

## ESTUDIOS

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### Progressive structural change in the Central American integration process<sup>1</sup>

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**Abstract:** The intellectual history of ECLAC has been one of “continuity with changes”. These changes allowed adjusting policy proposals and action plans to the ever–changing international environment.

ECLAC has proposed to the Central American region mainly three development models in the last 70 years: the first one, to overcome the agro–export phase based on primary products (“outward development”) ECLAC proposed a process of industrialization and urbanization (“inward development” or “industrialization by import substitution”; the second one, was the integration with the global economy along with strengthening regional integration (“open regionalism”); and the third, more recently, a productive transformation with emphasis in equality (“progressive structural change”).

The objective of this paper is to identify a set of economic policies that could operationalize recent ECLAC’s development proposal called “progressive structural change”. The progressive structural change groups strong ideas based on the need to renew productive policy, promote sustainable development and place equality at the center of public policy actions.

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## Changement structurel progressif dans le processus d'intégration en Amérique Central<sup>1</sup>

**Résumé:** L'histoire intellectuelle de la CEPALC a été marquée par la continuité et les changements. Ces changements ont permis d'adapter les propositions politiques et les plans d'action à l'environnement international en constante évolution.

Au cours des 70 dernières années, la CEPALC a principalement proposé à la région nord-américaine trois modèles de développement: le premier, pour surmonter la phase d'agro-exportation basée sur les produits primaires («développement à l'extérieur»), un processus d'industrialisation et d'urbanisation («développement à l'intérieur» ou «industrialisation par substitution des importations»); le deuxième, l'intégration à l'économie mondiale et le renforcement de l'intégration régionale («régionalisme ouvert»); et le troisième, plus récent, une transformation productive mettant l'accent sur l'égalité («changement structurel progressif»).

L'objectif de ce document est d'identifier un ensemble de politiques économiques qui pourraient rendre opérationnelle la récente proposition de développement de la CEPALC appelée «changement structurel progressif».

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## Cambio estructural progresivo en el proceso de integración de América Central<sup>1</sup>

**Resumen:** La historia intelectual de la CEPAL ha sido de "continuidad con cambios". Estos cambios permitieron adaptar las propuestas de políticas y los planes de acción a un entorno internacional en constante cambio.

En los últimos 70 años, la CEPAL ha propuesto principalmente a la región centroamericana tres modelos de desarrollo: en el primero, para superar la fase de agro-exportación basada en productos primarios ("desarrollo hacia el exterior"), la CEPAL propuso un proceso de industrialización y urbanización ("desarrollo hacia el interior" o "industrialización por sustitución de importaciones"); el segundo modelo fue la integración con la economía mundial junto con el fortalecimiento de la integración regional ("regionalismo abierto"); y el tercero, más reciente, una transformación productiva con énfasis en la igualdad ("cambio estructural progresivo").

El objetivo de este trabajo es identificar una serie de políticas económicas que podrían poner en práctica la reciente propuesta de desarrollo de la CEPAL denominada "cambio estructural progresivo". El cambio estructural progresivo agrupa ideas muy firmes basadas en la necesidad de renovar políticas productivas, promocionar el desarrollo sostenible y

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Le changement structurel progressif regroupe des idées fortes basées sur la nécessité de renouveler la politique productive, de promouvoir le développement durable et de placer l'égalité au centre des actions de politique publique.

**Mots clé:** CEPALC, changement structurel, intégration économique, Amérique Central.

situar la igualdad en el centro de las acciones de política pública.

**Palabras clave:** CEPAL, cambio estructural, integración económica, América Central.

**Key words:** ECLAC; structural change; economic integration; Central America.

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## 1. Introduction

The intellectual history of ECLAC has been of “continuity with changes” (Bárcena et al., 2018). These changes have allowed adjusting policy proposals to the international environment and to the requirements of the times. The intellectual proposals of ECLAC have resulted in public policies and technical cooperation in diverse areas with high incidence in development, making efforts to respond to the increasing technical complexity that the environment and the evolution of the countries require.

ECLAC's historical-structural analyzes focus on the medium and long-term transformations of productive and social structures and emphasizes the need to move from peripheral structures and patterns, to others where the productive and labour component are of greater value and productivity. Based on this method, ECLAC has proposed three development models: the first one, to overcome the agro-export phase based on primary products (“outward development”) ECLAC proposed a process of industrialization and urbanization (“inward development” or “industrialization by import substitution”; the second one, was the integration with the global economy along with strengthening regional integration (“open regionalism”); and the third, more recently, a productive transformation with emphasis in equality (“progressive structural change”).

To operationalize the industrialization proposal by import substitution, a well-known set of policies was implemented – i.e. creation of a common market to expand domestic demand, increased tariffs to protect infant industries, preferential lines of credit for certain industries, payment and compensation mechanisms to finance intra-Central American trade, etc. The proposal of open regionalism also implemented a series of policies and measures for its operation: all Central American countries entered the GATT, all of them made unilateral reductions of tariffs, signed various free trade and investment agreements, liberalized capital movements, created units for promoting and defending competition, created specialized entities for the promotion of investment and exports, among others.

The objective of this paper is to identify a set of economic policies that could operationalize the recent ECLAC development proposal called “progressive structural change”. This new proposal presents a set of strong ideas that are based on the need to renew productive policy, promote sustainable development and place equality at the center of public policy actions. This paper acknowledges the need of a high-level political dialogue in the region to forge a common vision of development that links the objectives and agenda of regional public policy with national objectives in each country. This paper leaves to future work the analysis and proposals on how to strengthen the capacities of design, articulation and implementation of policies by regional institutions.

The methodology of this work is based on a bibliographic analysis on the design of public policies that lead to a progressive structural change. Structured interviews were conducted to experts in regional integration, regional policy design and in the process and institutions of Central American integration.

This document is divided into this introduction, two sections and the conclusions. In the first section, ECLAC’s proposal to make a progressive structural change and its key ideas is analyzed: renewed industrial policy, regional value chains, innovation and value added, the big environmental push and equality. In the second section, concrete policies that can be designed for the implementation of progressive structural change are analyzed. This document focuses on regional policies, that is, policies that have the greatest impact when they are regionally undertaken. The document concludes by showing the main findings of this paper and the recommendations for the Central American countries on the use that can be given to the information in this study.

## 2. ECLAC's proposal for a progressive structural change

Central America took advantage of favorable trends in the external context that motivated the adoption of open regionalism as a development model between 1990 and 2007, the year before the global economic crisis. These trends were expressed in a greater international demand, a high level of liquidity in the financial markets, and an increasing productive relocation from the hand of foreign direct investments (FDI), especially in manufacturing. Between 2000 and 2007, the average growth of Central American exports was 9.8% and that of FDI flows to the region was 15%. This situation positively impacted the average annual growth of the product per Central American inhabitant, which reached 2.2% in that period.

The growth of the Central American economies, both in the period of import substitution (from the 50's to the 80's) and during the period of open regionalism (starting with the accession of all Central American countries to the GATT in the 90's), had a profound impact on their productive structure, especially in their export basket and jobs. However, they still drag problems characteristically of peripheral economies. A productive specialization based on goods and services with low value added, little integration with local production, as well as a persistent weak creation and diffusion of new technologies. Highly heterogeneous productivity levels are also maintained; a high level of penetration of transnational companies with little propensity to invest in research, development and innovation, and high concentration of exports by destinations and products, which increases vulnerability to external shocks (Sánchez and Martínez Piva, 2014; Bielschowsky, 2010).

The persistence of the characteristics of the dependence and the condition of the periphery in Central America shows that the change in the structure of the region has been incomplete and requires adjustments. Resources must be reallocated to knowledge-intensive and technologically innovative sectors. It is also necessary to diversify production towards sectors and activities that have a rapid growth in demand, internal and external, that can be met with domestic supply, and that exports and imports grow in a balanced way, without creating unsustainable pressures on the balance of payments (CEPAL, 2012a).

Structural change is a gradual process towards greater productivity in existing sectors, as well as an increase in the relative weight of new and more knowledge-intensive sectors. This change is associated with long-term adjustments in the composition of economic systems, which implies significant changes in the weight of different sectors in terms of employment, production and trade. In addition, it is associated

with the successful insertion in highly growing markets, which leads to increased aggregate demand, economic activity and job creation (ECLAC, 2012a).

This change in the productive structure does not arise spontaneously from market forces or from the existing political economy. There is an inertia of the productive structure that tends to maintain its specialization in the current sectors given the strong inertia in the productive capacities and in the agreements between economic actors. These inertia are traps of low innovation and low productivity, which can only be overcome through various public policies.

Based on the proposal of a productive transformation with equity (CEPAL, 1996), ECLAC has promoted various ideas to transform productive structures and improve equity in Latin American countries. Social policies and the search for equality support a set of policies that allow complementarities between innovation, employment, income distribution and economic growth. However, the development paradigm in the 21st century also requires incorporating the environmental dimension as a key stone of development. The change in the development paradigm, which incorporates the dimensions of equality and environmental sustainability, has as a counterpart a technological, productive and institutional leap leading to a new development style. ECLAC has called this leap the *big environmental push*. It is a coordinated effort of complementary investments capable of redefining the growth trajectory, production and consumption patterns, and capacity building, in a political–institutional context in which rights are respected and democracy is strengthened.

Based on these concepts, a set of ideas has been promoted to undertake progressive structural change. These ideas are summarized in a proposal for a development model that should boost the industrial policy of the 21st century, the development of regional value chains, increased innovation and added value. It should also promote sustainable development and place equality at the center of public policy actions.

### 2.1. 21st century's industrial policy

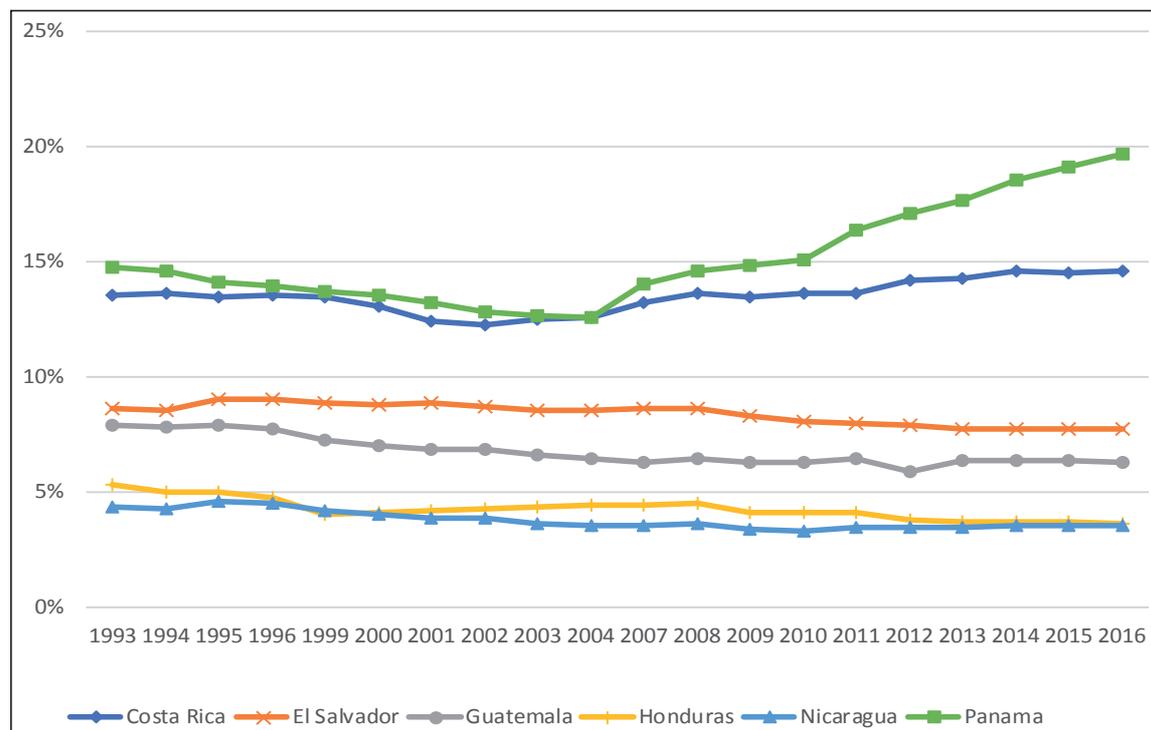
An analysis of the Central American economic performance in the two decades prior to the 2008 crisis shows that, despite the export success, the productivity growth was weak (see Graph 1) as were the evolution of capacities to innovate and create value. The domestic value added induced by exports is very low in countries such as Honduras, where it only reaches 53.7% (Minzer and Orozco, 2019), levels well below that of Panama (86.2%). In Central America, an export model based on low-cost labour persists attracting investments in search of pro-

ductive efficiency –saving costs– and guarantees of access to third markets thanks to the network of trade agreements.

Industrial policy is a central element in the ECLAC proposal for structural change and emphasizes the need to articulate development through the implementation of a set of new public policies to increase productivity, innovation and equality (CEPAL, 2012a).

The productive transformations that the world has experienced in the last decades, characterized by trade and capital liberalization and high production relocation have affected the conception of industrial policy. This imposes the need to think of an industrial policy for open markets in which knowledge and technology largely determine the ability to compete and capture value in global production chains and in the creation of new sectors with more productive jobs (CEPAL, 2012a).

**GRAPH I. Central America: labour productivity in relation to labour productivity in the United States, 1993–2016 (United States = 100)**



Source: Own elaboration based on official data.

Industrial policy is understood as the intervention of the State to organize and modify the structure and production systems of its economy. Although the concept was originally oriented to the creation of new industries in the secondary sector, it currently extends to other sectors such as primary and tertiary, with emphasis on value creation and sustainability. The objective of a denser productive system and increasing productivity remains fundamental (CEPAL, 2012a; Padilla Pérez and Alvarado, 2014).

The challenge of the Central American integration process is to convert the regional market into a mechanism that boosts domestic demand and contributes to changing its pattern of specialization and its productive structure. In this sense, regional production and regional intra-industrial trade can be useful for articulating internal and external demands, as well as the ability to meet them through local production. “A dense productive structure, with capacity for innovation and technologically sophisticated, makes it more feasible for local production to respond dynamically to the expansion of internal and external demands, and strengthens specialization from a more diversified export base” (ECLAC, 2012b, p. 46).

## *2.2. Strengthening or creating regional value chains*

Productive relocation has allowed different parts of a product or service to be carried out in various parts of the world in search of efficiency. Central America was early inserted in this form of production through textile and apparel manufacturing linked to the United States market. The region opted for an export base specialized in knowledge-less activities. Countries that have achieved an export basket with greater participation of goods or services with high added value (for example, medical devices, electronic equipment, health services) have failed to articulate them with local production.

Offshoring and segmented production, as it is done in the maquila model, is an essential part of global value chains. In each production segment, value is added to the product and, depending on its degree of sophistication, so will be value added and the corresponding job remunerations. The capacities of the countries, the size of their internal markets, trade regulations including accumulation of origin, among other elements, condition the segment in which an economy is inserted in these global production chains.

Maquila and other delocalized production processes have as a target market the extra-regional market, so they have not deepened regional integration or increased intra-Central American trade. In the opposite hand, the Central American integra-

tion process has facilitated the creation of regional value chains in various sectors and the densification of the regional productive framework, which has resulted in the creation of Central American production networks that offer opportunities for increasing the creation of value at the regional level. Most regional value chains are concentrated in processed foods, dairy products, beverages, and in some chemical industries such as soap and oil products (de Groot, 2018). However, in the services sector there are also some regional value chains such as transportation, printing and editing industries, retail, among others.

### *2.3. Innovation and value added*

Beyond the factor endowments and sectoral specificities, it is recognized that specialization, product differentiation and value are fundamentally determined by the innovation and quality incorporated into a product or service. The value chain analysis shows that it is necessary to move from low value segments to those of greater value, which is achieved through the enhancement of the human resource and the technological content of products.

A first indicator to measure innovation-oriented efforts at an aggregate level is the expenditure on research and development (R&D), both in absolute values and in percentages of the product. Global investment in research and development has grown steadily, more than 40% between 1990 and 2003, however the Central American region continues to maintain levels of R&D spending much lower than those of countries such as the United States or the Republic of Korea ( 3.1% and 3.4%, respectively). Given the low levels of investment in R&D, the number of scientists and the volume of patents generated in Central American countries are also very low.

Central America must make efforts to increase the value added of its production and climb the value chains' scale, for which it needs to improve its innovation capacities. ECLAC has proposed public policies to influence on some factors in order to enhance innovation: raise spending on research and development activities, improve cooperation between public and private agents that carry out R&D and promote regional cooperation for innovation.

Since innovation is expensive and results are uncertain, access to adequate funding is of great importance. For small countries it is important to coordinate investments in R&D, use the resources of cooperation and development banking to finance regional consortiums and focus on areas of regional interest where there are consolidated national policies.

It is also necessary to improve cooperation between public and private agents. Innovation is the result of the interaction between agents that create, apply, adapt and improve technologies, so that the level of innovation in each country will depend largely on the cooperation between these agents. There is a very broad field for the application of policies aimed at strengthening public–private partnerships in order to promote innovation, bearing in mind that in this context public and private research capacities are complementary and the State has a fundamental role as designer of research missions. Innovation must respond to social challenges and states must be bold and guide the process towards new techno–economic paradigms, which do not arise from spontaneous market forces (Mazzucato, 2019a; Mazzucato, 2017).

In small developing countries such as Central American ones, research and development capabilities tend to be concentrated in a few institutions, mostly public, and a handful of private companies. Coordinated work between the public and private sectors allows to increase their individual potential to support mechanisms that identify opportunities and restrictions and overcome them.

Regional cooperation can be an optimal mechanism for innovation, especially in some specific sectors. Although the integration of policies at the regional level is not always the most efficient economic solution, in cases where there are potential economies of scale or externalities thanks to integration, and if policies can be efficiently coordinated to create regional benefits, then it is convenient to formulate a regional policy. Regional integration is a mechanism that reduces the fragmentation of initiatives and leverages existing resources. Greater integration would allow economies of scale and complementarities in sectors with a solid knowledge base, institutions and organizations. The initiatives must start from existing capacities, with consolidated national systems and common regional interests, as it is the case of the agro–productive sector. This sector has greater strength and concentrates a significant part of the technological capacity of Central American countries, so that joint or coordinated actions could have a greater impact than individual ones (Padilla Pérez, 2012).

Though most of innovations in Central America, due to its current state of development may be concentrated in the gradual process or quality improvements, there might be areas of specialization where a common action can lead to product and even radical innovations such as in the coffee, sugar or cacao industries, among other, where the region has a vast knowledge accumulation.

#### *2.4. Sustainable development: the big environmental push*

One of humanity's greatest challenges is climate change and to face it requires a collective response and profound changes in current development model. The incentives to current development model are such that pollution is the dominant strategy. ECLAC agrees with Nicholas Stern (Stern, 2006; CEPAL, 2016) in referring to pollution and climate change as the greatest market failure of all time. International agreements aimed at changing the development pattern have become urgent and regional actions to make changes in their development path are of great importance.

The need to change the energy production matrix and the production pattern is an opportunity to implement a new industrial policy based on environmental Keynesianism (CEPAL, 2016; Altenburg and Rodrik, 2017) where the objectives of full employment and environmental sustainability are harmonized in a set of investments that contributes to a low carbon growth path. This, in addition, is aligned with existing efforts in Central America to change its energy production matrix, with the ECLAC proposal to coordinate environmentally sustainable policies and with a modern industrial policy.

The industrial policy necessary for the development of the Central American region can contribute to the emergence of new productive sectors benefiting from a big environmental push that stimulates innovation and structural change favorable to the decoupling of a carbon-based economy. A regional industrial policy could coordinate regional economies and investments, through credit mechanisms and public investments towards low carbon sectors, reinforcing a big environmental impulse.

The Central American region can move forward, based on its national and regional institutions, on the coordination of fiscal policies, the articulation of environmental policies, the coordination of incentives towards low carbon FDI and the design of regional environmental standards for production processes and environmental regulations for consumption products, which would lead to a new production matrix aligned with new global trends.

#### *2.5. Equality at the center of the development proposal*

ECLAC points out that the development strategy must aim at equality and the way to achieve it is through a productive transformation (Bárcena, et al, 2018). In line with the objectives of Central American integration, aimed at building a region of peace, freedom, democracy and development, ECLAC has indicated that the

deepening of democracy calls for greater equality of opportunities and rights. This means extending participation and public deliberation to broad sectors of society that have been marginalized, but also advancing to the effective ownership of economic, social and cultural rights. Equality means that citizenship prescribes the full right of each person, by the mere fact of being part of society and regardless of their individual achievements, to access certain social welfare thresholds (Bárcena, et al, 2018).

Equality as a goal serves as a guide to the social pacts to which the Central American region aspires. It is about concluding regional agreements on fiscal matters that contemplate a structure and a tax burden with greater redistributive effect, capable of strengthening the role of the State and public policy in order to guarantee welfare thresholds. Regional environmental agreements that consider the development of future generations and linked to equal opportunities at the beginning and in the trajectories of educational and employment cycles, as well as in access to material well-being (CEPAL, 2010).

Moreover, equality has positive effects on effective demand and on the supply side of the economy. "Equality can improve the efficiency of an economic system, defined in dynamic terms as the pace at which innovations can be made, those generated in other parts of the world can be absorbed, technology gaps can be reduced, innovations can permeate the production fabric and, as a result, productivity can be increased and new areas for investment can be established" (CEPAL, 2018b). Virtuous structural change requires the development and strengthening of economic, social and public institutions that facilitate access to production factors, better social protection and a wide distribution of the fruits of technical progress, which increases productivity. The region can progressively advance in the creation of instruments and in the application of economic policies that establish a regional aggregate demand floor, which would also constitute a counter cyclical mechanism. On the other hand, universal access to education and health would have a positive impact on regional productivity.

### **3. Policies to implement progressive structural change**

The progressive structural change requires a set of public policies to articulate the development effort and these are mainly of productive nature, that is, they seek to influence the apparatus and productive structure of the region. However, it must always be taken into account that policies and actions to promote equality cross

transversally all productive policies and therefore must be considered in the proposals for productive development.

Through a set of policies, efforts would be made to align productive development – industrial policy of the 21st century – with the development of regional value chains, increased innovation and value added, while promoting sustainable development and equality.

Specific policies to promote progressive structural change from a context of economic integration of small countries such as Central American ones, can focus on the search for economic efficiencies that affect areas that have been identified as key to progressive structural change. A set of regional economic policies for progressive structural change based on their impact on two economic efficiencies is proposed below.

### *3.1. Dynamic efficiencies for structural change*

A Progressive structural change requires two types of dynamic efficiencies that drive faster productivity, production and employment growth trajectories. The first, the “Schumpeterian efficiency,” seeks the growing presence of knowledge-intensive sectors, with high dissemination of capacities towards the economy as a whole and leading the innovation process and driving productivity growth. The second is the “Keynesian efficiency”, which focuses on the dynamism of the demand for the goods produced, so that they focus on those with a rapidly growing demand that encourages companies to increase investment and production (CEPAL, 2012b).

Central America requires higher levels of dynamic efficiency, both Schumpeterian and Keynesian, to strengthen dynamic sectors from a technological and a demand point of view. This structural change is costly and for small and open economies it is a double challenge, since they are more exposed to international trade, with greater competition and trade rules that limit policies that can be useful as productive policies.

In the last decade of the twentieth century the Central American region deepened its integration with the international market and multiple trade agreements were signed, in addition of becoming part of the World Trade Organization (WTO). This commercial openness comes from the decision to rely on trade as an engine for economic growth, so it was necessary to strengthen the competitiveness of countries. For Central American countries to be competitive, they must increase their total exports, and their relative market share in products whose demand is growing,

which means they must comply with Keynesian efficiency. In order to comply with this efficiency, it is also necessary for countries to comply with Schumpeterian efficiency, given that the capacity to increase market share will depend largely on productivity increases and process or product innovation.

### *3.2. Policies to implement progressive structural change*

For structural change to achieve dynamic efficiencies (Schumpeterian and Keynesian) it is essential to act in the five areas indicated in the previous section: an industrial policy of the 21st century, the strengthening or creation of regional value chains, the increase of innovation and value added, sustainable development and environmental protection, and putting equality at the center of public policy actions. Some public policies affect several of these areas, so their grouping is done only for the purpose of presenting them in an orderly manner.

#### *3.2.1. 21st century's industrial policy design*

Structural change seeks to go beyond existing factor endowments and sector specificities, and seeks to create a specialization, differentiation of products with greater value. This is achieved through a modern active productive policy, that is, with an industrial policy according to the conditions of the present century.

The United Nations Conference on Trade and Development (UNCTAD) noted in 2018 (UNCTAD, 2018) that between 2013 and 2018, 84 countries that account for 90% of world GDP designed new industrial policies. Its nature is considerably more complex than traditional industrial policies designed in the 20th century.

Industrial policy consists of a process in which the State applies several instruments to promote the development of specific activities or economic agents, based on national development priorities (CEPAL, 2012a; Padilla Pérez and Alvarado, 2014). Although the concept was originally oriented to the creation of new industries in the secondary sector, it currently extends to other sectors such as the primary and tertiary sectors. In addition, it must currently include modern services, innovation and information technologies, to take advantage of the fourth industrial revolution – the growing weight of electronics, automation, data management and the uncertainty of a period of change.

A Central American regional industrial policy could consist of policies with a high impact on the productive structure. Five regional policies of great relevance are indicated below:

- a) Macroeconomic coordination, on tax incentives and tax waivers to promote investment, avoiding a race to the bottom for incentives.
- b) Policies to promote modern services.
- c) The promotion of regional value chains, which will be discussed in the next section.
- d) The increase in value added of production, which goes hand in hand with innovation policies – which will be seen later.
- e) Policies to promote new de-carbonized productive sectors.

### 3.2.2. Policies to strengthen or create regional value chains

The value chain refers to the sequence of activities necessary to bring a product or service from conception to use or consumption. In each of the stages, value is added to the product or service. Many value chains are national in scope, however globalization is characterized by the productive relocation of various segments of production in various countries in search of cost efficiencies. This has led to more than 50% of world trade being intermediate goods, and most of it consist in a growing intra-industrial trade. Something similar happens in intra-Central American trade.

In integrated regions, value chains are often production processes in which several countries with productive affinity, territorial proximity and commercial complementarity participate, with the aim of articulating and making their production more efficient. Given the productive affinity and similar levels of development, regional value chains, rather than exploiting cost differences, deepen the productive specialization of a region. This can be seen in the intensity of factors (capital, technological knowledge and work) used in each productive segment. In this sense, the strengthening or creation of regional value chains is part of a regional industrial policy that seeks to increase density of regional productive system – more segments of the total chain would be in Central American territory –, it seeks to increase the value of the intermediate and final products of regional production, it aims to increase participation of small and medium-sized enterprises –tackling so equality policies– and prioritize products and services that contribute to a sustainable economy.

Policy actions to strengthen regional value chains involve the design and coordination of various policies. Seven regional policies of great relevance for regional chains are the following:

- a) Policies to promote regional productive clusters.
- b) Public–private collaboration policies.
- c) Innovation policies and appropriate technological supply.
- d) Policies for the efficiency of intra–regional trade: trade facilitation.
- e) Policy to reduce non–tariff barriers to trade: sanitary, phytosanitary and technical standards policies.
- f) Logistics policies and regional mobility.
- g) Policies to promote sustainable regional value chains linking them to the environmental push.

Trade facilitation policy is a key stone for the efficiency of trade and regional productive chains. It includes a set of actions, both logistics and infrastructure, as well as legal and administrative that affect intra–regional trade. Logistics policies and regional mobility improve efficiency and connectivity by reducing transportation costs. Regional policies allow services and costs lower than what each country could offer individually. In addition, logistics and mobility are strategic both for planning and infrastructure management, and for the design of businesses with regional criteria with a scale that makes them more efficient and attractive.

Finally, sanitary, phytosanitary and technical standards policies must be an ally of regional value chains, for which it is necessary to harmonize and recognize national or regional certification processes. While trade between Central American countries is 99% liberalized, there are still many non–tariff barriers. Negotiations on regional standards continue under the auspices of the Central American Economic Integration Secretariat (SIECA), but only 4 chapters of the 15 have been approved and the Central American states have not yet agreed to recognize the work of the health authorities of their neighbors (de Groot, 2018).

### 3.2.3. Policies for innovation and the increase of the value added

Today there is wide recognition of the importance of science, technology and innovation (STI) to achieve higher economic growth rates and improve the productivity of economies. National development plans integrate, with varying depth, the STI as a transversal element or as a strategic axis and seeks to promote the creation and dissemination of scientific and technological knowledge, a greater innovative activity in the business sector and the interaction between components of innovation

systems, among other objectives. However, efforts and results are insufficient, and research and development spending as a percentage of GDP is very low (see table 1), virtually unchanged in the last 15 years.

**TABLE 1. Central America and selected countries: technological capacity indicators<sup>a</sup>**

Country/ indicator	Costa Rica	Panama	El Salvador	Guatemala	Honduras	Nicaragua	Brazil	Chile	Mexico	United States	Sweden	Rep of Korea
Graduates in science and technology per 1,000 inhabitants	10,5	3,3	2,2	1,1	2,0	0,95	4,5	4,6	3,4	5 208,4	n/a	n/a
Researchers in science and technology per million inhabitants	546,1	38,9	61,5	21,4	23,8	n/d	906,7	453,9	252,7	4 027,45	7 022	7 087
Expenditure on research and development (R&D) activities as a percentage of GDP	0,58	0,06	0,13	0,03	0,02	0,05	1,28	0,38	0,53	2,73	3,26	4,23
Patent Application by residents per million inhabitants	6,1	6,6	2,8	0,46	3,02	0,16	35,9	24,6	11,3	910,8	201,2	3 173,3

**Source:** Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from “Red de Indicadores de Ciencia y Tecnología Iberoamericana e Interamericana” (RICYT). Note: n/a = not available.

<sup>a</sup> Data corresponds to 2015 or the last available year.

A renewed innovation policy must overcome poor funding and achieve a long-term State strategy. In addition, like any innovation policy, participating agents, their mandates, priorities and visions must be articulated; the quality of the human resource must be improved, as well as the institutional capacities for the promotion of innovation; and work must be done on the link between the academic sector and the productive sector, among other elements. The role of the State as director of innovation is fundamental since it is behind the push for the creation of new technologies by funding research, creating the network of public and private actors and giving the necessary tax incentives. It is not about whether governments should have active innovation policies but understanding how certain paths can be chosen and determining how to mobilize and manage innovation activities that can lead to solving social and technological challenges (Mazzucato, 2019a; Mazzucato, 2017).

Central America can design an innovation policy considering the priorities and characteristics of its productive structures and national and regional socio-environmental needs. This means focusing its policy on fields such as agriculture, decarbonization of economies, disaster risk management, among others in which the region is interested. In this sense, innovation contributes to sectors in which there are capacities and therefore no radical or disruptive changes are expected, but a continuum of gradual changes that affect the productivity, quality and value of production. In addition, the region can open new areas of work according to regional priorities such as intra-regional electronic commerce or new sustainable sources of energy.

A regional innovation policy must overcome the national vision with which it has been developed in a way that seeks the potential for existing economies of scale and synergies. In the field of science, technology and innovation there are economies of scale and externalities that justify the formulation of regional policies or initiatives, given the need to design and implement strategies that demand large investments, or that are built on common knowledge and has a regional interest. On this issue, the experience of the European Union is an excellent source of good practices (Mazzucato, 2019b; Chaminade and Plechero, 2016; Chaminade and Plechero, 2015; European Commission, 2014).

Integration can be more efficient for large R&D projects and other STI activities that require significant investments (technical economies of scale). Regional coordination of public research can also improve the dissemination of knowledge, creating a greater regional knowledge base with more specialized researchers and less duplication of projects.

A regional innovation policy must be built on the common interests of countries and potential synergies. It is suggested that this policy focus on supporting sector work associated with strategic priorities of the region –i.e. agrop productive, health, environment–, whose projects are an opportunity to improve the formation of research teams linked to the productive sector and in which research entities from various countries in the region participate. In addition, it must support R&D projects that articulate the actions of large companies, SMEs, universities and research centers that stimulate the insertion of researchers into companies to undertake R&D tasks.

While it is easy to glimpse a regional agenda in agrop productive, health or environmental matters, it is important not to neglect other emerging sectors in which there is significant regional potential. This is the case of the development of a regional digital agenda, which would prevent the region from falling further behind the world

of global digital platforms, the growth of digital flows, the technologies associated with the Internet and their links to productivity and competitiveness.

A regional ecosystem for digital commerce and innovation could enhance growth and competitiveness through the development of new ventures and business models. The coordinated and harmonized elimination of barriers to cross-border electronic commerce could generate economic and social benefits, which would increase confidence in investment, promote innovation and economic diversification, increase confidence in the use of digital means of commerce, strengthen supply and demand of value-added services and productivity.

There is also the opportunity to strengthen regional cooperation on the development of digital services and applications in health and education. The innovation policy can also improve articulation and cooperation to promote government innovation, deepening the development of digital services towards citizens.

Therefore, regional actions of innovation policy and increase of the value added of production can be concentrated in the following 7 areas:

- a) Prioritization policy of research activities according to the productive structures and regional socio-environmental needs.
- b) Policies for interaction between large companies, SMEs and research centers.
- c) Funding policies for research programs of regional interest.
- d) Policies for the development of a regional digital market.
- e) Policies for the promotion of cross-border electronic commerce.
- f) Cooperation policies for the development of digital services and applications in health and education.
- g) Policies to strengthen innovation capacities and promote technological services for SMEs.

Finally, it is important to underline that a regional innovation policy can have a strong inclusive character if it is designed with criteria to promote equality. It is about strengthening innovation capacities and promoting the offer of technological services that allow SMEs to take advantage of the capacities of research centers.

### 3.2.4. Design of policies to promote a big environmental push

Climate, geography and biodiversity do not have borders and therefore regional policies are often more effective in addressing them. Central America must prepare to face climate change and align its industrial policies, productive chains and innovation, with sustainable development.

The Central American region is biologically very diverse and that offers possibilities for creating environmental services and research on products derived from nature. However, this requires investments and coordinated policies.

Policies for progressive structural change can contribute to the emergence of new productive sectors if a big environmental push that stimulates innovation and structural change favorable to the decoupling of a carbon-based economy is in place. Science and technology policies can lead to decoupling between growth, employment and emissions. A joint industrial policy could coordinate regional economies and investments, through credit and public investment mechanisms aligned with a big environmental push. Sustainable industrial policies are not only essential for life on earth, but also serve as a long-term investment program (Altenburg and Rodrik, 2017). A new industrial policy based on environmental Keynesianism (Altenburg and Rodrik, 2017; ECLAC, 2016) could complement employment and environmental sustainability objectives with low carbon investments and growth. This, in addition, is aligned with the efforts made by Central America to change its energy production matrix and to look for productive niches in which to develop and be competitive.

The concept of big environmental push is built upon the Rosenstein-Rodan proposal of the big push for development that coordinates public and private investments in new sectors that will move and lead the economy in the future. The Central American region can move forward, in the coordination of expansive fiscal policies, the articulation of environmental policies, the coordination of incentives towards low carbon foreign direct investments and the design of environmental standards for production processes and environmental standards for consumer products which would transform its productive matrix and boost new sectors in accordance with new global trends.

The big environmental push opens the possibility to coordinate policies against climate change. The Central American integration system provides a framework with actions to combat and adapt to climate change, as the various public bodies adopt and promote projects with local, national and regional vision.

Therefore, regional actions for the big environmental push can concentrate on the following 6 areas:

- a) Sustainable and decarbonized energy policies.
- b) Credit and public investment policies towards low carbon sectors.
- c) Coordination policies of large national and regional public investments in sustainable sectors.
- d) Policies for articulating environmental policies, coordinating incentives towards low carbon foreign direct investments and designing regional environmental standards.
- e) Coordinated policies for adaptation to climate change.
- f) Policies to coordinate regional actions before negotiations in various global and regional forums.

### 3.2.5. Design of policies for equality

Central America is a region with deep inequalities that are expressed in the income of its inhabitants, but also in terms of rights and citizenship, in access to public and private services, and exposure to disaster risks.

Although the policies related to the search for equality are transversal and touch on all areas of this paper, there are some policies that from the regional level would facilitate the creation of a more egalitarian society and will strengthen other national policies that are focused on the same direction.

From the regional level it is possible to design programs to facilitate access to the regional market to SMEs, as well as competition regulation and cooperation policies that inhibit anticompetitive practices of the largest economic actors. It is also possible to reach regional agreements on investment incentives, not only to avoid a race to the bottom for tax incentives, but incentives can also be designed to strengthen investment in less developed regions.

It is also feasible to design policies to enhance regional supply chains between small and large companies. Finally, it is possible to agree on standards for the construction of public infrastructure, especially that which is directly linked to the most vulnerable groups, so that it considers the resilience and service it will provide to the population in times of crisis. Therefore, regional actions for the big environmental push can concentrate on the following 6 areas:

1. Policies that facilitate access to the regional market for SMEs.
2. Regional competition policies that inhibit anticompetitive practices of large economic actors.
3. Policies on investment incentives linked less developed regions.
4. Policies to promote more productive linkages between small and large companies.
5. Regional trade policies that favor small businesses, fair trade, companies led by people at risk of exclusion and minority groups.
6. Policies on public infrastructure and inclusive and resilient settlements.

Table 2 summarizes the regional policies proposed to implement the progressive structure change in small and integrated economies. It should be considered that the boundaries between the different groups of policies are often diffuse, and in fact, each group reinforce each other, so some policies could be useful for several policy groups.

**TABLE 2. Policies to implement progressive structural change**

Regional policies	Structural change policy grouping
<p>Macroeconomic coordination, especially in terms of tax incentives and tax waivers to promote investment and avoiding a race to the bottom on incentives.</p> <p>Policies to promote modern services.</p> <p>Strengthening regional value chains.</p> <p>Increasing value added of production, which goes hand in hand with innovation policies.</p> <p>Policies to promote new productive sectors, disconnected from the carbon economy.</p>	<p>21st century industrial policy</p>
<p>Policies to promote regional productive groups –productive clusters.</p> <p>Public–private collaboration policies</p> <p>Innovation and appropriate technology supply policies</p> <p>Policies for the efficiency of intra–regional trade: trade facilitation.</p> <p>Policies to reduce non–tariff barriers to trade: sanitary, phytosanitary and technical standards.</p> <p>Logistics and regional mobility policies to improve efficiency and connectivity.</p> <p>Policies for sustainable regional value chains, linking them to the big environmental push.</p>	<p>Policies to strengthen or create regional value chains</p>

<p>Prioritization policy for research activities according to regional productive structures and socio-environmental needs</p> <p>Policies to facilitate interaction between large companies, SMEs, universities and research centers</p> <p>Funding policies for research programs of regional interest.</p> <p>Policies for the development of a regional digital market.</p> <p>Policies for the promotion of cross-border electronic commerce.</p> <p>Cooperation policies for the development of digital services and applications in health and education.</p> <p>Policies to strengthen innovation capacities and promote technological services for SMEs.</p>	<p>Policies for innovation and the increase of value added</p>
<p>Sustainable and decarbonized energy policies</p> <p>Credit and public investment policies towards low carbon sectors</p> <p>Coordination policies of large national and regional public investments in sustainable sectors.</p> <p>Policies for articulating environmental policies, coordinating incentives towards low carbon FDI and designing regional environmental standards.</p> <p>Coordinated policies of adaptation to climate change.</p> <p>Policies to coordinate regional actions before negotiations in various global and regional forums.</p>	<p>Policies for the big environmental push</p>
<p>Policies to facilitate SME's access to regional market.</p> <p>Regional competition policies to inhibit anticompetitive practices of large economic actors.</p> <p>Policies on investment incentives linked less developed regions.</p> <p>Policies to promote more productive linkages between small and large companies.</p> <p>Regional trade policies that favor small businesses, fair trade, companies led by people at risk of exclusion and minority groups</p> <p>Public infrastructure policies and inclusive and resilient settlements.</p>	<p>Policies for equality</p>

Source: own elaboration.

### 3.3. Regional public policies

The design and execution of regional public policies have a higher level of complexity than national ones due to the variety of interests and visions, as well as the increase in instances for decision-making. However, the effectiveness of regional policies in some areas and sectors is greater than national policies and, in addi-

tion, for countries like Central Americans that already have a regional institutional framework that supports the design and execution of regional public policies, their feasibility finds a favorable ground for success.

Policies for progressive structural change such as those described in the previous section have a nature that makes them more relevant and feasible from a regional level. This is so for several reasons, and the first one is the need for scaling-up to achieve efficient investments and results, which is evident in the case of industry scales in certain sectors, the volume to achieve profitability in investments in the energy sector, or investments in research and development. The scale is a highly studied topic for industrial policy cases, and in this topic Central America faces the challenge of turning the regional market into a mechanism that boosts domestic demand and contributes to change its specialization pattern and productive structure. "A dense productive structure, with capacity for innovation and technologically sophisticated, makes it more feasible for local production to respond dynamically to the expansion of internal and external demands, and strengthens specialization from a more diversified export base" (CEPAL, 2012b, p. 46).

The second reason has to do with integration between neighboring economies. The integration process has facilitated the creation of regional value chains in various sectors, which has led to the creation of Central American production networks that offer opportunities for scaling-up and value creation. There is also a common political economy that is better served from the regional level, including regulations to specific industries, competition policy and public incentives. The nature of regional value chains is an important element for the design of an industrial policy that has integration as one of its pillars.

The third reason to consider is related to costs. Joint action through integration mechanisms can be more efficient for large R&D projects and other activities that require significant investments (technical economies of scale).

A fourth reason is that of the benefits of coordination in areas such as transportation and logistics, electrical interconnection or infrastructure for gas transportation, among others. In addition, regional coordination is more efficient if it is aligned with national policies with similar characteristics, which increases its efficiency and impact.

The fifth reason is the confluence of interests and problems, many of them due to geographical neighborhood and similar levels of development. This is the case of policies to address the effects of climate change –for example, common diseases,

changes in disease-transmitting vectors, effects on coffee or livestock agriculture-, inclusion policies for neighboring indigenous communities, policies for sustainable management of border basins, among other.

It is important to underline that various regional development agendas at a global level show interest in including social development and equality in their development proposals. All these instruments are inspired by the need to promote development processes that allow the full exercise of citizenship and ensure the equality of its citizens.

#### **4. Conclusions and recommendations**

Central America boasts the most fruitful and long-lasting integration project in Latin America. It began in 1951 with the help of intellectual proposals and technical support from the Economic Commission for Latin America and the Caribbean (ECLAC). Since then, ECLAC has worked with the Central American countries in the development of proposals for their development, which have always been intertwined with the regional integration approach.

Primary ECLAC proposals focused on the integration of regional economies with the purpose of creating an expanded market that allowed the implementation of an industrialization process by import substitution. This proposal sought to solve the periphery condition of the Latin American region and promoted industrialization as a necessary mean. Later, after the external debt crisis and the emergence of the Washington Consensus in the late eighties, ECLAC coined another proposal, always with a strong emphasis on integration: open regionalism. According to this proposal, the region should take advantage of the dynamism of external markets and the external savings that could enter the region through foreign direct investment flows. Central America took advantage of this new proposal, had high growth rates, increased its exports and the reception of foreign direct investment flows. However, after the global crisis of 2008 it was possible to analyze that changes experienced between the last decade of the twentieth century and the first of the twenty-first century were insufficient for the economic and social structure of Central America to shift towards a more dense, sophisticated and egalitarian one. For this reason, ECLAC proposes a new development proposal: progressive structural change. This paper analyzed this proposal and suggested a set of public policies for its implementation.

The proposed progressive structural change is a gradual process towards greater productivity of existing sectors, as well as an increase in the relative weight of new, more complex and knowledge-intensive sectors. It is a process in which innovation and increased productivity is vital. In addition, it is associated with the successful insertion into high-growth global markets, which leads to increased aggregate demand, economic activity and job creation. For these reasons the structural change is based on two fundamental dynamisms: the Keynesian and the Schumpeterian.

Social policies and the search for equality play a leading role in the proposal for progressive structural change. For this reason, the proposed policies seek complementarity between innovation, employment, income distribution and economic growth. Equality is an instrument to move towards a development model that at the same time strengthens democracy.

This paper identified a set of five policy groups to undertake the progressive structural change in which various public policies are grouped: 21st century industrial policy, development of regional value chains, increase of innovation and value added, sustainable development and environmental protection, and equality placed at the center of all public policy actions.

This paper proposes five groups of regional public policies indicated above and considers equality as a transversal policy that must be present in all groups.

An important finding that must be considered to move forward with public policy proposals is the need of high-level political dialogue. This is necessary to agree on a common vision of development that links the objectives and agenda of regional public policy with national objectives in each country. Countries must identify their interests in the integration process and see them reflected in the regional agenda, otherwise, the latter will be weakened.

The narrative of the economic and social development of the Central American countries that is made from the integration process, should place emphasis on the challenge areas in which the joint regional action is more beneficial than the individual work of each country. It is about acting, strengthening or creating regional public actions with which national interests can be strengthened, but with a positive effect enhanced by joint action.

Finally, it should be noted that this work has identified the need to deepen in future research on how to strengthen the capacities of design, articulation and implementation of policies by regional institutions. It has been indicated in this document that

the design and execution of regional public policies are more complex than the national ones because of the variety of interests and visions, as well as the increase of instances for decision-making. This underlines the importance of deepening the discussion on regional governance and the effectiveness of regional institutions for the design and execution of public policies. This will involve addressing the relevance of providing institutions with funding that allows them to do their work independently, permanently and technically sound, but in close alignment with national interests and policies.

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