



CABEI

Central American
Bank for
Economic
Integration

**DEVELOPING THE
POTENTIAL OF
VALUE CHAINS IN
CENTRAL AMERICA**
SUMMARY AND LINES
OF ACTION

DEVELOPING THE POTENTIAL OF VALUE CHAINS IN CENTRA AMERICA

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The study "**Developing the potential of value chains in Central America**" identifies and analyzes the value chains with the greatest potential to generate investment, greater added value and formal employment. In addition, it analyzes the main conditions that would lead to a greater linkage of the companies of each country to the Global Value Chains, that is, the conditions that each country should guarantee to facilitate this process, as well as the coordinated actions at the regional level for the integration of the chains.

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The content of this publication is the responsibility of its authors and does not reflect the official position of the Central American Bank for Economic Integration.

TABLE OF CONTENTS

1. INTRODUCTION	1
2. ASSESSMENT OF THE POTENTIAL OF THE CHAINS ACCORDING TO THEIR CONTRIBUTION TO THE DEVELOPMENT OF THE REGION	2
3. LINES OF ACTION TO STRENGTHEN VALUE CHAINS	2
3.1. Enabling Conditions at the Country Level	3
3.2. Articulating Axis at the Regional Level	4

1. INTRODUCTION

1. The Central American Bank for Economic Integration's (CABEI) mission to promote the balanced and equitable development of Central American societies, recognizes that the integration of these economies into global trade is an essential requirement to promote development.

The Central American region¹ has a broad work agenda to achieve significant increases in its productivity levels, capacity to generate formal employment, and to promote higher levels of innovation and research and development. These are important challenges that seriously limit the possibilities for economic growth and improving the living standards in the countries of the region. CABEI plays a key role in this area by supporting regional productive integration and transformation; given the importance of exports for the countries of the region, it is necessary to identify new ways to strengthen existing competitive advantages and advance in the sophistication of the exportable supply. In this context, the successful integration of the region's productive sectors into global value chains represents an important opportunity to promote sustainable and inclusive economic growth in the region.

2. This report analyzes the main conditions that would promote greater linkages between companies in each country and the Global Value Chains, i.e., the conditions that each country should guarantee to facilitate this process, as well as the actions that need to be coordinated at the regional level for the integration of the chains.

The specific cases analyzed correspond to products and/or productive sectors that have already been linked to important Global Value Chains but which, due to weaknesses in the enabling conditions at the national level and regional linkages, have not yet developed their full potential in terms of generating employment, attracting investment, innovating and regional linkages. Although this report does not focus on a prospective analysis, it recognizes that an outstanding challenge is the discovery of new products and/or productive sectors that could be successfully inserted in Global Value Chains that are not yet present in the region.

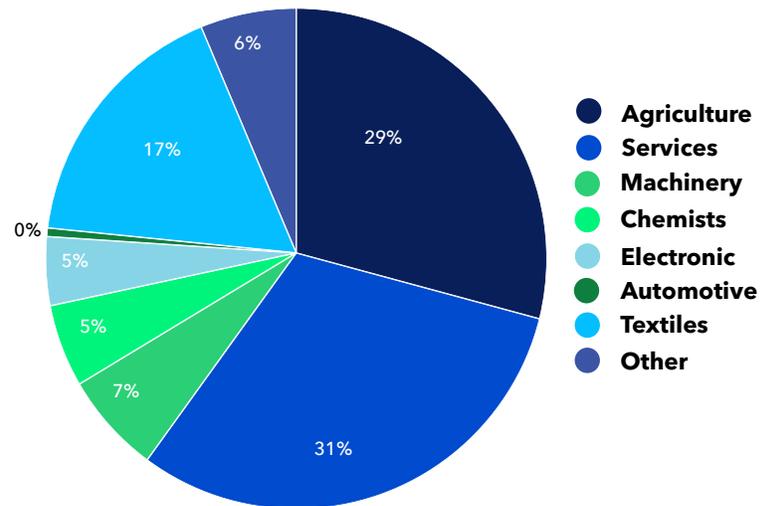
3. It is important to recognize that the economies of Central American countries are characterized by being small, open and price-takers.

The economies of the Central American countries are characterized by their small size in world trade and by their degree of openness to international trade, constituting classic cases of what the literature calls small dependent economies, price takers in international markets. At the regional level, the degree of total openness, measured by the proportion of total trade (imports plus exports) to GDP, is 69%; intraregional trade represents nearly 25% of the region's GDP. As for the region's consolidated exports in 2018 do not even reach 0.5% of the world trade volume.

4. The region's exports are concentrated in the U.S. market.

The importance of the U.S. market is another common element in the region, since on average exports to this country account account

Graph 1 Structure of Central American Exports 2018



Source: Own elaboration based on AEC information.

for about 40% of all regional exports, while an additional 23% are directed to the Central American region itself. At the aggregate level, as shown in the Graph, Central American exports continue to be predominantly of agricultural origin (29% of the total) and services (31% of the total); the sectors that contribute the remaining 40% are characterized by being of a manufacturing nature and/or belonging to Global Value Chains -GVCs-. (BCIE, 2020)

5. Central America's manufacturing exports are concentrated in goods of low or medium economic complexity.

The main category of low complexity goods in the region is apparel and textile exports, with Honduras and El Salvador accounting for nearly two thirds of total exports, and Guatemala and Nicaragua for the remaining third. In terms of medium or highly complex manufactured goods, Costa Rica stands out in the export of machinery and electrical products and appliances. Of the region's total exports, Costa Rica contributes 83% of machinery exports (mainly medical devices) and the rest of the countries contribute 17% (with a wide variety of other types of devices). Costa Rica also contributes 48% of exports of electrical products and appliances. Costa Rica also contributes 48% of the exports of electrical products and appliances.

6. Global value chains play an important development role in the region.

Trade liberalization in the region, coupled with the globalization of the world economy, led several leading companies to take advantage of the proximity to the U.S. market, existing tariff preferences and market quotas, and the relatively low cost of labor to relocate part of their operations to the region. Proof of this is the role currently played by apparel and textiles, medical devices, electrical products and appliances, among other chains, in the region's exports.²

¹Central America or the region refer to CABEI's founding regional countries that are: Guatemala, El Salvador, Honduras, Nicaragua, and Costa Rica.

²Global Value Chain is the entire range of activities necessary to take a product or service from its initial conceptualization to its final state, as well as the way in which these activities are distributed

2. ASSESSMENT OF THE POTENTIAL OF THE CHAINS ACCORDING TO THEIR CONTRIBUTION TO THE DEVELOPMENT OF THE REGION

7. Global value chains have a high potential in the region to generate employment, increase productivity, promote investment, and foster higher levels of research, development and innovation. Following the methodology suggested by the World Bank (Hallwald-Driemeier, 2018), nine mayor export product categories were assessed in terms of their capacity to absorb low-skilled workers; contribution to total employment in the country; average worker productivity; share in the regional exports; and scope for innovation and technology diffusion.³

8. The contribution of the chains to the development of the regional economies differs according to the nature of their products. Agricultural exports (natural resource-intensive) and clothing and textile exports (labor-intensive) have a high potential in terms of the employability of persons with low levels of education and training, and the exploitation of the region's natural advantages. The contribution of exports of medical devices and electrical products and appliances (global innovative sectors) lies in their potential to promote product development and innovation.

9. There are five successful chains in the Central American region that demonstrate significant potential to contribute to the region's development: agricultural products, textiles and footwear, machinery and electronics, medical devices, and call centers. It is important to recognize that the chains in question produce a very wide diversity of products that share similar characteristics in terms of production processes, constraints, incentives and support services.

10. The greatest potential for employment generation is found in value chains that are intensive in the use of low-skilled labor. As expected, the most important export sectors for the region, which are labor-intensive production activities (lower levels of capital per worker), have the greatest potential to generate employment. According to these estimates, during 2018 these chains would have generated 803,645 direct jobs in total: the Fruits and Vegetables chain would have contributed 79% of the total, Apparel and Textiles with 16%, Medical Devices with 4% and Machinery and Electrical Products with 1%.

3. LINES OF ACTION TO STRENGTHEN VALUE CHAINS

11. Strengthening the existing value chains in Central America requires actions both at the country level, known as enabling conditions, and at the regional level, known as articulating axis. For the chains to be successful in the medium term, the countries of the region need to increase their capacity to adapt

Table 1 Five successful chains in Central America.

Chain	Product Category
Agricultural Products	Live animals; Animal products (ex. beef); vVegetable products (legumes, vegetables and fruits ex. pineapple); fats and oils (animal or plant); processed foods
Textile and footwear	Textiles (ex. synthetic); Articles made of textiles (ex. sportswear)
Machinery and electronic products	Machinery and mechanical products; electric equipment; Stereos; TVs
Medical devices	Optical, photographic, measuring, precision, medical and surgical devices; watches, musical equipment, and accessories.
Call centers	Service exports

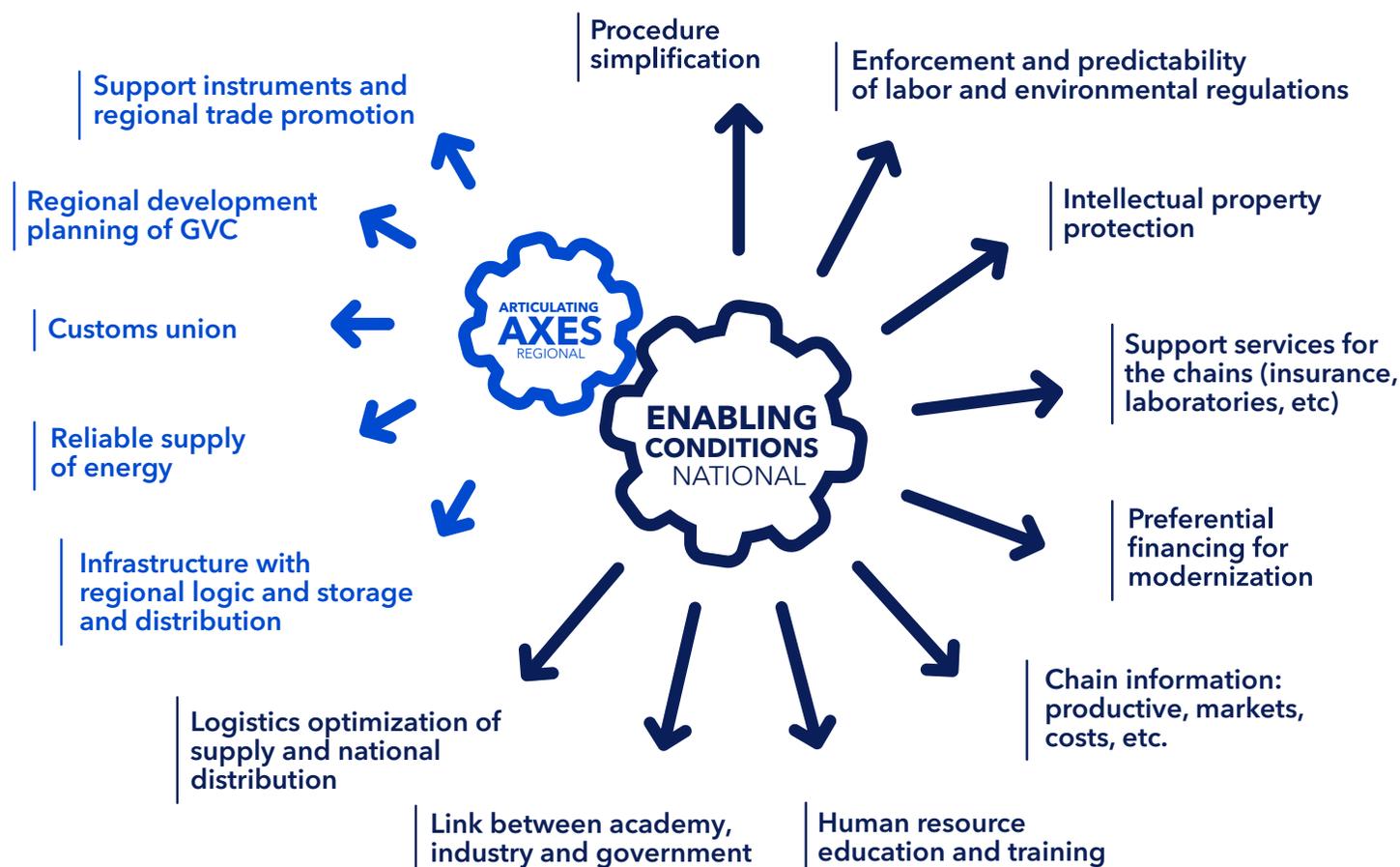
Source: Own elaboration and (OECD, 2021)

to changes in consumption and production patterns. It is therefore essential to prioritize actions to increase the capacity of the chains to contribute to development, both at the country and regional levels.

12. Enabling conditions are all those actions in the policy and regulatory field, as well as key investments needed to promote the development of value chains in each country. It is necessary to modify policy and regulatory frameworks, make strategic investments in infrastructure, guarantee adequate response times of the chains to market needs, ensure reliable and predictable supply of inputs, facilitate investment in research, development and innovation, and improve training of human resources.

13. The articulating axis are all those direct and indirect, public and private actions, that promote greater and more effective regional integration of the value chains. Planning the development of the chains at the regional level, is essential to take advantage of the opportunities for regional integration in research and development, improve production processes, integrate supply chains and develop common regional infrastructure. Although of indicative nature, prioritizing the lines of action at the regional level makes it possible to identify the roles the different institutional actors involved will play in the operation of the chains; future needs for transportation, port, airport and customs infrastructure; financing requirements; and in the design regional development policies.

Figure 1 Articulating axes and enabling conditions



Source: Own elaboration

3.1 ENABLING CONDITIONS AT THE COUNTRY LEVEL

14. Improvement of human resource education and training.

Without exception, in all the cases studied, a more educated and better trained labor force is required for the chains to operate properly. Given the growing demands for compliance with different types of international standards, the need to adopt more advanced technologies and improve product sophistication, the chains urgently need better-trained workers. To this end, academia and industry must work together to design education and training programs that respond to the specific needs of the chains.

15. Predictability in the evolution of labor costs. It is critical that the constant pressures to comply with labor regulations translate into respecting, in salary matters, a minimum wage congruence between minimum wage levels and labor productivity.

16. Access to financing on preferential terms for modernization. Three major needs were identified in this area: renewal of machinery and equipment, acquisition of new technologies (process automation in the apparel and textile chain, and precision agriculture in the fruit and vegetable chain, for

example), and research and development of new products and production processes.

17. Progress in streamlining and digitalizing procedures. All procedures related to the operation of companies within these chains, and to the transportation and dispatch of their products, should be carried out at "one-stop-windows" through electronic platforms. Projects such as the Central American Digital Trade Platform, an effort led by the IDB, the European Union and SIECA, is an important step in this direction. It is also important to advance in the standardization of norms and regulations at the regional level.

18. Improvement in the protection of intellectual property. In the absence of adequate legislation in this area, it is very difficult for companies to venture into the design and development of new products and/or production processes. Adequate protection of the rights associated with their inventions and innovations is a growing need as products and production processes become more sophisticated and their added value increases.

19. Land transportation infrastructure to improve connections between producing regions and points of shipment of finished products. Investment in this type of infrastructure

should favor the movement of goods to ports of shipment (disembarkation) of finished products (intermediate inputs), as well as the connection between the areas producing raw materials (products) and the places where they are transformed (packaged) for export. In the case of vegetable exports (vegetables and fruits), it is important to improve the conditions of many of the roads that connect the producing regions in rural areas with collection centers, packing plants, freezers and processing plants.

20. National optimization of distribution and supply logistics for perishable products.

At the national level, the main need is to improve and/or expand the existing infrastructure for the storage of products. Namely, given that in most countries production is carried out by small independent producers scattered throughout the country (especially important for the export of agricultural products that are exported fresh, frozen or with some type of processing, where quality control is of the utmost importance). Increased product storage capacity would entail the need to expand and/or build the capacity of existing processing plants (packing plants) and their refrigeration/freezing capacities. In addition, there is a need to invest in modernizing existing transportation fleets to ensure that they meet the minimum requirements for safe transport without compromising the quality and safety of the products.

21. Promoting precision agriculture. The transition from traditional farming methods to precision agriculture is one of the main challenges for agricultural commodity chains. This transition would enable export agriculture to obtain higher yields per hectare, higher income for producers, greater variety of products, higher-value products and better control of the standards and requirements of the destination markets.

22. Dissemination and support for the adoption of better production methods. To assure that the best and most modern technologies reach the majority of producers, both public and private efforts are required, in which governments support this type of investment with preferential financing, accompanied by an effective advisory system, and that leading companies take the lead in the adoption of the best production methods among their suppliers.

23. Predictability of environmental incentives and restrictions.

As important and urgent as the environmental sustainability of production processes in value chains is, it is necessary to seek an appropriate balance between environmental protection and the development of these chains. Above all, the possibility of arbitrary management must be reduced to a minimum.

24. Improved linkages between academia and industry.

In addition to the need for human resource training and basic and applied research, academia needs to work on specific lines of research aimed at the needs of the chains. This requires both financial support and collaboration between the companies themselves and the public sector, since knowledge is a public good.

25. Availability of certification by laboratories and agencies.

The governance of the chains and access to destination markets depends on effective and timely compliance with strict standards and requirements in terms of production processes, quality, safety, innocuousness, environmental sustainability, sanitary and phytosanitary standards, etc. In addition to progress at the country level, it is necessary to move towards the regionalization of this type of services, so that it will be easier for the suppliers of these services to meet the costs involved in adopting the technologies and methodologies required by international standards.

26. Reducing risks through insurance.

Given the importance of logistics services in optimizing the supply chain, it is necessary to have a wide range of coverage for specific risks related to the transportation of goods, warehousing, inventory management, product valuation, order preparation, loss, theft or damage to goods, environmental liability, etc. In insurance, as well as in laboratories, it is essential to move towards a minimum harmonization of the regulatory framework at the regional level, opening up, if necessary, to international insurers. In the case of agricultural export products, agricultural insurance under preferential conditions would be very useful to protect the capital and investments of small producers in this chain, especially to respond to catastrophic events, which are so frequent in a region that is vulnerable and exposed to natural disasters.

27. Coordination within the chain through more and better economic information.

The lack of timely, up-to-date and detailed information on market conditions, production, costs, prices and inputs in the selected chains makes it difficult to map them adequately. In most of the countries, there are few detailed and recent studies available on the economic structure of the export sector, talent gaps, installed productive capacity, and related and complementary companies in the region. Likewise, the lack of information prevents adequate regional coordination of institutional actors, both public and private. Given the public good nature of this type of information, it is necessary to harmonize definitions, concepts and measurement methodologies, as well as to define a minimum inventory of indicators that should be kept up to date.

3.2. ARTICULATING AXIS AT THE REGIONAL LEVEL

28. Reliable supply of electricity at competitive prices.

A reliable, sufficient, and clean supply at competitive prices is a necessary condition for the development of the chains in the region. Significant challenges persist in each of the countries. Although SIEPAC is an important step forward, improving the coordination of the Regional Electricity Market in terms of investment planning for both transmission and generation requires further progress in the regional alignment of objectives, the strengthening of institutions, and the development of a common legal and regulatory framework for the sector.

29. Land transportation infrastructure that responds to a regional productive logic.

These investments should obey the logic of regional integration, regional cargo consolidation, and minimum efficient scale to be competitive at the international

level. This type of investment includes the construction of overland communication routes (roads or railroads) connecting production and input supply sites with the region's main ports. Such a strategy would allow greater regional use of the T-MEC and the Panama Canal. Therefore, it would be essential to analyze the planning of priority investments to facilitate the rapid and safe movement of finished products and raw materials in the region (such as the Road Integration Corridors of the Puebla-Panama Plan).

30. Warehousing and distribution infrastructure that facilitates response times to the market.

Speed and reliability in the dispatch of finished products and in the provisioning of supplies become critical when considering the shortening of product life cycles, shorter lead times, orders of products in small quantities that are highly differentiated from one another, and on-demand replenishment of inventories to a minimum. Changes that require greater efficiency of product storage centers in the storage of goods, and of the infrastructure for transshipment of cargo between different modes of transport in free trade zones, industrial parks, etc.

31. Optimization of distribution logistics at the regional level.

The advance of e-commerce demands a greater need to supply consumers directly with products from global chains in the region. Instead of exporting these products to distribution centers in the destination markets, as is currently the case, orders could be consolidated and shipped directly from the region to consumers at their destinations. This would require significant investments to develop fulfillment centers connected to large e-commerce platforms (such as Amazon or Mercado Libre). This change of model would require major investments in storage and distribution centers (for raw materials and finished products) -Hubs- at the regional level to optimize the operation of the chain, taking advantage of the capacities of the productive spokes that each chain has in the countries of the region.

32. Advances towards a regional customs union.

Although the ideal situation would be for the region to function as a totally integrated market, so that goods and factors can move freely within the region, it is a fact that in the short- and medium-term land customs will continue to exist. Therefore, together with the streamlining of procedures and the standardization of permits and requirements, customs infrastructure must be modernized throughout the region to ensure the safe and expeditious movement of goods, while guaranteeing the safety and quality of the products transported.

33. Planning the development of regional chains.

Governments and the private sector in the region must plan the development of regional chains in the medium term. It is therefore necessary to lay the minimum foundations to take advantage of the benefits that would arise from an integrated economic region. This does not mean detailed planning of all the enabling conditions that the chains would need to develop, but rather indicative planning that outlines the general features of the development path that these chains should follow.

34. Harmonization of promotion instruments. The lack of coordination in national efforts to promote exports and attract investment opens up the real possibility of a race to the bottom in the incentives offered by each country. Rather than turning efforts into non-cooperative games in which the winner is the one who moves first or offers the greatest advantages, the challenge is to transform efforts into a cooperative game in which cooperation among countries makes it possible to achieve larger prizes.

35. Coordinated trade promotion. While each country does its own thing to promote its respective advantages, it cannot be overlooked that we all share certain basic competitive advantages, as well as a common geography, culture and history. At the very least, the respective agencies should develop a portfolio of the opportunities offered by the region and include it in their routine promotion activities.

36. Promoting compliance with labor and environmental regulations.

The growing interest of the consumers and governments in developed countries in promoting environmental sustainability, combating climate change and promoting compliance with human rights is making it increasingly important for the region's supply chains to comply with international standards, especially in labor and environmental matters.

37. Development of regional capabilities in research and development.

It is important to recognize that research is a regional problem rather than a problem of each country or chain, given the characteristics and linkages of the GVCs among the countries. In order to take advantage of economies of scale and reach a larger number of beneficiaries, it would be important to explore the possibility of developing regional research and development capabilities.

38. Promotion of regional platforms for dialogue, consultation and problem-solving.

Regional trade and exporters' associations are a powerful and effective mechanism to maintain an ongoing dialogue at the regional level on the current state of the chains, their potential future development and the problems they face. These associations could also play a more active role in: organized representation of the chains vis-à-vis external stakeholders such as leading companies in the chains, foreign regulatory agencies, cooperating agencies and international financial organizations; promoting the adoption of best practices by the members of the chains; and active participation in promoting the region as an investment destination.



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