of individual countries that have developed niche-driven export platforms especially in the case of Mexico's medical device industry (Valverde, 2014^[33]). Figure 3.7 illustrates the high concentration of value in the region's market, with these three countries accounting for nearly eight out of every ten dollars in annual market share.

Figure 3.7. Pharmaceutical industry market value, selected LAC countries, 2019



Source: Statista (2020^[34]), Revenue of the worldwide pharmaceutical market from 2001 to 2020, <https://www.statista.com/statistics/263102/pharmaceutical-market-worldwide-revenue-since-2001>.

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The region does have pockets of high-value pharmacological production, most notably in the large-scale generics production in Brazil and in a recent strengthening of biotechnology in Argentina. On the whole, however, since the 1980 and 1990s the region has pursued a model of importation of pharmaceutical products and medical devices, relying primarily on foreign producers (Sweet, 2017^[35]; Sweet, 2013^[36]). The region's dependence on the supply of active ingredients and finished products from external sources is evidenced by the fact that a large part of the countries of the region have import ratios over sectoral added value greater than one. For 2014, this indicator takes the values of 1.2 in Brazil, 1.1 in Argentina, and 1.4 in Chile and Colombia. By contrast,

the export ratios over sectoral added value in OECD countries (excluding Latin American members) range between 25% and 45%.

Lack of harmonised regulatory frameworks at the regional level and insufficient human resources have resulted in a production model focused on national markets and mostly concentrated in the development of conventional, “small molecule” drugs. These productive activities are buttressed by training centres throughout the region. Governments must capitalise on the need for persistent investment in both the quality and the number of researchers in this area. Robust innovation systems require varied and deep human-resources capacities. Specific researchers in both narrow fields and broad networks are essential to creating ecosystems in this space. There are indications of growing segments in health care professions working on scientific research more generally however, this has “not been accompanied by a similar rate of patents applied for and obtained, nor of new products on the market” (ECLAC, 2020^[13]).

Latin America currently does not have a regional platform for researchers to co-operate with administrative or institutional ease. Prioritising university-level exchanges, so that researchers can build on the respective advantages of their national contexts, would strengthen innovative activities in the medical technology sector. This requires simplifying and streamlining co-operative systems for researchers, similar to the EU’s ERASMUS programme, that would facilitate the mobility of academics in health and promote co-operation between universities and research centres in the region. Additional advantages to promoting programmes that facilitate research collaboration and exchange would be the formation of work teams from different countries in the region.

In recent decades, there has been sustained interest at the regional level in promoting policies that would harmonise safety and efficacy standards to reap the scale advantage of a larger Latin American market. This would enable more accessibility for people in the region to new products while ensuring their quality and safety. Since as early as 2006, the aim of integration of these systems has been promoted by the World Health Organization (WHO) and the Pan American Health Organization (PAHO) to strengthen regulatory agencies through “the sharing of information, convergence and reliance of regulatory processes, not in the absolute harmonisation of norms and standards” (PAHO, 2010^[37]). In other words, the aim of the PAHO and other international agencies thus far has not been the ambitious, politically driven project of creating one system of standards, but co-ordinating and opening dialogue between those systems.

Import systems in the region also create barriers to the entry of new products. The costs and complexity of these systems in and of themselves represent an issue. In the case of Argentina, the previous system of DJAI – an acronym representing a “Sworn Advanced Affidavit of Imports” system – has been replaced by a new “*Sistema Integral de Monitoreo de Importaciones*” which will allow for automatic licensing of products (SIMI, 2021^[38]). In the five years since this regulation was created, it has allowed for the automatic authorisation of 18 000 of 19 000 products registered in the imports system.³ Brazil’s regulatory agency, ANVISA could be improved, as certifications and related fees can double the cost of products. Similarly, entry barriers in Colombia’s pharmaceutical market include increased stringency in the new “National Development Plan” as well as “price controls, counterfeiting, patentability criteria, weak patent enforcement and issuance of a declaration of public interest to force a price discount” (US Commercial Service, 2019^[39]).

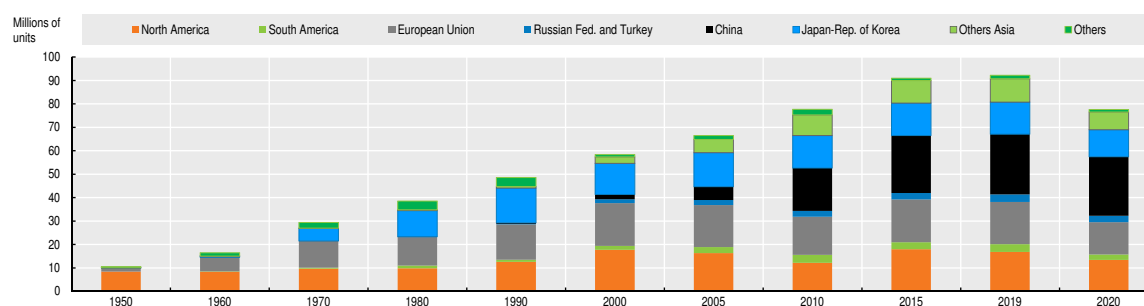
The automotive sector: Integration and sustainability

The automotive industry is one of the most important in LAC. Characterised by extensive upstream and downstream linkages to many diverse industries and sectors

it plays a central role in the development of industrial capabilities in the region. The pandemic has seriously affected the sector and is driving a profound transformation in its organisation and geographic location around the world. Many car parts supplier companies have closed or have failed to maintain pre-pandemic production levels, strongly affecting vehicle manufacturing worldwide. In 2020, global vehicle production decreased by 15.8% to 77.6 million units, a figure similar to that recorded in 2010 (Figure 3.8). Among the regions with the greatest drops were the EU (23.5%), North America (20.5%) and South America (30.4%). In this scenario, the automotive industry is likely to be going through the worst crisis in its history.

All the ongoing changes in the automotive sector could represent an opportunity to strengthen manufacturing capabilities and create quality jobs in the region. The automotive industry is concentrated around three macro-regions: North America, the EU and Asia, while a small group of countries (the United States, Germany, Japan, the Republic of Korea and China) maintain strong hegemony in terms of production, vehicle manufacturers, suppliers and technological development. Despite the high degree of concentration in production, the value chain of the automotive sector is highly fragmented, both geographically and by task. This characteristic of the sector provides scope for regional integration to foster capacities all along the value chain, research and development, design, testing, and assembly and production.

Figure 3.8. Vehicle production, selected regions and countries, 1950-2020



Source: Own elaboration based on data from the International Organization of Motor Vehicle Manufacturers (Organisation Internationale des Constructeurs d'Automobiles –OICA-) (2021^[40]) 1950-2020 Car production statistics, <https://www.oica.net/category/production-statistics/>.

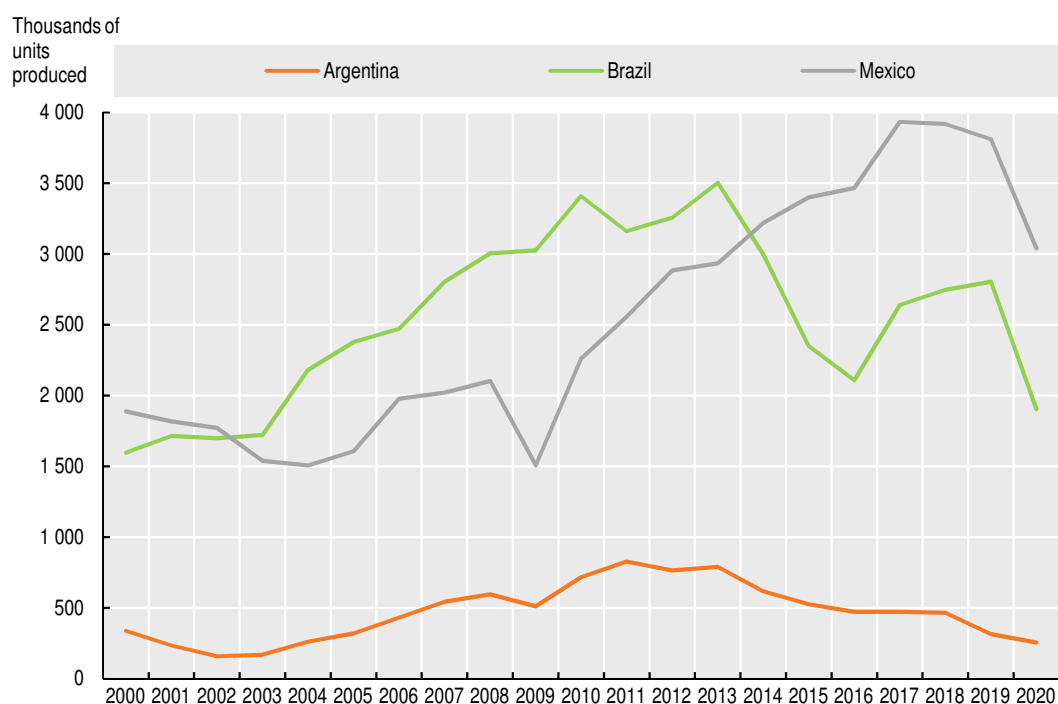
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The automotive industry is undergoing one of the greatest revolutions in its history, as its borders are expanding, and new players, products and business models are appearing. The convergence of traditional manufacturing with electronics and software is modifying the structure of the production chain and the leadership it sustains. Although there are many expectations for new forms of mobility and the role that the automotive industry will play, there are also many questions about the future of the industry.

Latin America has not been immune to the changes in the automotive industry at the global level. In the 1990s, most countries abandoned protectionist schemes and with it, the automotive industry in Latin America practically disappeared, except in the largest economies. Vehicle manufacturers, within the region, through the deployment of strategies that combined efficiency, complementarity, and specialisation, grouped automotive activities around three hubs. The modern production platform in Mexico was strongly integrated with the North American market. Production plants supported by integration schemes for the domestic markets of South America focused on the Mercosur, mainly Argentina and Brazil (Figure 3.9). Finally, the hub of the Andean Community catered for the markets of Colombia, Ecuador and Venezuela.⁴

In recent years, particularly after the global financial crisis of 2008, the Mexican automotive industry has accelerated its transformation process, going from a low-cost export platform for the assembly of mass consumption vehicles to a better-integrated production chain with more diversification in products and greater technological sophistication. In 2017, the Mexican industry reached its all-time high with almost 4 million units produced. This growth has allowed for specialisation and higher technological content, which strengthens Mexico's position in an industry subject to strong pressures from new trends with strong economic impact.

Figure 3.9. Argentina, Brazil and Mexico: Automobile production, 2000-20



Source: Own elaboration, based on information from the Asociación de Fábricas de Automotores (ADEFA), <http://www.adefa.org.ar/es/estadisticas-anuarios>, Associação Nacional dos Fabricantes de Veículos Automotores (ANFAVEA), <https://anfavea.com.br/estatisticas>, and Asociación Mexicana de La Industria Automotriz (AMIA), <http://amia.com.mx/StatLink>  <https://doi.org/10.1787/888934286692>

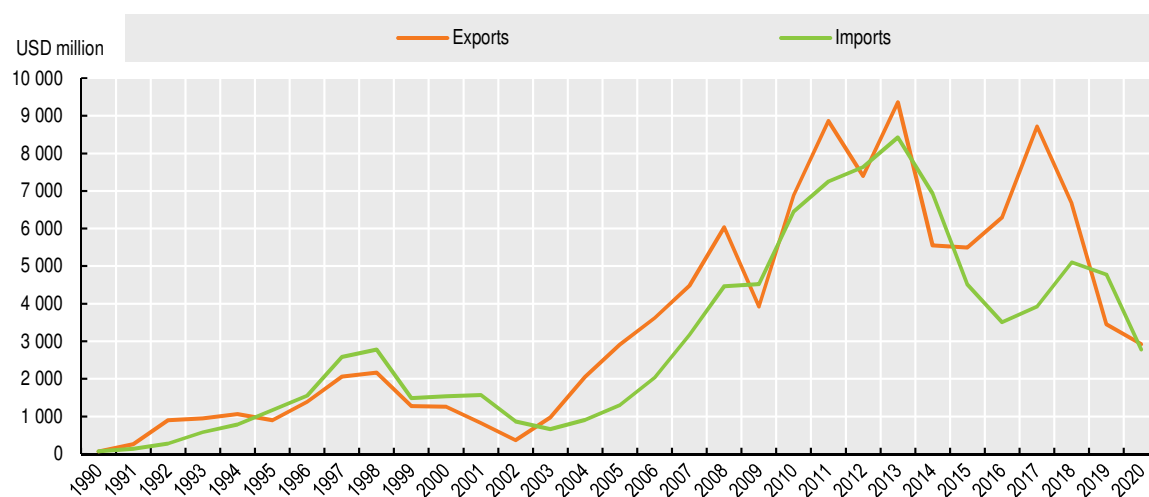
The harsh impact of the financial crisis on the automotive industry in the United States prompted dozens of companies to modify their expansion and localisation strategies. This led to a huge increase in foreign direct investment (FDI), both from manufacturers and suppliers and in trade with Mexico. Between 2009 and 2020, the Mexican automotive industry received more than USD 56.8 billion in FDI, 51% of which went to the auto parts sub-sector.

With deepening integration between Canada, the United States and Mexico, the supplier base became much broader and more diverse. Automotive production in North America is highly interconnected: vehicle manufacturers and suppliers purchase parts and components throughout the sub-region, which can cross the borders of member countries up to eight times before final installation in a vehicle in an assembly plant in one of the three countries (Wilson, 2017^[41]). There is greater US content in an average vehicle manufactured in Mexico or Canada than in a vehicle assembled in any other country in the world, largely owing to the strict origin regimes of NAFTA and especially of the United States-Mexico-Canada Agreement (USMCA) (ECLAC, 2018^[42]).

The productive integration scheme in the Mercosur context and the size of local markets led the largest companies in the automotive industry to make large investments in Brazil, and to a lesser extent in Argentina. Production has been aimed at supplying domestic markets and is guided by a clear policy of specialisation: compact cars in Brazil and larger displacement vehicles, particularly work trucks, in Argentina. In Brazil, the concentration of production in compact cars offers companies greater production scale and, therefore, lower costs and greater competitiveness.

With the formation of Mercosur, a division of labour between Argentina and Brazil has increasingly developed, laying the foundations for the creation of a regional automotive value chain. Between 2000 and 2020, Brazil was responsible for 84.5% of the bloc's car production. In 2013, Brazil reached an all-time high of around 3.5 million units produced, then experienced a significant drop to 1.9 million vehicles in 2020; Argentina suffered a similar dynamic, with a record of 830 000 vehicles manufactured in 2011, and then a fall to 260 000 units in 2020 (Figure 3.10).

Figure 3.10. Brazil: exports and imports of automotive products with Argentina, 1990-2020



Source: ECLAC (2020_[2]) based on United Nations Commodity Trade Statistics Database (COMTRADE) <https://comtrade.un.org/>.

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Argentina and Brazil have developed complementarity in the trade of intermediate and final goods for the automotive industry. Since the creation of MERCOSUR, bilateral automotive trade grew strongly until the mid-2010s (Figure 3.10). With the growth of the industry, Argentina has tended to specialise in the export of final goods and Brazil in the export of intermediate goods, with which the former accumulated a significant trade deficit (Amar and García Díaz, 2018_[43]).

The future concept of mobility is changing rapidly, which will affect Latin American countries. Public policies, and global commitments, are driving vehicle manufacturers towards low-carbon options and greater energy efficiency. The next 20 years will bring significant changes: electrification, shared mobility, connectivity and digitisation, and eventually autonomous vehicles. In this scenario, several countries are competing to build new high-value industrial clusters for mobility products.

Against this background, the region faces multiple challenges, starting with the restructuring of the productive base of the Latin American automotive industry to adapt it to the needs of the new reality. Hence, public policies are needed to strengthen the

capacities of the productive and innovation ecosystem, as well as those that favour a greater and more efficient articulation between the main agents of the production chain to take advantage of the opportunities that are beginning to emerge from these changes. This is how niches can be identified where competitive advantages could be developed in the face of the new demands that will arise in the coming years. For the countries of the region that have a presence in advanced manufacturing sectors, such as the automotive industry, with an environment marked by products with shorter life cycles, a growing level of technological sophistication and greater demands for research, development and innovation, the systems production companies should strengthen their capacities in both traditional and disruptive technologies.

The new complex production systems require a large variety of capacities and cannot depend on a single agent, so it is increasingly important to develop mechanisms to promote associations and synergies. Shortened innovation cycles and the need for large amounts of investment have made partnerships and alliances increasingly attractive. Unlike global companies and leading countries in advanced manufacturing, Argentina, Brazil and Mexico have shown difficulties in advancing in this direction, with weak intermediate enterprises and little participation of local companies, particularly those of smaller size, in production. To take advantage of existing capacities in the automotive industry, the region presents favourable conditions for the production of electric mobility components. The need to proceed with the renovation of public transport systems offers a great opportunity to begin to develop new mobility capacities, particularly electromobility (ECLAC, 2020^[13]).

The energy sector: Renewable energy sources and regional integration

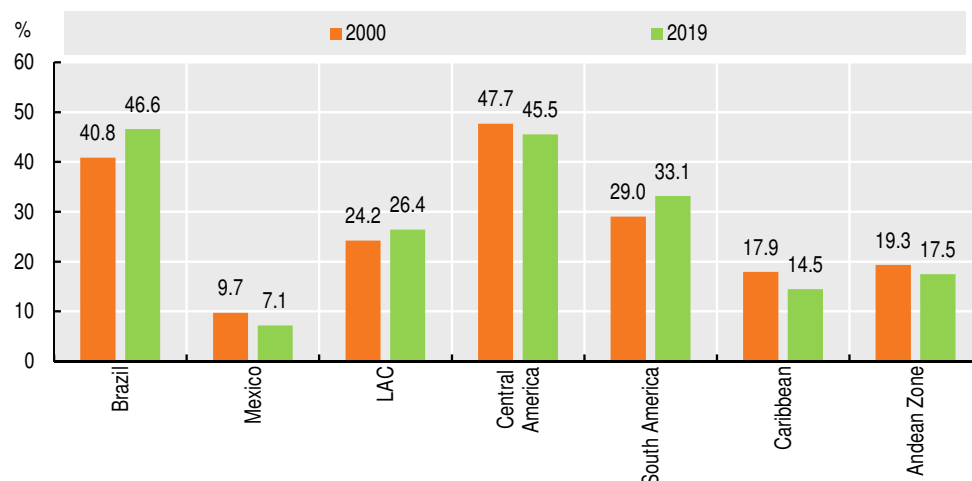
The energy sector is undergoing the greatest technological change in a century. The transition towards renewable and sustainable sources of energy is a global challenge for public policy. On a global scale, fossil fuels will continue to play a relevant role in primary energy demand by 2040, even though power derived from renewable sources will grow faster (EIA, 2018^[44]).

In Latin America, the share of renewables in overall energy production has reached 29%, which exceeds the world average. Hydropower and biomass (mainly firewood and charcoal) are largely responsible, although Brazil stands out as a country where biomass is transformed. The energy transition should be identified as a means of creating economic opportunities in the region.

Although the region has traditionally had higher participation of renewables in its mix, the percentage of renewable energy supply in the Total Primary Energy Supply grew only marginally between 2000 and 2018 (less than 1%), while its renewable energy index has varied very little, increasing by 1.7% in the same period (Figure 3.11). On a sub-regional level, the Andean Zone, Mexico and the Caribbean have substantially decreased their renewability indices, while Central America, Brazil and South America have increased theirs.

Latin America and the Caribbean is a region endowed with vast resources for renewable energy (Paredes, 2017^[45]). While wind and solar generation capacity is growing rapidly, representing 57% of additional capacity in 2017, it represents only 6.5% of installed capacity (IRENA, 2018^[46]). Latin America and the Caribbean could generate up to 80% of the region's electricity from renewable sources in an affordable way, making use of the abundant wind and solar potential as the cost continues to decrease. The enormous potential for renewables in the region is reflected in the increasing amount of foreign direct investment flowing into the sector within the last decade. During the COVID-19 crisis, the only sector in which investment forecasts increased was in renewable energy (Figure 3.12).

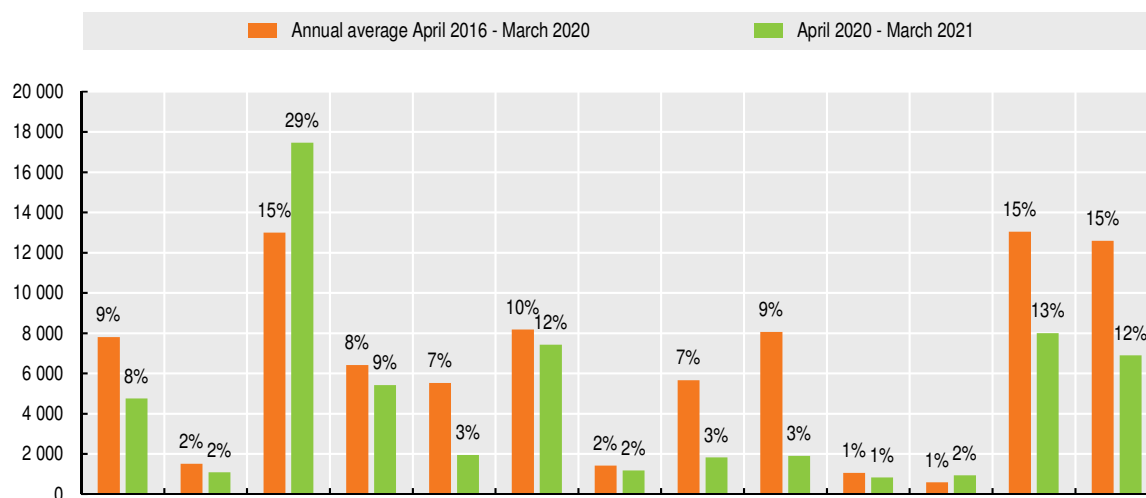
Figure 3.11. Renewable energy index



Source: Own calculations, based on Latin American Energy Organization (OLADE) online data, <http://www.olade.org/>.
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Figure 3.12. Announced investment in renewables projects in LAC

USD million, Percentage of LAC total



Source: Own elaboration based on the Financial Times, fDiMarket (online database), <https://www.fdimarkets.com/>.
StatLink <https://doi.org/10.1787/888934286749>

Significant penetration of renewable energy and high integration of regional transmission will require the incorporation of a greater share of renewables in the electricity grid with higher dispatchable base load generation and deeper regional integration. Therefore, for the next ten years, it will be necessary to increase electricity generation mainly through hydropower, where the role of regional integration of countries with serious hydraulic potential, such as Paraguay, could play a fundamental role. The heterogeneity of the distribution of energy resources present in the region currently implies a costly and complex transition for many countries as they cope with the challenges of meeting the increase in electricity demand in the coming decades, including those linked to the electrification of the transport sector and increased industrial use of energy.

More use of renewable energy sources and greater regional integration should lower electricity-generation costs (fuel, transmission, operation and maintenance) and the

costs of investment in new generation capacity (solar, wind, geothermal technology and others). Several countries in the region could access generation surpluses from third countries, so it may not be necessary to build new electricity generation plants; however, it would require political will and sophisticated energy planning (Box 3.2).

Box 3.2. How to meet growing energy demand with clean and sustainable electricity

ECLAC, in partnership with the Latin American Energy Organization (OLADE), the International Renewable Energy Agency (IRENA) and the Inter-American Development Bank (IDB), analysed the complementarity of regional electrical systems and the penetration of renewable energies. As part of this initiative, three scenarios of the electricity sector by 2032 were designed using the PLEXOS methodology.

1. The baseline scenario (BASE) is constructed considering data from the OLADE and the long-term expansion plans of countries. In this scenario, the penetration of renewable energies is based on national energy plans and there is little integration of transmission between countries.
2. The second scenario (RE) incorporates a high proportion of renewable energy (80%, including large-scale hydropower) but maintains the same regional interconnections as in the baseline scenario.
3. The third scenario (RE+INT) incorporates both a high penetration of renewables and a high level of interconnection.

The results are clear efficient decarbonisation of the electricity sector implies the transition towards renewable energies and the promotion of integration initiatives in the regional electricity network. The main results are:

1. BASE scenario: energy planning by countries in the region (2018–32), with no increases in renewable energy (solar, geothermal, mini-hydro, biomass and ocean) and not including large-scale hydropower suppose an increase in their total share of electricity generation from 12.7% to 24.6%.
2. RE scenario: renewable energy (excluding hydropower) increases from 12.7% to 41.1%, with a total cost of 1.35% of annual GDP between 2020 and 2032 and a 30.1% reduction in CO₂ emissions.
3. RE+INT scenario: renewable energy (excluding hydropower) increases from 12.7% to 39.5%, with a total cost of 1.33% of annual GDP between 2020 and 2032 and a 31.5% reduction in CO₂ emissions.

Although the costs of renewable energies are trending downwards (e.g. the average price of photovoltaic modules fell by almost 61% between 2011 and 2017), the current costs of large-scale storage, which range from USD 1 000 to USD 5 000 per megawatt-hour, limit their use on a massive scale. However, in the long term, lower storage costs might be an incentive for greater direct penetration of renewable energy sources. The challenges created by rising electricity demand over the coming decades look even greater when the need to electrify transport and industry is considered. In this context, fostering regional integration could be a way to reduce the cost and increase the environmental efficiency of electricity generation.

Scenarios	Share of no-hydraulic renewable energies in installed capacity	Total cost (% of annual GDP 2020-2032)	CO ₂ emissions (gigatons 2020-2032)
Base scenario	12.7%	-	6 (2010-2020)
Energy planning by countries	24.6%	1.40%	4.8
Renewable energy with no integration	41.1%	1.35%	-30.1%
Renewable energy with integration	39.5%	1.33%	-31.5%

Source: ECLAC (2020^[13]) *Building a New Future: Transformative Recovery with Equality and Sustainability*. Summary (LC/SES.38/4), Santiago, 2020.

The high penetration of renewable energy and significant regional integration would very likely result in greater efficiency, resulting in lower losses and a decrease in emissions. In addition, the investments necessary to achieve energy integration implies the development of sustainable electrical infrastructure, and the opportunity to create approximately 7 million new jobs by 2032. Likewise, if the renewable-energy industry were to be located in LAC manufacturing solar panels and wind turbines would represent almost 1 million more jobs for the region (ECLAC, 2020_[13]).

Sustainable agriculture

Modern trends in food consciousness have placed societal and market pressures on agriculture to develop differentiated products. The production of agro-specialities, based on the demands of consumers, is more intensive in knowledge and technology and generates more value for the producers. Firms producing agro-specialities tend to be price makers (Shapiro, 1987_[47]).

Many factors explain this process of differentiation, including structural changes (e.g. globalisation), market integration and the expansion of retail, and cultural changes (environmental and food consciousness). This process has been accelerated by rapid digitisation, which has facilitated the monitoring of production chains and by the numerous food crises since the 1990s. The result is an increasingly conscious and demanding consumer looking for higher nutritious quality, fair trade products, agroecological sound origins, indigenous community rights, local labels of origin, reduced environmental footprints, and reduced climate impacts, among others. Products that have a higher nutritional density (proteins, vitamins, others) and that improve health, such as fresh products, as well as those that take care of the environment or that connect with other global causes, acquire more and more importance. COVID-19 may further accentuate this process.

The trend, therefore, is towards agri-food industries with more spending on services and sustainability (certifications, logistics and marketing), than on agricultural raw materials. Progressively, agri-food products are transformed into “products-services”, which serve to find a “solution” to a given problem: quality, health, environment, culture, community rights and social inclusion.

Another complementary trend during the last three decades has been generated by the development of biotechnology and the emergence of the bioeconomy. This phenomenon, when complemented with materials sciences and technologies (especially nanotechnology) and information sciences (ICT) has allowed previously unthinkable advances in the productivity of agricultural resources and much more sustainable production models in the bioeconomy that have the potential to generate systemic changes (Fraunhofer, 2018_[48]). There are already many countries implementing National Bioeconomy Strategies, such as the United States, Germany, the Netherlands, Sweden, Finland, Norway and Denmark. These strategies are also promoted in the European Union, China and India. In the LAC region, Argentina and Costa Rica for some years have been deploying initiatives for their development (Rodríguez, Mondaini and Hitschfeld, 2017_[49]).

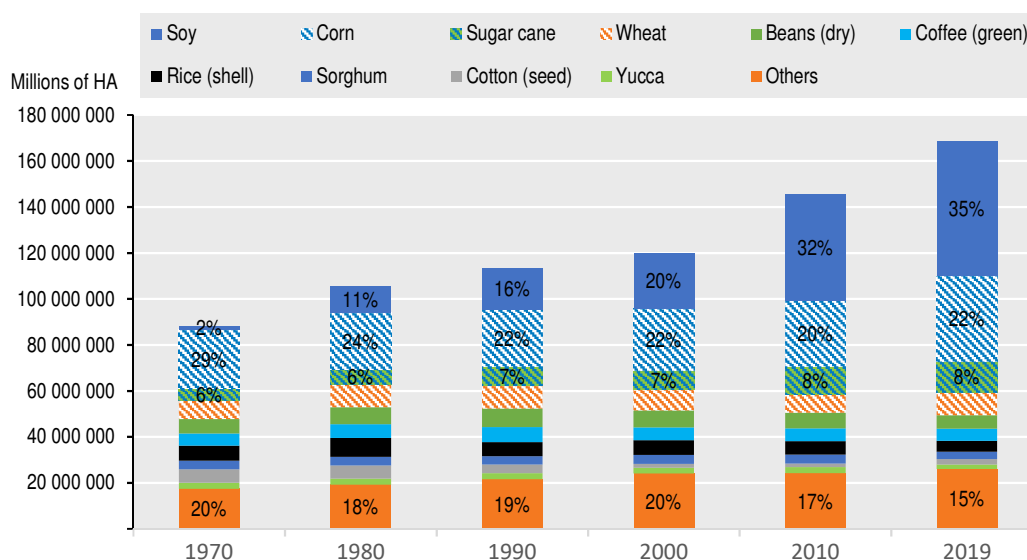
Sustainable agriculture can also contribute to a transformative green transition based on quality jobs and socio-economic development. In the next few years, all sectors, including agriculture, will be under pressure to comply with environmental standards and firms will be increasingly challenged to comply with high safety and sustainability standards to compete in the global market. In this scenario, organic agriculture could represent a valid alternative for the diversification of production through innovation and standards development. Organic agriculture involves the application of agronomic, biological and mechanical methods of production in place of the use of synthetic chemical

inputs. The development of harmonised standards and certifications is essential to the commercialisation and export of organic products. Recent literature shows that producers who do not obtain certifications do not obtain premium prices for their products. Many small farmers in LAC do not use chemical inputs in their production processes, developing standards and regulations for specific products could help SMEs integrate into regional and international markets, especially the European.

For example, to reduce the contribution of agriculture to global deforestation and forest degradation, the European Commission is working on a legislative proposal to avoid or minimise the placing of products associated with deforestation or forest degradation on the EU market. Regional agriculture policies should anticipate these trends, promoting compliance with higher environmental standards. Targeted investments in the sector and initiatives to help comply and adapt to standards, regulation, and improve transparency should accompany the process. If supported by the correct policy mix, sustainable and speciality-based agriculture could have the triple advantage of improving environmental sustainability, fostering knowledge incorporation, and supporting MSMEs in accessing global markets.

In Latin America and the Caribbean, the agri-food sector accounts for 25% of regional exports and 5% of regional GDP. Commodities occupy between 70% and 80% of the cultivated area of the region, with a significant economic, ecological and social impact. There is, however, much potential for expanding the production of specialities. Shifting towards specialities and sustainable agriculture could generate quality jobs and contribute to building a regional agribusiness that incorporates knowledge and that generates complementary industries such as bioplastics, protein concentrates or waste treatment.

Figure 3.13. Harvested area by crop in LAC, 2018



Source: FAO and ECLAC (2020^[50]), *Food systems and COVID-19 in Latin America and the Caribbean: Impact and risks in the labour market*. Bulletin 5. Santiago, <http://www.fao.org/3/ca9237en/ca9237en.pdf>; and FAO (2021^[51]) FAOSTAT [online] <http://www.fao.org/faostat/en/#home>.

StatLink <https://doi.org/10.1787/888934286768>

Soy production is the most important crop in the regional food system, occupying a third of the planted area and generating exports worth approximately USD 65 billion (17% of the total exported by the five producing countries in the region) (Figure 3.13, Table 3.1). The soy value chain plays a strategic role in global food and geopolitical balances,

especially owing to its relationship as a privileged supplier of grains for consumption in Asia, mainly China. It is notable for its industrial possibilities, as a supplier of intermediate products that are required in large volumes by companies producing food, biofuels and other industrial products. The production pattern of soy in the region is as a purely primary commodity (both as a grain and its derivatives). However, there is an increasing incentive to incorporate more knowledge and technology value-added, with the growth in demand for differentiated products to allow identification of the origin of the product, traceability and environmental footprint.

Table 3.1. Soybean producing countries of the Americas: Harvested area, production, yield and number of producers, 2019

Country	Harvested area		Production		Yield	Farms	Average Farm Size
	Ha	%	Ton	%	Ton/ha	N°	Ha
United States	30 352 150	25.2	96 793 180	29.0	3.2	302 963	100.2
Canada	2 270 500	1.9	6 045 100	1.8	2.7	31 52	72.0
Brazil	35 881 447	29.8	114 269 392	34.2	3.2	236 245	151.9
Argentina	16 575 887	13.8	55 263 891	16.6	3.3	58 443	283.6
Paraguay	3 565 000	3.0	8 520 350	2.6	2.4	27 735	128.5
Bolivia	1 387 973	1.2	2 990 845	0.9	2.2	14	99.1
Uruguay	966	0.8	2 828 000	0.8	2.9	2 229	433.4
Others (producing countries)	62 125 321	51.6	149 799 214	44.9	2.4	yes	yes
World	120 501 628	100.0	333 671 692	100.0	2.8	yes	yes

Source: Own calculation with data from FAOSTAT 2021 for the harvested area, production and yield. For the number of holdings: United States, Agriculture Census 2017, mentioned in ERS-USDA, 2021; Canada, Agriculture Census 2016, mentioned in Soy Canada, 2021 2016; Brazil, Agricultural Census 2017, IBGE, 2019; Argentina, National Agricultural Census 2018, INDEC, 2019; Paraguay, Agricultural Census, 2008 DCEA-MAG, 2009; Bolivia, Agricultural Census 2013, INE, 2015; Uruguay, General Agricultural Census, 2011 MGAP, 2011

The soy production chain faces growing concerns about the sustainability of large-scale intensive monoculture agriculture, including impacts on deforestation, loss of biodiversity and soil degradation. The growing concern of international soy consumers for sustainability and the adoption of organic certifications represent an opportunity to generate and adopt innovations with a positive environmental impact, but, as with any trade certification scheme, it can also be a cause of market exclusion for those producers who cannot certify a sustainable or organic soy production. In this scenario, the development and international recognition of agricultural certifications is acquiring a central relevance in commercial relations (Box 3.3).

Box 3.3. Certified soy for sustainability, Argentina's experience

The Argentine Association of Direct Sowing Producers (AAPRESID) has worked with the soybeans producers to monetise the added value of certified soy production through the development of soy credits. Producers who certify greater sustainability, transparency and traceability throughout the soy value chain can have access to the Sustainable Agriculture Certification (ASC, by its Spanish Acronym). The Argentinean ASC certification was already recognised by the European Federation of Animal Feed Manufacturers (FEFAC) for producing standards that are compatible with the European market. Since March 2021, the European buyers paid a price premium in form of credits per ton of soybeans producers to certified sellers. In this first instance, the benefit will only cover soybeans, although work is being done to add other crops such as corn, wheat and cotton.

Box 3.3. Certified soy for sustainability, Argentina's experience (cont.)

On the other hand, Argentina is also promoting the RTRS certification. The “Round Table on Responsible Soy Association” (RTRS) is a global non-profit organisation founded in 2006 in Zurich, Switzerland, which promotes the production, trade and use of responsible soy through the co-operation with relevant actors in the soy value chain, from production to consumption. It guarantees zero deforestation and zero conversions in soy production.

The ASC and RTRS certification standards have shared goals and complementary schemes. This fact makes the double RTRS / ASC certification a competitive advantage for Argentine producers because it allows continuous improvement of management, transparency of processes and traceability of soy produced sustainably.

Source: Own elaboration based on AAPRESID (2021^[52]), Asociación Argentina de Productores en Siembra Directa, <https://www.aapresid.org.ar/> and RTRS (2021^[53]), Round Table on Responsible Soy Association, <https://responsiblesoy.org/soja-rtrs>.

The production and distribution of coffee represents another promising value chain. The global market for coffee-related products is growing steadily, and product differentiation is based not only on the organoleptic attributes of the product but also on its environmental impact and sustainability scores. A complex system of quality labels, guides, classifications, rankings and networks is being developed to help consumers identify their products. In Central America, different strategies have focused on specialities and sustainable products. The Mesoamerican coffee chain is one of the strongest economically and socially, as well as one of the best organised within the regional food system. Constituted by approximately 380 000 producers (more than 90% small farmers), this chain occupied approximately 1.15 million ha. in the region in 2020 and it represented 2.3% of export earnings (USD 3.965 million), although in Honduras it represented 8.61% and in Guatemala almost 5% (Table 3.2). This value chain testifies to the development of a speciality, with a high level of sophistication in its primary production phases and collection and storage to obtain a differentiated high-quality product. It has advanced technology in the production phase, which is applied by the most innovative and largest producers. This scheme makes it possible to take advantage of an ecosystem of high-altitude forests, which is very relevant and of great value from a biodiversity point of view. The production areas have basic infrastructure and are relatively close to the US market, which is an important competitive advantage. Another peculiarity of the coffee chain is that it is networked with the Cafeteria Chain, which is rapidly evolving towards a service economy, as evidenced by the fact that more than 50% of the volume produced is certified, or that some countries and companies have escalated towards the most advanced segment, the management of brands and final consumption stores, the most outstanding case being the Federation of Coffee Growers of Colombia (500 000 associates) and its Juan Valdez brand (Box 3.4).

Both the soy and the coffee chains present different levels of complexity that vary in each country, as they follow specific technological trajectories that respond to their basic natural resources, as well as to their laws and institutional schemes. Both chains face severe environmental challenges and include thousands of companies that are subject to price volatilities and other instabilities that are typical of agricultural activity. Defending and developing these chains requires good public policies, regional standard development and new productive and trade agreements to avoid the commoditisation of specialities in the global markets. Co-ordination at the regional-sectoral level is key to adding value, developing regional linkages, increasing knowledge incorporation and

sustainability. The agri-food sector in the region requires a set of co-ordinated policies that combine incentives to spur investments in innovative activities with subsidies to absorb the changes that are taking place at the global level.

**Table 3.2. Central American coffee producing countries:
Harvested area, production, yields and number of producers, 2020**

Countries	Harvested Area (2020)	Production (2020)	Farms
	Ha	Ton	N°
Guatemala	422 445	225 000	125 000
Honduras	350 000	377 200	144 000
Nicaragua	126 154	150 615	44 519
Costa Rica	93 697	86 804	29 918
El Salvador	140 018	34 045	24 627
Panama	16 630.60	9 200	8 973
Total, Region	1 148 944	884 033	377 037

Source: Own calculations with data from: INE, 2020; USDA, 2020; ICO, 2021a; ICO, 2021b; INIDE, 2011; PROMECAFE, 2021; ICAFE, 2020; CSC, 2021; MIDA, 2020; ASAMBLEA NACIONAL, 2020; MIDA, 2020.

Box 3.4. The Latin American experiences of the new trends Juan Valdéz and Britt

The Colombian case

In 2002, the National Federation of Coffee Growers of Colombia created the “Juan Valdez” brand for its network of coffee shops and value-added businesses (Federación Nacional de Cafeteros de Colombia, 2019^[54]). The objective of these coffee shops is to sell premium coffee to position the product as part of the heritage of Colombia. Following the popularity of the brand and its distribution in national stores, the distribution of Juan Valdez products expanded to Colombian retail and international markets. By 2019 Juan Valdez had 445 stores worldwide, of which 313 are in Colombia and 132 in 13 other countries (Federación Nacional de Cafeteros de Colombia, 2019^[54]).

The products offered through these distribution channels are selected packaged coffees; premium, origin and specialty coffee; pods and drips (individual coffee sachets); and freeze-dried coffee (Juan Valdez, 2021^[55]) (Portafolio, 2017^[56]).

The Costa Rican case

Costa Rica has produced one of the best coffees in the world for more than a century. However, before Café Britt, all gourmet coffee was exported while low-quality coffee was distributed in the domestic market. Unlike most coffee that is sold commercially in non-coffee producing countries, Café Britt’s coffee is grown, roasted and packaged in the country of origin, Costa Rica (El Financiero, 2016^[57]).

In the 1990s Britt targeted air terminals by using a golf cart as a kiosk to sell brewed and bagged coffee. This tactic showed the potential of being present in airports, and in 2001, the company opened its first “Britt Shop”. In 2017 Britt opened its first cafeteria, which grew to eight in Costa Rica and two abroad by 2019 (Fallas Villalobos, 2019^[58]). This is in addition to the 135 establishments in terminal areas, which generate the highest income for the Costa Rican company. The products they offer are gourmet packaged coffee, origin, organic, espresso and capsules; as well as machinery to prepare coffee, among others (Mosere, 2021^[59]).

The circular economy: New opportunities for value creation

The global green transition is no longer a distant goal. Nations are taking steps to achieve net-zero emissions and comply with the Paris agreement. While the transition to sustainable energy will result in important reductions in carbon emissions, it will not be enough to meet the global climate goals. Indeed, research has shown that relying solely on energy efficiency and switching to renewable energy will only address 55% of global GHG emissions. The remaining 45% are a direct result of the way products and food are made and used, but they can be significantly reduced through circular strategies (Ellen MacArthur Foundation, 2021^[60]). Net zero is an ambitious target that cannot be achieved under the current economic model.

Building a sustainable world demands redesigning the economy fundamentally and replacing the actual linear approach of “take, make, waste”, by creating a circular economy and promoting sustainability by design. This would reduce carbon, cut pollution and help protect biodiversity. The circular economy is a key element to address the climate crisis as it can both contribute to reducing emissions while increasing resilience to climate change.

The circular economy approach has been gaining momentum in the region since 2019. In the Forum of Environment Ministers of Latin America and the Caribbean, proposals to establish a Regional Coalition on Circular Economy were announced. The Coalition was officially created in 2021 to develop a regional circular vision and strategy for 2030 (Box 3.5) and national governments have implemented more than 80 public policy initiatives in LAC (e.g. the national circular economy strategy in Colombia or the Circular economy national plan in Uruguay).

Box 3.5. Regional Coalition on Circular Economy

Colombia, Costa Rica, Peru and the Dominican Republic are part of the first steering committee of the initiative that seeks to move towards a friendly economy where pollution is eliminated and natural systems are allowed to regenerate, helping to protect biodiversity and combat climate change.

The initiative, co-ordinated by the United Nations Environmental Programme (UNEP), is headed by a steering committee composed of four high-level government representatives who will be renewed every two years, starting with Colombia, Costa Rica, Peru and the Dominican Republic for the 2021-22 period.

The initiative has eight permanent strategic partners: the Climate Technology Centre and Network (CTCN), the Ellen MacArthur Foundation, the Inter-American Development Bank (IDB), the Konrad Adenauer Foundation (KAS), the Platform for Accelerating the Circular Economy (PACE), the United Nations Industrial Development Organization (UNIDO), the World Economic Forum (WEF) and UNEP.

The coalition aims to provide a regional platform to enhance inter-ministerial, multi-sectoral and multi-stakeholder co-operation, increase knowledge and understanding of the circular economy. It has already started working with LAC countries to develop a regional circular vision 2030.

Source: Circular Economy Coalition Latin America and the Caribbean (2021^[61]), Governance Structure, <https://www.coalicioneeconomiciacircular.org/en/elementor-7/inicio-english/>

The circular economy is underpinned by three principles, all driven by upstream design and innovation: eliminate waste and pollution, keep products and materials in use, and regenerate natural systems. Environmental sustainability also means increasing efficiency in extracting and using resources in the economy and reducing the production of waste. In a circular economy, efforts should be done to improve efficiency and the useful life of materials by promoting durability and the capacity to repair, remanufacture, reuse and recycle goods. These changes are promoted through product design and business models, to ensure easier and more profitable repair, recycling, remanufacturing or shared use through services (Ellen MacArthur Foundation, 2013_[62]).

A circular economy scenario is particularly relevant to LAC, given the economic weight of the extractive sectors. A scenario including an increase in recycling rates implies reduced extraction demand, but an increase in demand for services associated with waste management and remanufacturing of materials. Moreover, even if circularity is fully implemented, the demand for virgin materials will continue to increase (ECLAC, 2020_[13]). These trends can be seen as an opportunity for the region. Greater circularity in the minerals and metals sector does not mean the disappearance of extractive activities, but a complement to them.

In the context of global economic transformation and the region's need for structural transformation, circular economy policies and investments could play a crucial role. By proposing the decoupling of economic growth from the exploitation of finite natural resources and energy use, the circular economy is considered a key tool to achieve the Sustainable Development Goals (SDGs) of the 2030 Agenda.

The circular economy is thus an important strategy to support regional development based on the expansion of manufacturing in the region but also the framework in which sustainable agriculture and bioeconomy could be fostered. LAC is facing a twin challenge of pursuing socio-economic development while reducing GHG emissions. In that context, Gramkow and Anger-Kraavi (2019_[63]) highlighted that green fiscal stimulus in manufacturing sectors globally needs to be considered as one of the main policy measures helping with the transformation to a low-carbon economy, especially in the developing world. Recovery policies based on incentives for investment in low-carbon technologies in manufacturing sectors can bring about a significant reduction in CO₂ emissions while helping to improve economic performance by boosting activity, contributing to the diversification of the production structure and improving the trade balance. Environmental big push policies would also considerably expand the relative size of the industry in the economic structure. The value added by all manufacturing sectors rises the most in low-technology and intermediate-technology industries (Gramkow and Anger-Kraavi, 2019_[63]; ECLAC, 2020_[13]). This model shows that sound policies could help to tackle GHG emissions while contributing to structural change in the region.

Tackling structural inefficiencies across supply chains, the circular economy offers abundant value-creation opportunities at the industry level. Research suggests that transitioning to a circular economy could generate a net economic benefit of EUR 1.8 trillion for Europe by 2030 (Ellen MacArthur Foundation, 2021_[64]). A transition to a circular economy would also create jobs in the region. In LAC, the adoption of a circular economy scenario would create a net total of 4.8 million jobs by 2030 (ILO/IDB, 2020_[65]). Job creation in sectors such as the reprocessing of wood, steel, aluminium, and other metals would more than offset the losses associated with the extraction of minerals and other materials. This is because the value chain in reprocessing is longer and more employment-intensive than it is in mining (ECLAC and ILO, 2018_[66]).

Conclusion

The COVID-19 crisis has demonstrated that the current productive structure in LAC is a limit to productivity growth, deeper regional integration and sustainability. The LAC region has not been able to achieve long-term productivity gains that allow it to sustain higher growth. This is mainly due to the region's poorly diversified productive structure, which is concentrated in sectors with low value-added. Most LAC countries participate in global production networks as suppliers of raw materials and basic manufacturing products, and only a few countries have diversified their productive structure and become critical actors within global production networks.

Regional integration remains an unexploited opportunity to diversify the productive structure and achieve higher productivity growth. Nevertheless, regional integration must go beyond market integration and aim to develop regional productive capacities and regional value chains. Major industrial-policy efforts will be required alongside the convergence between the existing integration mechanisms and institutions to overcome regional market fragmentation. In this sense, key specific sectors such as the pharmaceutical, automotive, energy, sustainable agriculture or the circular economy can lead the way. Similarly, regional integration and co-ordinated policy strategies will be key to ensuring the creation of digital opportunities that could transform the productive structure and the development of local and regional production capabilities while bridging existing digital divides (Box 3.6).

Box 3.6. Key policy messages

- Promote regional productive capacities and regional value chains.
- Push for further intraregional trade as it plays a strong role in economic diversification, the development of manufacturing capacities and the internationalisation of small and medium-sized enterprises.
- Go beyond market integration and trade performance. The development of regional productive capacities and regional value chains is key to boosting international productive linkages, fostering economic development and increasing the wellbeing of citizens.
- Foster industrialisation in the region based on production complementarities. This would expand intraregional trade of manufactured products and reduce dependency on commodity exports.
- Implement industrial and productive policies to strengthen existing capacities, generate new industries, promote regional production and research networks. Regionalisation and regional production networks offer the opportunity to foster productivity growth, higher wages and inclusive labour markets, while redefining the connection and integration of the region to international production and innovation hubs.
- Promote the convergence of integration mechanisms and institutions as it could provide an opportunity to boost investments, develop productive capacity and overcome regional market fragmentation.
- Promote digital transformation as it can play an important role in the region's recovery by addressing the persistent challenge of low productivity (OECD et al., 2020^[18]). Despite the COVID-19 pandemic accelerating the process, incorporation of digital technologies in productive processes is still lagging behind in the region.

Box 3.6. Key policy messages (cont.)

Regional integration and co-ordinated policy strategies will be key to ensuring the creation of digital opportunities, while being a driving factor towards better social welfare and bridging digital divides.

- Aim COVID-19 recovery strategies with an emphasis on sustainability, green transition, a prominent role for industrial policy, and a big push towards greater national or regional self-reliance.
- Identify with relevant actors key sectors that could lead the way in integration and regional productive capabilities. Productive integration policy making requires an integrated approach, which is largely sector-specific. That makes it useful to focus on sectoral experiences in the region to draw lessons and identify future opportunities.

Notes

1. The importance of cross-industrial and cross-regional spill-over effects has gained increasing momentum in industrial organisation and economic development literatures (Gao, Pentland and Hidalgo, 2021^[67]).
2. The Latin American pharmaceutical market has experienced consistent growth during the last five years, accounting for about 4% of global pharmaceutical market revenue in 2019.
3. This regulation was adopted by the resolution AFIP 3823/2015.
4. Currently, Colombia is the only Andean country that maintains an automotive sector of some relevance.

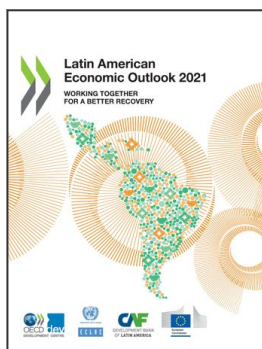
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