

Panorama of Productive Development Policies in Latin America and the Caribbean

2025

How to escape the trap of
low capacity for growth



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How to escape the trap of
low capacity for growth



UNITED NATIONS

ECLAC

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Foreword

Most countries in Latin America and the Caribbean are caught in three development traps that are limiting progress in the well-being of their populations: one of low capacity for growth, another of high inequality and low social mobility and cohesion, and a third of weak institutional capacities and governance. These challenges are compounded by climate change and the need to move towards environmentally sustainable development.¹

One imperative for escaping the first trap is a redoubling of efforts to promote the productive transformation of economies with a view to boosting productivity and achieving higher, sustained, inclusive and sustainable growth. This transformation, understood as a process of sophistication, diversification and positive structural change, is a priority that can no longer be postponed in the region's countries. It will not come about spontaneously or by the agency of an invisible hand, but requires deliberate, long-term public policies that are coordinated with all key stakeholders. This effort to set a direction for collective action is first and foremost an effort of governance and is the central feature of the new generation of productive development policies that are required.

The transformation called for is more important than ever in the current international context, one that is characterized, first, by geopolitical tensions and technological rivalry, which have intensified in recent years and led to a new phase of increasing trade barriers that in turn have heightened global economic uncertainty and affected international investment flows and global value chains; second, by the climate emergency, which requires an accelerated energy transition that entails costs in the short term but is opening a strategic window for sustainable productive transformation; and, third, by a technological revolution driven by advances in digitalization, artificial intelligence and other technologies that is changing production paradigms, opening up great opportunities but also disrupting labour markets and the geographical distribution of production.

In other words, if the low economic and productivity growth and the lack of economic diversification and technological sophistication of previous decades already necessitated a more ambitious approach to productive transformation, the new global context has reinforced this need and rendered it critical. Failure to meet the challenge risks countries being unable to take advantage of the opportunity to promote growth and productive transformation by building on their strategic assets and comparative advantages, with the new context instead becoming a fresh source of vulnerability, and with the prospect of a third lost decade.

In 2024, as part of its call for the implementation of new growth and productive transformation strategies, the Economic Commission for Latin America and the Caribbean (ECLAC) published a new flagship document that filled a major gap in the debate on public policies for growth and development, the *Panorama of Productive Development Policies in Latin America and the Caribbean, 2024*.² The intention is to establish this report as a recognized annual resource for the subject. Its first edition achieved five objectives: (i) it proposed a new vision for these policies; (ii) it carried out an initial exercise to characterize and quantify the fiscal effort devoted to productive development policies in the region; (iii) it compared the institutional and governance arrangements underpinning this effort; (iv) it examined initiatives at the subnational level;

¹ Economic Commission for Latin America and the Caribbean. (2024a). *Development Traps in Latin America and the Caribbean: Vital Transformations and How to Manage Them* (LC/SES.40/3-P/-*).

² Economic Commission for Latin America and the Caribbean. (2024). *Panorama of Productive Development Policies in Latin America and the Caribbean, 2024* (LC/PUB.2024/15-P/Rev.1).

and (v) it formulated 113 recommendations to guide countries and their territories in scaling up and improving their productive development policies.³ These reflections have been widely disseminated at international, regional, national and subnational events.

This year, we are pleased to present the 2025 edition of the *Panorama of Productive Development Policies in Latin America and the Caribbean*. This edition begins with a chapter diagnosing productivity in the region and some recent experiences with productive development policies. The next three chapters delve into three strategic and complementary dimensions: science, technology and innovation policies; cluster and other productive coordination initiatives; and green and inclusive productive development policies. These three themes are crucial when considering how to implement productive development policies and how to escape the trap of low capacity for growth and transformation.

The first chapter, “Productivity and productive development policies in Latin America and the Caribbean,” provides a conceptual framework and a general diagnosis that underpins much of the report. It analyses recent productivity trends in the region, broken down by sector of economic activity, territory and company size, and presents the key elements of the new ECLAC vision. It also examines recent experiences in five countries (Brazil, Chile, Colombia, Mexico and Peru) that have implemented comprehensive policies in this area, identifying institutional and policy advances and challenges.

The second chapter, “Science, technology and innovation policies for productive development,” highlights the need to direct science, technology and innovation (STI) efforts towards productive transformation. It analyses national STI strategies, their institutional frameworks and the instruments implemented, then goes on to formulate recommendations differentiated by countries’ level of institutional maturity with a view to strengthening the design, governance, financing, coordination and application of these policies.

The third chapter, “Cluster and other productive coordination initiatives for productive development in Latin America and the Caribbean,” addresses the challenge of coordinating cooperation among key actors around strategic productive development agendas. It defines the concept of cluster and other productive coordination initiatives and presents the ECLAC strategy for showcasing and strengthening these through the Platform for cluster and other territorial productive articulation initiatives in Latin America and the Caribbean. The chapter includes a characterization of these initiatives, an analysis of related policies and a set of recommendations for enhancing their impact.

The fourth chapter, “Green and inclusive productive development in Latin America and the Caribbean,” examines how productive transformation goals can be conjoined with those of environmental sustainability and social inclusion. In the context of an energy transition that presents great opportunities for productive transformation in the region, green and inclusive productive development policies are conceived as a subset of productive development policies that aim particularly at the creation and adoption of clean technologies, while also generating decent jobs, productive inclusion and a reduction in inequalities. Setting out from a conceptual and methodological framework, the degree to which productive development policies and climate policies in the region are aligned with the goals signed up to in the Paris Agreement is analysed, and recommendations are made to improve their design and implementation at national and regional level.

³ Economic Commission for Latin America and the Caribbean. (2025). *Scaling up and improving productive development policies: 113 recommendations for Latin America and the Caribbean*.

The themes addressed in the four chapters were selected for their strategic importance and complementarity. Improving productivity is the core challenge when it comes to boosting growth and productive transformation; science, technology and innovation are key drivers of productive transformation; productive coordination is the term used for the mechanisms of governance and collaboration between key stakeholders to multiply the impacts of productive development efforts; and environmental sustainability and social inclusion are principles that should inform the best version of this transformation. Together, these themes configure a road map for progress towards higher and more transformative and sustained growth that can also accelerate movement towards the Sustainable Development Goals.

With this publication, ECLAC is reaffirming its commitment to supporting the countries of Latin America and the Caribbean in the effort to formulate modern, effective productive development policies that are tailored to their realities. As has already been pointed out, today's geoeconomic and geopolitical circumstances make the task more important than ever.

This report is intended as a useful tool for governments, the private sector, academia, cooperation agencies and all stakeholders with an interest in the region's productive development, at a time when strategic clarity, transformative ambition and collective action are more urgently needed than ever before.

José Manuel Salazar-Xirinachs
Executive Secretary
Economic Commission for
Latin America and the Caribbean (ECLAC)



Executive summary

Introduction

- A. Productivity and productive development policies in Latin America and the Caribbean
- B. Science, technology and innovation policies for productive development
- C. Cluster and other productive coordination initiatives for productive development in Latin America and the Caribbean
- D. Green and inclusive productive development policies in Latin America and the Caribbean

Introduction

Most countries in Latin America and the Caribbean are caught in three development traps that are limiting progress with the well-being of their populations: one of low capacity for growth, another of high inequality and low social mobility and cohesion, and a third of weak institutional capacities and governance. These challenges are compounded by climate change and the need to move towards environmentally sustainable development.

One imperative for escaping the first trap is a redoubling of efforts to promote the productive transformation of economies with a view to boosting productivity and achieving higher, sustained, inclusive and sustainable growth. To this end, it is essential to scale up and improve productive development policies.

This year's edition of the *Panorama of Productive Development Policies in Latin America and the Caribbean* includes four chapters that address the following themes: a diagnosis of productivity in the region and some recent experiences with productive development policies; science, technology and innovation (STI) policies; cluster and other productive coordination initiatives; and green and inclusive productive development policies.

The four themes were selected for their strategic importance and complementarity. Improving productivity is the core challenge when it comes to boosting growth and productive transformation; science, technology and innovation are key drivers of productive transformation; productive coordination is the term used for the mechanisms of governance and collaboration between key stakeholders to multiply productive development efforts; and environmental sustainability and social inclusion are principles that should inform the best version of this transformation. Together, these themes configure a road map for progress towards higher and more transformative and sustained growth that can also accelerate movement towards the Sustainable Development Goals.

A. Productivity and productive development policies in Latin America and the Caribbean

Two interrelated factors largely explain why the region finds itself in a trap of low growth capacity, namely low productivity and underinvestment. It is therefore essential for governments and society as a whole to put productivity at the centre of public debate.

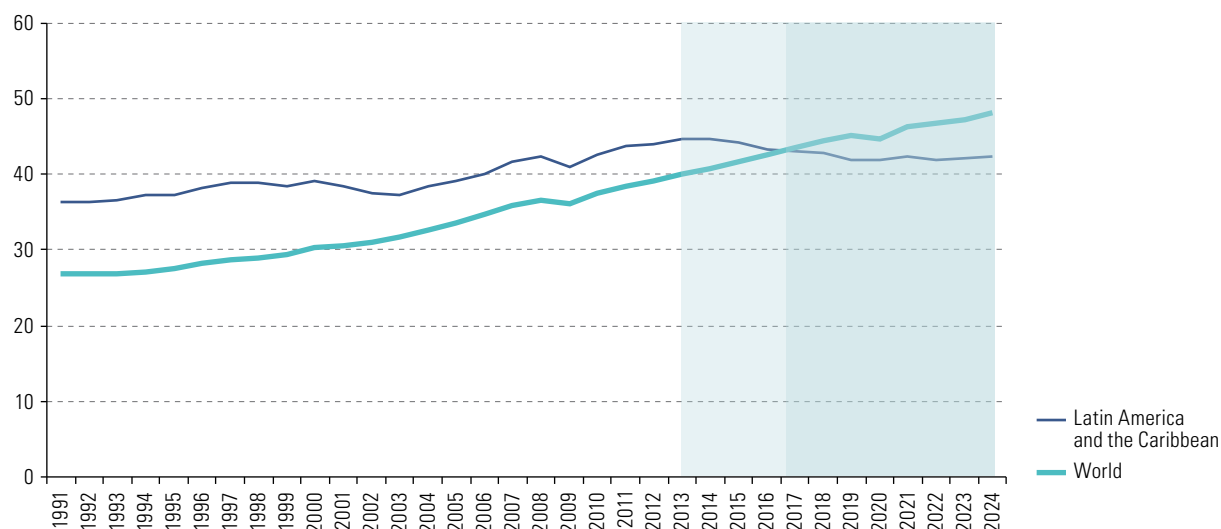
With regard to labour productivity trends in Latin America and the Caribbean, following an increase between 1990 and 2013, the last decade has seen a sharp decline (see figure 1). The poor performance of the region contrasts with growth in average global productivity. A milestone in this relative decline came in 2017, the first year in which the region's productivity fell below the global average, since when it has continued to drop further behind.

Productivity levels and changes alike depend on a variety of factors, giving rise to different perspectives in the observation of productivity differentials. Chapter I presents and analyses three of these perspectives: productivity by economic activity, productivity by territory and productivity by company size.

Figure 1

Latin America and the Caribbean (29 countries)^a and world (192 countries): labour productivity per employed person, 1991–2024

(Thousands of constant dollars at 2021 prices at purchasing power parity (PPP))



Source: Economic Commission for Latin America and the Caribbean, on the basis of International Labour Organization. (2025). *ILOSTAT*. <https://ilostat.ilo.org/>.

^a The countries considered are Argentina, The Bahamas, Barbados, Belize, the Bolivarian Republic of Venezuela, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, the Plurinational State of Bolivia, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago and Uruguay.

1. Productivity by economic activity

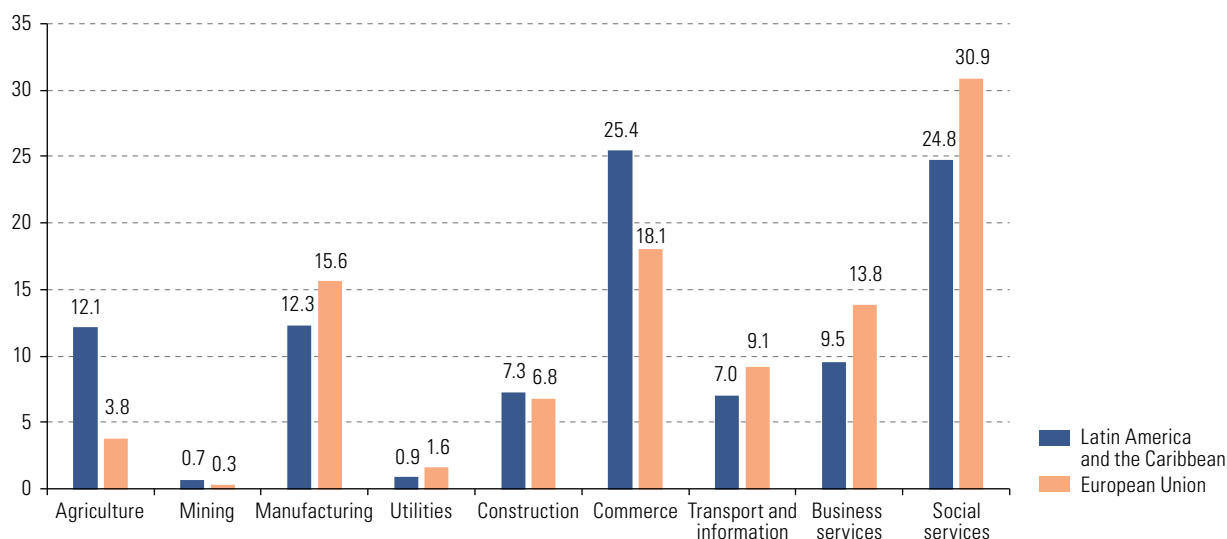
Where productivity by economic activity is concerned, in 2023 there continued to be wide disparities in productivity levels between sectors, with some, such as mining, utilities and business services, exhibiting relatively high productivity, and others, such as agriculture and commerce, having low productivity.

A second factor on top of the “intrinsic” differences in productivity between sectors is the high proportion of employment in lower-productivity sectors. Very high-productivity sectors (mining and utilities) account for only a tiny fraction of employment, while the vast majority of jobs are in lower-productivity activities, and although this is to be expected in any economy, the difference between Latin America and the Caribbean and more developed economies is that low-productivity sectors account for substantially larger shares of total employment (see figure 2).

Labour productivity in Latin America and the Caribbean is only 29.7% as high as in the European Union (see figure 3). This difference is largely explained by the productivity gap in almost all sectors of economic activity (the exception being mining and hydrocarbons).

Figure 2

Latin America and the Caribbean (28 countries)^a and European Union (27 countries):^b employment shares, by economic activity, 2023
(Percentages)



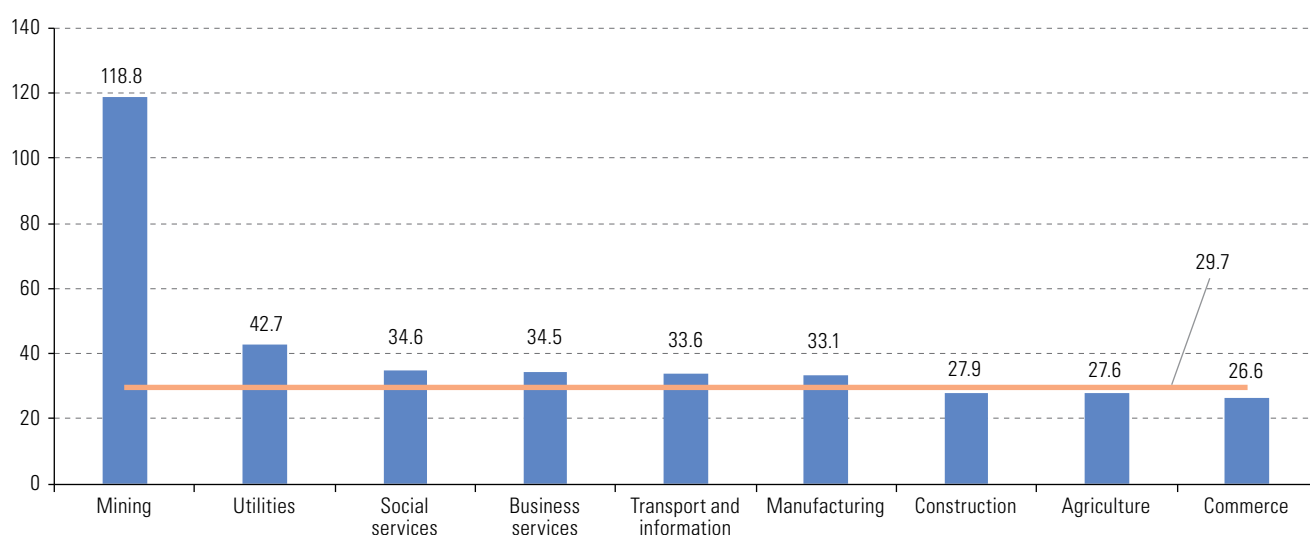
Source: Economic Commission for Latin America and the Caribbean. (2025). *CEPALSTAT*. <https://statistics.cepal.org/portal/cepalstat/index.html?lang=en>; International Labour Organization. (2025). *ILOSTAT*. <https://ilostat.ilo.org/>; European Union. (2025). *Eurostat*. <https://ec.europa.eu/eurostat>.

^a The countries considered are Argentina, The Bahamas, Barbados, Belize, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, the Plurinational State of Bolivia, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago and Uruguay.

^b The countries considered are Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, the Kingdom of the Netherlands, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden.

Figure 3

Latin America and the Caribbean (28 countries)^a and European Union (27 countries):^b external relative labour productivity, by economic activity, 2023
(European Union productivity index = 100)



Source: Economic Commission for Latin America and the Caribbean. (2025). *CEPALSTAT*. <https://statistics.cepal.org/portal/cepalstat/index.html?lang=en>; International Labour Organization. (2025). *ILOSTAT*. <https://ilostat.ilo.org/>; European Union. (2025). *Eurostat*. <https://ec.europa.eu/eurostat>.

Note: External relative labour productivity measures labour productivity in Latin America and the Caribbean as a proportion of labour productivity in an external region, in this case the European Union, for the purposes of comparison.

^a The countries considered are Argentina, The Bahamas, Barbados, Belize, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, the Plurinational State of Bolivia, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago and Uruguay.

^b The countries considered are Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, the Kingdom of the Netherlands, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden.

2. Productivity by subnational territory

The performance of territorial productivity over the last decade shows that the direction of change has been negative in most of the 172 territories for which comparable labour productivity time series are available. The most significant and striking productivity declines have occurred in territories that started the previous decade with higher productivity. Mineral and hydrocarbon production has played a major role in many of these, so a plausible explanation for this reduction is that the decline in international commodity prices over the last decade has had a greater impact on these territories than on others.

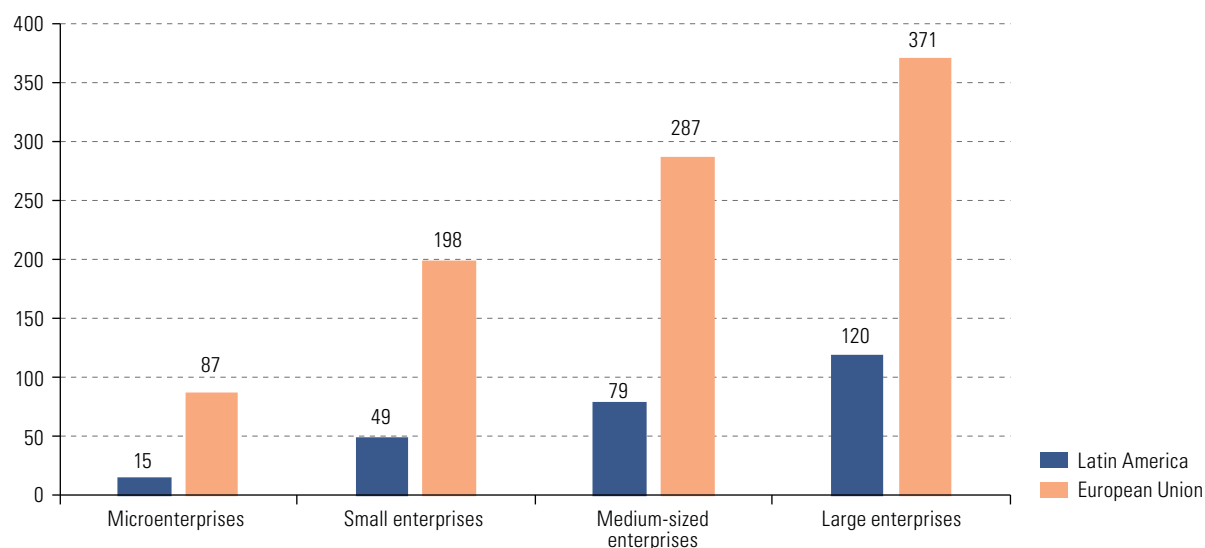
Consistently with the above, the general decline in labour productivity in Latin America and the Caribbean over the last decade correlates with the decline in productivity in most subnational territories. This widespread trend has coexisted with the phenomenon of territorial productivity convergence, meaning that territories with higher and lower productivity have been converging in respect of labour productivity and that inequality between territories on both variables has decreased over the last decade. The fact that this convergence has generally been accompanied by negative productivity growth is indicative of a process of “regressive convergence”.

3. Productivity by company size

The third perspective examined in chapter I are labour productivity differentials by company size. In this regard, Latin America has two characteristics that set it apart from more developed regions. The first is low labour productivity in companies of all sizes compared to their counterparts in the European Union, and the second is the much greater productivity gap in smaller companies, especially microenterprises (see figure 4).

Figure 4

Latin America (4 countries)^a and European Union (27 countries)^b labour productivity, by company size, 2023
(Thousands of current dollars)



Source: Economic Commission for Latin America and the Caribbean, on the basis of official data from the countries and European Union. (2025). *Eurostat*. <https://ec.europa.eu/eurostat>.

Note: Labour productivity is defined as the value of sales per employee.

^a The countries considered are Argentina, Brazil, Chile and Mexico.

^b The countries considered are Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, the Kingdom of the Netherlands, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden.

When a 10-year period is taken, not only has overall productivity declined, as already noted, but the gap between large and smaller domestic companies has widened, which is detrimental to integration within the production system. This suggests a need to consider ways of incentivizing productive linkages between companies of different sizes, for which cluster and other types of productive coordination initiative are a very powerful vehicle (see chapter III), and of improving productivity through technological extension efforts in less productive companies.

4. Productive development policies in Latin America and the Caribbean

The second part of chapter I identifies countries where work on productive development strategies has been going on within the framework of national development plans. A first objective is to identify the extent to which the region has made use of productive development strategies and policies and presented proposals for coordinated productive development strategies or policies in a structured format, as opposed to *de facto* programmes and instruments with no organizing or structuring strategy or policy. A second objective is to analyse whether these plans include certain features that might contribute to their success, e.g. whether (i) there is prioritization between production activities; (ii) the resources available for the plan are specified; (iii) multi-stakeholder and multilevel governance mechanisms are in place, including participation by subnational actors; and (iv) evaluation and adjustment mechanisms are provided for.¹

With regard to the first objective, five countries of the region were identified as having structured productive development policy strategies in place: Brazil with its New Industry Brazil plan, Chile with its Sustainable Productive Development Programme, Colombia with its National Reindustrialization Policy, Mexico with its Plan Mexico and Peru with its National Industrial Development Policy.

A brief analysis of the supporting documents for these five productive development policies shows that some countries in Latin America and the Caribbean are implementing strategies with a very high political profile to achieve productive transformation of their production matrices by pursuing environmentally sustainable and socially beneficial growth. This is being done explicitly, and sometimes with a clear focus on particular sectors, the result being a regional trend towards advocacy of this type of policy and a growing realization that there is a role for the State in economic growth and revitalization based on a modern approach to collaboration with the business sector and other key stakeholders in pursuit of productive development. It also transpires that these efforts incorporate several positive aspects of productive development policies as suggested by the Economic Commission for Latin America and the Caribbean (ECLAC) (see table 1).

Again, when considering how productive development policies in the region might be improved, a number of points accompanying the recommendations that will be presented in the remaining chapters of this publication should be highlighted. It should be noted that these are general recommendations, and their relevance and applicability will depend on specific conditions in the different countries or territories as regards both the degree of sophistication of their productive apparatus and their institutional capacities.

¹ The present analysis is not an evaluation of these policies, since a reasonable time must elapse after measures are implemented before it is possible to identify their impact, given that the effects of productive development policies may be medium- and long-term. Furthermore, identifying policy impact requires firm-level information, and this usually necessitates specific studies by country or policy type, something that exceeds the scope and objectives of this chapter.

Table 1
Identification of variables analysed in national policy documents

Country	Productive development plan	Prioritization of sectors	Resources determined in advance	Leadership at the highest presidential level	Collective construction	Territorialization	Cluster or other productive coordination initiatives used	Evaluation and follow-up mechanisms
Brazil	New Industry Brazil plan	✓	✓	✓	✓	✓	✓	✓
Chile	Sustainable Productive Development Programme	✓	✓		✓	✓	✓	
Colombia	National Reindustrialization Policy	✓			✓	✓		✓
Mexico	Plan Mexico	✓		✓	✓	✓		
Peru	National Industrial Development Policy	✓			✓	✓		✓

Source: Economic Commission for Latin America and the Caribbean, on the basis of official information from the countries.

First, governance mechanisms need to be used to strengthen coordination between actors and efforts at different levels of government, while strengthening the commitment of all actors, particularly in the private sector, to productive development policies. Just as essential is to build up technical, operational, political and prospective (TOPP) capabilities in the institutions responsible for productive development policies and ensure continuity. Productive development policies must be State policies and, as such, not subject to the vagaries associated with political cycles. Lastly, it is essential to further territorialize these policies and create and strengthen cluster and other productive coordination initiatives so that they act as a driving force in the implementation of productive development policies by national and subnational agencies in the territories.

For the countries of Latin America and the Caribbean to be able to transform their economies, thereby escaping the low growth capacity trap, productive development policy efforts will need to be scaled up and improved with the aim of increasing productivity and incomes and thereby enhancing social welfare.

B. Science, technology and innovation policies for productive development

The productive transformation discussed in chapter I requires deliberate and coordinated public policies, developed and implemented in partnership with the private sector and other key actors, in which science, technology and innovation (STI) play a central role. In a context of limited fiscal space, increasing resources for STI policies may be unfeasible or difficult in practice, meaning that there is a need to go further and review how such policies are designed, executed and evaluated.

The hypothesis underpinning chapter II is that the impact of policies depends not only on the volume of resources allocated, but also on the quality of strategies, institutional design, the capabilities of the entities involved and consistency between instruments and objectives.

The analysis presented is based on a methodology combining a review of publicly available information with specific studies, surveys, interviews with key actors and processing of specialized databases, and it identifies regional patterns and persistent challenges in STI policies while proposing specific recommendations differentiated by the level of maturity of policies and organized into six areas: strategies, coordination spaces, institutional capabilities, instruments, financing, and cooperation.

Three methodological contributions are highlighted in the chapter: the use of budgetary information to characterize the institutions central to STI policy; the development of tools to assess TOPP capabilities; and the development of categories for the degree of maturity of countries' STI policies.

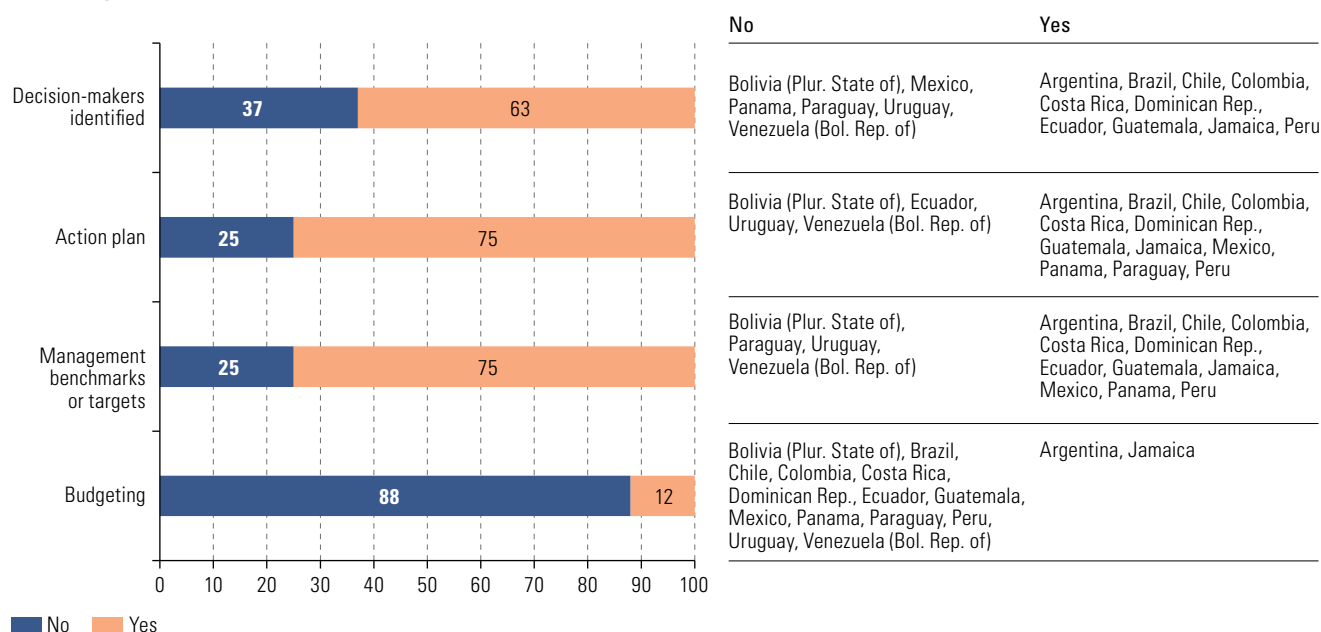
1. National strategies

Well-formulated national STI strategies and plans serve to provide a long-term vision, set priorities, coordinate stakeholders and channel resources towards important objectives. If they have political backing and are developed in a participatory manner, they become effective tools for aligning public and private actions.

Only 16 countries in the region were identified as having formal documents, variously called plans, strategies or policies, for STI. Analysis of these reveals great heterogeneity but also good prioritization and targeting practices, mainly at the sectoral level. Challenges remain, however, as these documents tend to be declaratory exercises that do not specify the decision-making authorities, the budget available or the methods for tracking progress, which limits the capacity for action (see figures 5 and 6).

The strategies analysed also evince limitations when it comes to coordination with other themes of interest or strategic agendas, as only 44% establish explicit links with other public policies, such as productive development strategies or policies, or other sectoral agendas.

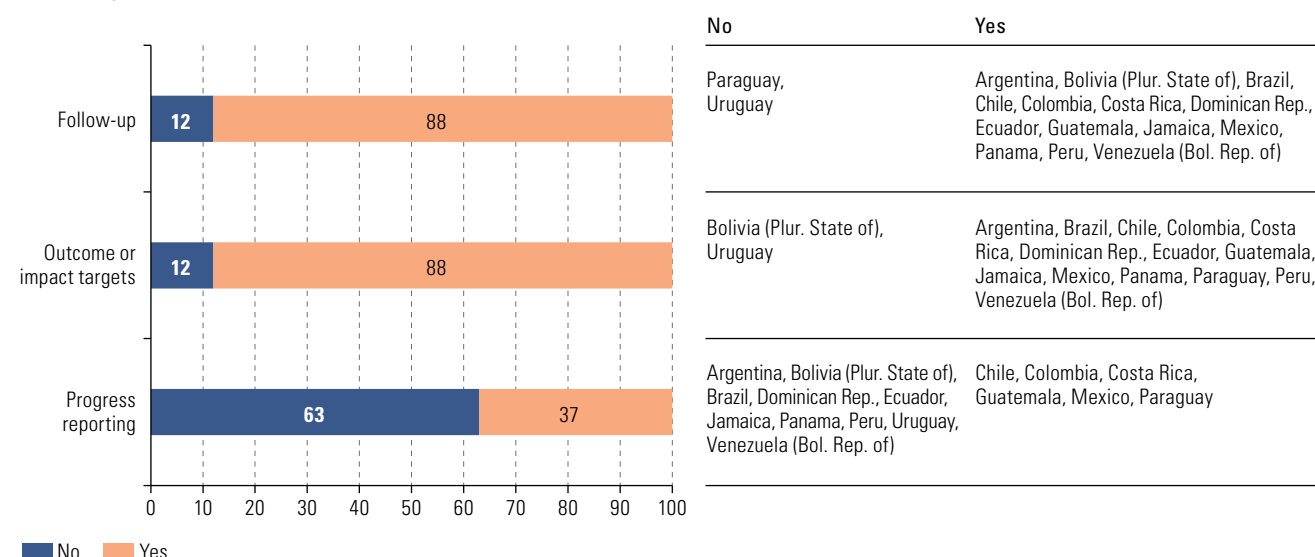
Figure 5
Latin America and the Caribbean (16 countries): implementation practices in selected science, technology and innovation policies
(Percentages)



Source: Economic Commission for Latin America and the Caribbean, on the basis of official information and national studies.

Figure 6

Latin America and the Caribbean (16 countries): monitoring and evaluation practices in selected science, technology and innovation policies
(Percentages)



Source: Economic Commission for Latin America and the Caribbean, on the basis of official information and national studies.

2. Institutional arrangements

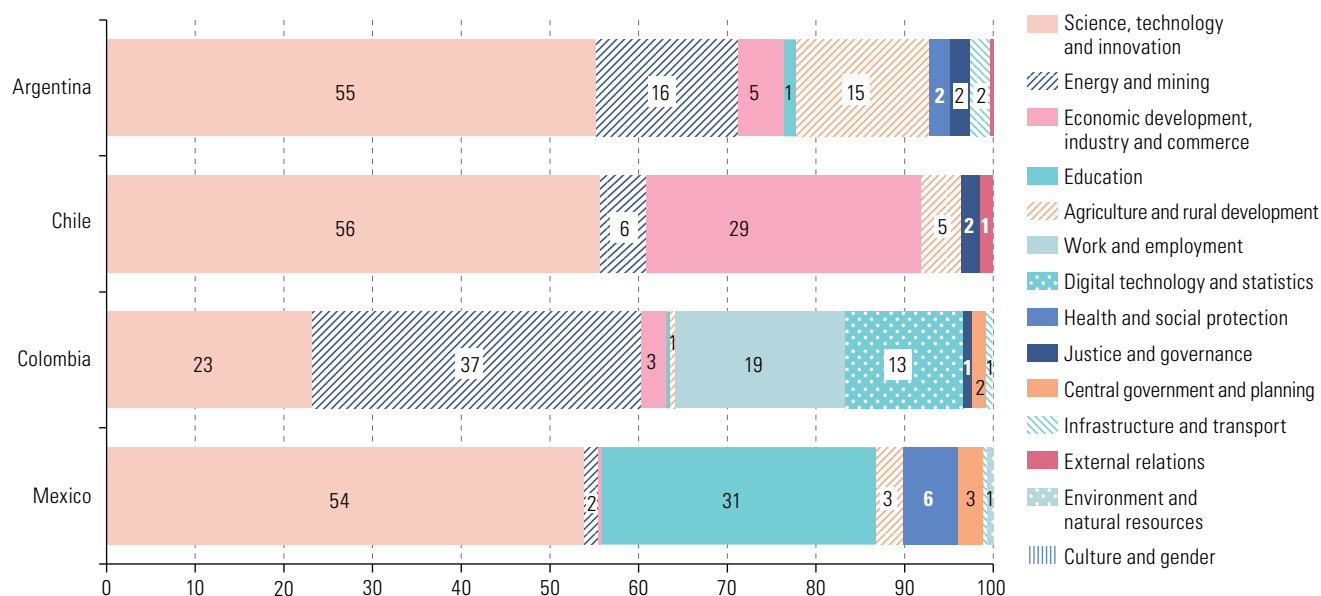
The STI function is a cross-cutting one present across multiple government ministries and agencies, which complicates coordination and linkages. Budget analysis of entities with policy functions in these areas in Argentina, Chile, Colombia and Mexico shows that entities in the STI ministerial sector account for no more than 56% of the government budget in this area and in some cases are not the main implementers (see figure 7). Between three and four entities account for more than 85% of the budget allocated to these policies, and sectors such as education, health, agriculture and ICTs play an important role in implementation.

There are formal STI coordination mechanisms, but with limited capacity for impact. Specialized bodies operate in 20 countries, while in 13, most of them in the Caribbean, coordination is carried out by governing bodies through bilateral interactions. These may be advisory or coordinating mechanisms with mixed participation, or exclusively public. Of 11 cases analysed, 55% have more than 20 members, 46% report directly to the president's office and only 18% have their own budget allocation. None has explicit influence over funding or budgeting and, except in Brazil, no minutes are published, which limits transparency and accountability.

Taking only the core institutions involved in STI policy, which include both the governing bodies that coordinate policies and the main entities responsible for administering policy instruments, there is a wide variety of institutional arrangements. For simplicity's sake, these have been classified into four categories (see table 2).

Figure 7

Latin America and the Caribbean (4 countries): distribution of budget allocated to science, technology and innovation policies, by ministerial area, 2024 or latest year available
(Percentages of total science, technology and innovation expenditure)



Source: Economic Commission for Latin America and the Caribbean, on the basis of Budget Directorate of Chile, Chamber of Deputies of Mexico, National Planning Department of Colombia, official information and national studies; Britto, F. (2025). *Sistema de ciencia, tecnología e innovación e innovación productiva de la República Argentina. Análisis del nivel nacional y las jurisdicciones subnacionales de Buenos Aires, Córdoba, Santa Fe y Ciudad Autónoma de Buenos Aires* [Unpublished manuscript]. Economic Commission for Latin America and the Caribbean; Balbontín, R., Roeschmann, J. A. and Zahler, A. (2018). *Ciencia, tecnología e innovación en Chile: un análisis presupuestario. Estudios de Finanzas Públicas Series*. Budget Directorate. Ministry of Finance; Budget Directorate. (2024). *Ley de Presupuestos del Sector Público: año 2024 (Ley N° 21.640 publicada en el Diario Oficial el 18 de diciembre de 2023)*. Ministry of Finance. https://www.dipres.gob.cl/597/articulos-330063_doc_pdf.pdf; Chamber of Deputies. (2024). *Presupuesto Público Federal para la función ciencia, tecnología e Innovación, 2023-2024* (SAE-ASS-11-24). <https://www.diputados.gob.mx/sedia/sia/se/SAE-ASS-11-24.pdf>.

Note: Although the quantification methodology differs from one country to another, the results are presented in a comparable form to illustrate the cross-cutting nature of STI policy in government. The figures do not include financial credits or tax incentives. For Argentina, Britto (2025) uses 2023 data from the Budget Office of the Ministry of Economic Affairs; for Chile, the methodology employed by Balbontín et al. (2018) is extended using the central government budget (Budget Directorate, 2024); for Colombia, the investment component of the 2022 national budget is analysed using the Investment Project Monitoring System (<https://spi.dnp.gov.co/>); and for Mexico, information from the federal budget for the STI function is used (Chamber of Deputies, 2024).

Table 2

Latin America and the Caribbean (33 countries): classification of countries by governing and administrative bodies responsible for science, technology and innovation policy, 2025

Governing body			
Devoted solely to STI	Shared with other themes or agendas		
Group A 7 countries (21%) Argentina, Brazil, Chile, Colombia, Honduras, Peru, Venezuela (Bolivarian Republic of)	Group C 7 countries (21%) Barbados, Costa Rica, El Salvador, Jamaica, Nicaragua, Trinidad and Tobago, Uruguay	Yes	Also has one or more entities administering policy instruments
Group B 4 countries (12%) Guatemala, Mexico, Panama, Paraguay	Group D 15 countries (46%) Antigua and Barbuda, Bahamas, Belize, Bolivia (Plurinational State of), Cuba, Dominica, Dominican Republic, Ecuador, Grenada, Guyana, Haiti, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname	No	

Source: Economic Commission for Latin America and the Caribbean, on the basis of official information and national studies.

Note: This classification only includes public entities with an explicit mandate to administer STI policy instruments (such as innovation agencies and specialized funds, councils or institutes). Universities, research centres and other institutions that carry out STI activities but do not perform policy instrument administration functions are not included.

Likewise, different profiles are observed in STI budget allocations: according to an analysis of 22 entities in 12 countries, governing entities tend to diversify their policy resources across different activities (research and development (R&D), human capital formation, innovation), while administrative entities concentrate spending on a single activity, which reflects differences in policy decisions, institutional experience and existing capabilities.

Analysis of the budget allocations of entities responsible for STI policy reveals that funding has stagnated or contracted in relative terms. Between 2010 and 2024, the budget allocations of most central entities in seven selected countries were below 0.5% of the total national public budget, and the trend was flat or declining.

Differences in strategies, coordination mechanisms and budgets may be due to gaps in TOPP capabilities. Interviews with eight central STI entities in six countries provided material for an initial characterization exercise. On the technical side, strengths in planning and targeting were found to be accompanied by limitations in evaluation and user segmentation. Operationally, there were still challenges with data utilization and a lack of binding citizen participation. Politically, despite participation in legislative processes and coordination with stakeholders, mechanisms could be unstable and vulnerable to changes in political conditions. Lastly, prospective capabilities remained poorly institutionalized, with one-off or outsourced exercises prevailing.

3. Instruments

Analysis of international databases reveals marked heterogeneity between countries in Latin America and the Caribbean with regard to STI policy instruments. While Argentina and Brazil have more than 100 instruments, 12 countries have fewer than 10. In addition, most instruments operate on a limited scale in comparison with other regions, suggesting low financial capacity and fragmentation of efforts, and less integration between instruments.

As regards support mechanisms, non-reimbursable grants for research, development and innovation are the norm, together with scholarships for advanced human capital, generally awarded through competitive processes. Although some institutions provide financial instruments or support services, the use of tax incentives, loans and guarantees, and innovative public procurement remains limited.

The design and operational characteristics of instruments also limit their impact. Funding for research and development activities predominates, to the detriment of business innovation, and the results bear little relation to production priorities. Administrative entities tend to confine themselves to project evaluation and administrative monitoring. Competitive funds are fragmented, with few resources and short time horizons, and are mainly guided by beneficiary demand, which prevents critical capabilities from being consolidated and means they do not do enough to generate significant transformations.

Lastly, with regard to business innovation, competitive funds for joint project financing with non-reimbursable resources and technical assistance programmes predominate. However, there is still a tendency for calls for proposals to be broad and horizontal, with no explicit sectoral orientation, which reduces the capacity of instruments to foster productive transformation. At least nine countries in the region have introduced tax incentives for research and development, but their application is still in its infancy in terms of both coverage and impact.

4. Reflections and proposals

The region requires a new perspective so that STI can be positioned as a strategic tool for tackling urgent problems, especially that of stagnant productivity. To this end, six general proposals are set out below, and chapter II gives details of 68 specific recommendations differentiated by the maturity level (incipient, intermediate or advanced) of STI policies in the countries.

(a) Align science, technology and innovation policy with productive development policies

STI policies have to be central in the effort to solve structural problems, and to bring about productive transformation in particular, aligning with productive development policies and prioritizing driving sectors. Resource increases should not just be associated with generic narratives about the bounties of STI, but should form part of agendas to strengthen economic growth, tax collection and public investment, with ambitious and tangible goals. A national innovation strategy, led at the highest level and with a long-term vision, broad participation and effective communication, enables resources, actions and incentives to be aligned. Strategies must be reinforced by implementation road maps with performance and impact indicators, multi-year budgets and monitoring and evaluation systems.

(b) Strengthen coordination and multi-stakeholder governance

There are multiple actors in the region with disparate agendas and weak coordination mechanisms. Necessary measures include strengthening interministerial bodies that can integrate STI into national development strategies, and into productive development policies in particular; institutionalizing spaces for dialogue with broad participation (the private sector, academia and civil society); and altering normative frameworks and incentives to promote collaboration. Moving towards robust governance means endowing coordination bodies with autonomy, management frameworks and a capacity for influence. It is especially important to coordinate the academic and productive sectors and to review the incentives for aligning efforts with productive development priorities.

(c) Strengthen technical, operational, policy and prospective (TOPP) capabilities

STI governing and administrative bodies need to reflect on their TOPP capabilities and identify opportunities for improvement in their management. A key requirement is to systematize learning and manage knowledge in environments that have high staff turnover and are vulnerable to political cycles. They must also introduce good organizational practices: a culture of evaluation, strategic use of data, standardized processes, relationship-building with key stakeholders and harnessing of human talent. To this end, it is essential to diagnose and measure gaps, set goals and establish clear pathways for action as their level of maturity dictates, consolidating a system of continuous improvement in capabilities.

(d) Diversify and scale up instruments

The region needs to move towards more diverse support and incentive systems that complement traditional competitive subsidies with other instruments such as loans, guarantees, technology extension services and public procurement of innovation. The combination of instruments must reflect the different levels of technological maturity and the diversity of actors in the ecosystem. It is essential to evaluate instruments, scaling up those that are efficient and adjusting or discarding those that are inefficient, in order to use public resources strategically. The scale must be appropriate: neither so small as to be irrelevant, nor so large as to compromise fiscal viability.

(e) Increase funding for science, technology and innovation initiatives and improve their targeting and quality

It remains essential to increase public STI investment in order to mobilize efforts by the private sector and other actors in the ecosystem. This effort must be accompanied by accurate information on the results of using public resources. The increase should be gradual and sustained, with clear returns. It is also crucial to improve the quality of spending, prioritizing actions that align with productive development policies, avoiding fragmentation of efforts and taking empirically grounded, context-appropriate decisions. There can be no effective strategy without prioritization, and there can be no prioritization without trade-offs, which means discarding less important options to concentrate resources on the most strategic ones.

(f) Take advantage of opportunities for regional and extraregional cooperation

Regional STI coordination is crucial for achieving scale, cutting costs, sharing risks and building up joint capabilities that no country could achieve alone. Complementary actions include connecting to global sources of knowledge, making strategic use of the diaspora, leveraging industrial policies from other parts of the world and strengthening science diplomacy.

The Conference on Science, Innovation and Information and Communications Technologies, a subsidiary body of ECLAC and a permanent forum for political and technical dialogue, seeks to improve STI policies and their coordination with productive development policies. This forum has a key role to play in aligning efforts and ensuring that STI becomes an engine of productive transformation for Latin America and the Caribbean.

C. Cluster and other productive coordination initiatives for productive development in Latin America and the Caribbean

The importance that ECLAC attaches to cluster and other productive coordination initiatives stems from its new vision of productive development policies whereby these policies are understood primarily as collaborative efforts by multiple actors from the public and private sectors, academia and civil society geared towards joint work on forward-looking strategic agendas that foster the productive transformation of economies in pursuit of sustainable and inclusive development.

From this perspective, cluster and other productive coordination initiatives are a concrete way of giving effect to different forms of multilevel, multi-stakeholder collaborative governance that serve to legitimize sectoral and territorial prioritization decisions, mobilize human and material resources from different territories and apply the principles of experimentalist governance.

1. What are meant by productive coordination initiatives

ECLAC uses the concept of productive coordination initiatives (PCIs) to refer to different types of strategic collaboration between companies and institutions in pursuit of productive development. PCIs have three characteristics: (i) they are geared towards goals and targets for competitiveness and productivity improvements and productive transformation generally; (ii) they follow a strategic approach entailing alignment of efforts around key goals and medium- and long-term commitment by participants; and (iii) they are based on the creation and operation of participatory governance mechanisms.

The broad definition of this concept encompasses different modalities of productive coordination, among which ECLAC has classified the following five types: cluster initiatives, initiatives to promote production chains, local productive initiatives, initiatives to promote business networks and initiatives for the development of supply relationships.

2. Strengthening productive coordination initiatives in the region: the ECLAC strategy

Given the potential contribution of PCIs to productive development in Latin America and the Caribbean, ECLAC has launched a strategy to support them, and this is embodied in the Platform for cluster and other territorial productive articulation initiatives.

In addition to georeferencing and showcasing more than 400 PCIs in the region, the Platform serves as a support tool for the systematic dissemination of information and knowledge, the implementation of training activities, interaction between PCIs, the formulation of joint projects and the provision of technical assistance.

3. Productive coordination initiatives in Latin America and the Caribbean

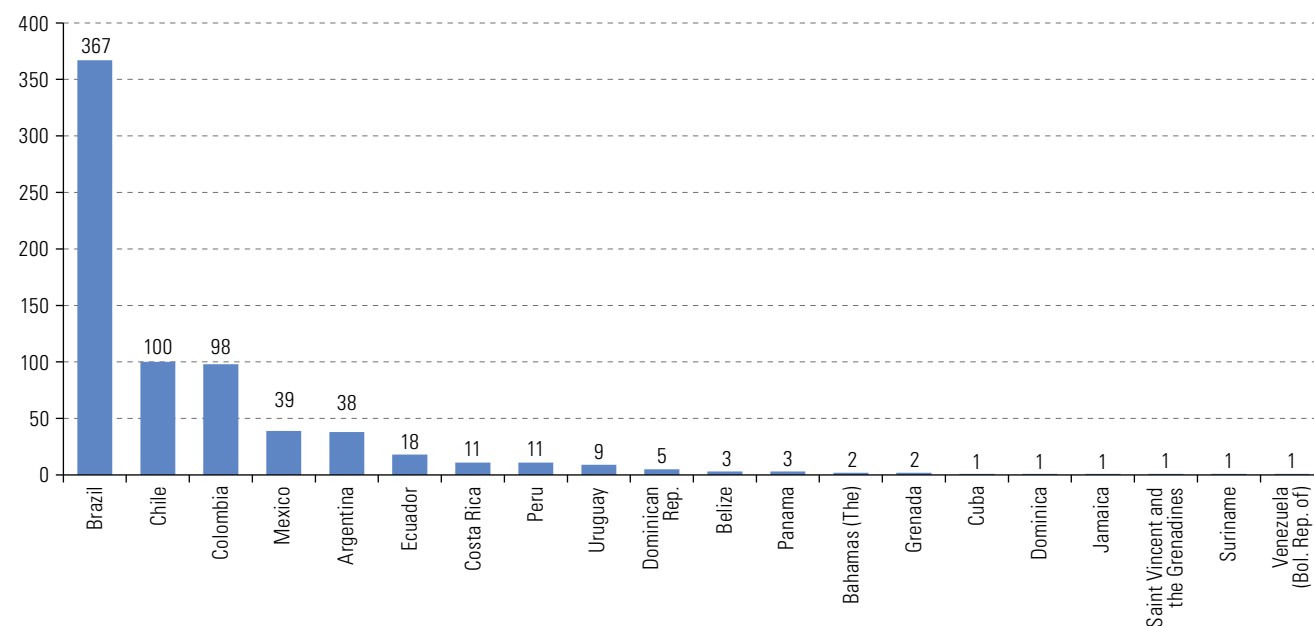
There are no databases in the region that systematically collect information on PCIs operating in the different countries. The database developed by ECLAC, which comprises 712 PCIs (a little over 400 initiatives mapped on the Platform and more than 310 identified by ad hoc research in Brazil, Mexico and the Caribbean countries), is one of the main sources of information on PCIs for 20 countries of Latin America and the Caribbean (see figure 8), and is among the most comprehensive.

The information presented in chapter III serves to describe some of the main characteristics of PCIs in the region, such as their sectoral distribution, their strategic focus and the financing methods adopted.

Figure 8

Latin America and the Caribbean (20 countries): productive coordination initiatives, by country, 2023–2025

(Numbers)



Source: Economic Commission for Latin America and the Caribbean.

4. Policies and programmes that foster cluster and other productive coordination initiatives

Chapter III analyses PCI policies, i.e. all efforts made by public or private institutions with a view to strengthening common action and participatory governance among groups of companies and institutions that operate in related sectors and have the common goal of improving their productive performance.

Chapter III proposes a distinction between direct and indirect PCI policies and emphasizes that the ideal scenario would be one in which PCIs were adopted as a spearhead for vertical efforts centred on the production priorities set out in a country or territory's productive development policies.

Although there are some experiences that come close to that ideal, PCI policies are often unrelated to these productive priorities, so that, for example, the sectors to be supported are chosen at the national level, but no action is taken to foster the development of cluster initiatives in territories on the basis of these choices. Worse still, there are cases where countries do not use existing PCIs in priority sectors to focus resources and efforts that could improve their productivity.

By means of interviews and a review of information on the websites of the entities promoting PCIs, data were collected on 29 PCI policies in 10 countries and a subregion (the Caribbean), and an in-depth analysis was conducted.

Some of these programmes are delivered by national institutions, as in Chile, Colombia (Colombia Productiva and Confecámaras), Costa Rica, Ecuador, Peru and Uruguay. Others are run by institutions in intermediate and local territorial entities, as in Argentina, Brazil, Colombia (chambers of commerce) and Mexico, while in the Caribbean there are ad hoc programmes of a multinational nature.

The PCI policies of 8 of the 11 countries analysed were launched subsequent to 2020, showing that there has been a resurgence of interest in these efforts in the region.

Direct PCI policies are also analysed by how they select beneficiary initiatives, support strategic planning and deliver non-reimbursable resources and other services. The analysis throws up a wide variety of mechanisms and models that vary between countries and even between levels of government within the same country, indicating that policies of this type can be adapted to different institutional capacities and production structures and to the availability of human, technical and financial resources at the entities implementing them.

5. Evaluation and results of productive coordination initiative policies

The results, both internationally and in Latin America and the Caribbean, suggest that PCIs, especially cluster initiatives, can be an effective instrument for fostering significant productive transformations in the economies of suitable territories by bringing together the efforts of different economic actors in pursuit of shared objectives and improving productive development policies.

However, there have been few efforts to evaluate PCI policies, especially impact assessments, mainly because of the conceptual and methodological complexity entailed in measuring the effects of these initiatives and the programmes that sponsor them.

Chapter III provides a summary analysis of four of the methodological difficulties encountered in evaluating the effects of PCI policies: (i) deciding who is to carry out the evaluation and to what end; (ii) identifying which impacts are to be evaluated and which variables used to measure them; (iii) establishing causality; and (iv) the limited availability of data.

Where Latin America is concerned, the chapter notes that the limited number of evaluations of policies and initiatives by comparison with the number of policies and PCIs that exist shows these processes to be still very much in their infancy in the region. In the research for the chapter, 16 exercises conducted between 2011 and 2025 to analyse the effects of PCI policies were mapped for six countries.

In five cases, the analyses focus on evaluating the impacts of PCIs on participating companies and direct beneficiaries. In all the other cases, no causality analyses are performed, but rather qualitative and quantitative methods are combined to analyse the results achieved by PCI policies and the associated initiatives, or to evaluate their operational characteristics.

It should be noted that measurement practices in Latin America over the last few years have focused mainly on monitoring, this being a methodology that facilitates repetition and comparison over time.

Lastly, the chapter summarizes information based on evaluation results about the effects of PCI policies in some Latin American and Caribbean countries, highlighting the productive transformation effects created by the policies that fostered productive agglomerations in Brazil, medical device clusters in Costa Rica and aerospace clusters in Querétaro (Mexico), among others. The analysis is supplemented by references to international experiences, such as those of Catalonia and the Basque Country in Spain and those of Germany, France and Canada, which are of particular interest as benchmarks for many countries in the region.

6. Guidelines

The items presented in chapter III show that PCIs can be key instruments for organizing productive transformation efforts and that there is ample scope to improve the depth and quality of implementation of these initiatives within the framework of productive development policies in the region. Accordingly, the chapter concludes by offering a number of guidelines and recommendations for scaling up and improving PCI policies:

- (a) Use PCIs to work on strategic agendas for sectors prioritized by national and subnational productive development policies.
- (b) Increase the resources invested.
- (c) Ensure the continuity of PCI policies.
- (d) Enhance incentives for innovation by promoting convergence between PCI and STI policies.
- (e) Enhance collaboration between PCIs.
- (f) Strengthen the capabilities of professionals.
- (g) Strengthen institutions and their TOPP capabilities.
- (h) Enhance evaluation capacity and encourage the adoption of an experimentalist approach to governance.
- (i) Invest in internal and external communication.
- (j) Explore the possibility of working on PCI-based sectoral and thematic regional productive development agendas for driving sectors.
- (k) Boost the Platform for cluster and other territorial productive articulation initiatives developed by ECLAC.

D. Green and inclusive productive development policies in Latin America and the Caribbean

Chapter IV analyses the opportunities presented by climate action to overcome the three development traps.

Firstly, it establishes the diagnosis that climate inaction dangerously aggravates all three development traps. Rising temperatures will result in a 6.3% drop in per capita GDP in the region by 2030, exacerbating the trap of low capacity for growth. The disproportionate impacts of climate change on the most vulnerable people and systems imply a worsening of the trap of high inequality and low social cohesion. Furthermore, the State capacities of the region's countries are expected to come under even greater pressure as the need to respond to climate disasters grows, exacerbating the trap of weak institutional capacities and governance.

Secondly, chapter IV emphasizes that climate action coupled with green and inclusive productive development policies, understood as a subset of the productive development policies advocated by ECLAC, is contributing to the transformations that are essential for a more productive, inclusive and sustainable future. In recent years, in fact, climate policy has become a driver of economic growth rather than an obstacle to it. Latin America and the Caribbean needs cumulative investment of US\$ 2.8 trillion

by 2030 to meet its climate commitments, and this expenditure would boost economic growth in the short term. However, the long-term benefits of decarbonization in terms of productivity, growth and development can only be realized through productive development policies which ensure that at least some of the sustainable, low-carbon solutions required are generated in the region.

Chapter IV examines national productive development policies in selected countries of the region to ascertain the extent to which they are aligned with climate policies, as per the climate commitments forming part of the nationally determined contributions established by the countries under the Paris Agreement. The analysis covers four countries with post-2020 nationally determined contributions and wide-ranging productive development policies: Brazil, with its New Industry Brazil policy; Chile, with its Sustainable Productive Development Programme; Colombia, with its National Reindustrialization Policy; and Mexico, with its Plan Mexico. The methodology consists in analysing the types of link between productive development policies and nationally determined contributions: explicit and direct; implicit and indirect; no link; absent in both the nationally determined contribution and the productive development policy; present in the productive development policy and absent in the nationally determined contribution.

The findings (see table 3) suggest that, at the sectoral level, most mitigation targets are reflected in productive development policies. At the aggregate level, however, there is great potential for improving the consistency of productive development policies with mitigation targets, considering that economy-wide mitigation targets are implicit or absent in most of the productive development policies analysed. The failure to incorporate aggregate mitigation targets explicitly into productive development policies means that efforts to promote green productive development may not be strong or rapid enough to contribute to national climate objectives.

	Brazil	Chile	Colombia	Mexico
Target type: absolute (compared to historical base year)				
Target type: relative (compared to business as usual emissions or greenhouse gas intensity)				
Economy-wide 2030 target				
Economy-wide 2050 target				
Economy-wide net zero target				
Sectoral targets or measures: energy				
Sectoral targets or measures: transport				
Sectoral targets or measures: industry				
Sectoral targets or measures: agriculture				
Sectoral targets or measures: waste				
Sectoral targets or measures: land use, land-use change and forestry				
Coal phase-down				
Carbon capture and storage				

- Explicit and direct link to the nationally determined contribution in the productive development policy.
- Implicit and indirect link to the nationally determined contribution in the productive development policy.
- No reference to the nationally determined contribution in the productive development policy.
- Not part of the nationally determined contribution and not mentioned in the productive development policy.
- Not part of the nationally determined contribution but mentioned in the productive development policy.

Table 3
Latin America
(4 countries): mitigation

Source: Economic Commission for Latin America and the Caribbean.

With regard to adaptation, the results indicate that most of the adaptation measures present in the nationally determined contributions are not reflected in productive development policies. Only one productive development policy (Brazil's) explicitly mentions an adaptation plan or measure, while another (Colombia's) contains an implicit reference, and half the countries' productive development policies (i.e. Chile's and Mexico's) make no reference to the subject. None of the productive development

policies includes sectoral adaptation objectives or measures, or adaptation options, needs or priorities. The weak link between the adaptation dimension of nationally determined contributions and productive development policies may represent a missed opportunity for green productive development, as adaptation-related technologies and solutions are fertile ground for development that remains outside the scope of current productive development policies.

With regard to secondary benefits and equity considerations, the analysis shows that nationally determined contributions could incorporate aspects of productive development as secondary benefits. The analysis also points to the need to spell out the links with just transition and equity aspects in nationally determined contributions and productive development policies to promote productive inclusion and tackle the high inequality trap.

In the area of implementation, the findings are that all the productive development policies analysed refer to climate-related productive development mechanisms and instruments, but in a heterogeneous way and without these being reflected in the nationally determined contributions. The four productive development policies and nationally determined contributions cover climate-related investment and contain climate-related regulatory and internationalization instruments. Most productive development policies provide for instruments related to STI, human talent gaps and climate financing. However, technology extension services, digital transformation and infrastructure mechanisms and instruments are not present in either the nationally determined contributions or the productive development policies of half the countries analysed.

With regard to the portfolio of driving sectors contributing to mitigation or adaptation proposed by ECLAC (see table 4), all the productive development policies and nationally determined contributions analysed include explicit mention of the energy transition, sustainable mobility, the circular economy and the bioeconomy. Most also include agriculture and sustainable water management. However, no nationally determined contribution or productive development policy mentions the care sector, which is important in the context of adaptation and resilience, bearing out the finding that productive development policies have not yet adequately incorporated the issue of adaptation. None of the nationally determined contributions analysed refers to advanced manufacturing (which is important for circular economy production plants, for example) or modern or ICT-enabled services (which are important for decarbonization and for services used in precision agriculture, including advanced weather forecasting), but these are present in one or two productive development policies.

Table 4
Latin America
(4 countries):
driving sectors for
a great productive
transformation

	Brazil	Chile	Colombia	Mexico
Advanced manufacturing related to climate mitigation, adaptation or sustainability				
Modern or ICT-enabled service exports related to climate mitigation, adaptation or sustainability				
Care services related to climate mitigation, adaptation or sustainability				
Energy transition				
Sustainable mobility				
Circular economy				
Bioeconomy				
Agriculture				
Sustainable water management				
Sustainable tourism				

- Explicit and direct link to the nationally determined contribution in the productive development policy.
- Implicit and indirect link to the nationally determined contribution in the productive development policy.
- No reference to the nationally determined contribution in the productive development policy.
- Not part of the nationally determined contribution and not mentioned in the productive development policy.
- Not part of the nationally determined contribution but mentioned in the productive development policy.

Source: Economic Commission for Latin America and the Caribbean.

The conclusion is that productive development policies must be strengthened and scaled up to contribute more effectively to the achievement of national climate goals, as established by the countries in their nationally determined contributions. The current situation presents a unique window of opportunity for a big push by the Latin American and Caribbean region for transformative investments oriented towards a more productive, inclusive and sustainable future. By prioritizing green and inclusive productive development, the Latin American and Caribbean region could position itself globally as a leader in the provision and adoption of green solutions by leveraging its water, biodiversity, renewable energy, food production, ecotourism and other assets. Green and inclusive productive development policies represent an opportunity for the region to achieve international recognition as a sustainable production platform whose goods and services could carry a sustainability hallmark, with a production system based on a clean energy mix and on traceability and compliance with international environmental standards. The challenges ahead are numerous, but the potential benefits of the process undoubtedly outweigh the effort entailed.

Recommendations to this end include specifying aggregate mitigation goals in productive development policies, incorporating and strengthening links between productive development policies and adaptation aspects, enhancing the consistency between productive development policy implementation mechanisms and nationally determined contributions, coordinating governance arrangements for productive development policies and nationally determined contributions, and strengthening citizen participation and just transition aspects. The nationally determined contributions themselves could also be strengthened by incorporating productive development policy elements, specifically in relation to secondary benefits and implementation mechanisms.

Lastly, the capacities required to manage indispensable transformations need to be strengthened, and to that end this 2025 edition of the *Panorama of Productive Development Policies in Latin America and the Caribbean* provides recommendations for specific actions at the subnational, national, regional and international levels to build a more productive, inclusive and sustainable future.

CHAPTER



Productivity and productive development policies in Latin America and the Caribbean

Introduction

A. Overview of productivity in Latin America and the Caribbean

B. Productive development policies in Latin America and the Caribbean

Bibliography

Annex I.A1

Introduction

Most countries in Latin America and the Caribbean face three development traps that limit their ability to advance towards more productive, inclusive and sustainable development: one of low capacity for growth, another of high inequality and low social mobility and cohesion, and a third of weak institutional capacities and ineffective governance (Salazar-Xirinachs, 2023; Economic Commission for Latin America and the Caribbean [ECLAC], 2024b).

Two interrelated factors largely explain why the region finds itself in a trap of low capacity for growth, namely low productivity and insufficient investment. Productive development policies address both elements. ECLAC therefore calls for these policies to be scaled up and improved with a renewed vision, so as to foster a productive transformation that enhances productivity and, in turn, enables the region to overcome this trap (ECLAC, 2024b).

In this context, raising productivity becomes, to a great extent, the main objective of productive development policies. It is therefore essential for governments and society as a whole to put productivity at the centre of public debate, which is not currently the case. Recognizing the importance of monitoring productivity trends, the first section of this chapter revisits, updates and deepens the analysis of productivity in the region presented in *Panorama of Productive Development Policies in Latin America and the Caribbean, 2024*. The second section summarizes the main elements of the new ECLAC vision in the area of productive development policies and, from this perspective, focuses on recent initiatives undertaken by the governments of Brazil, Chile, Colombia, Mexico and Peru.

A. Overview of productivity in Latin America and the Caribbean

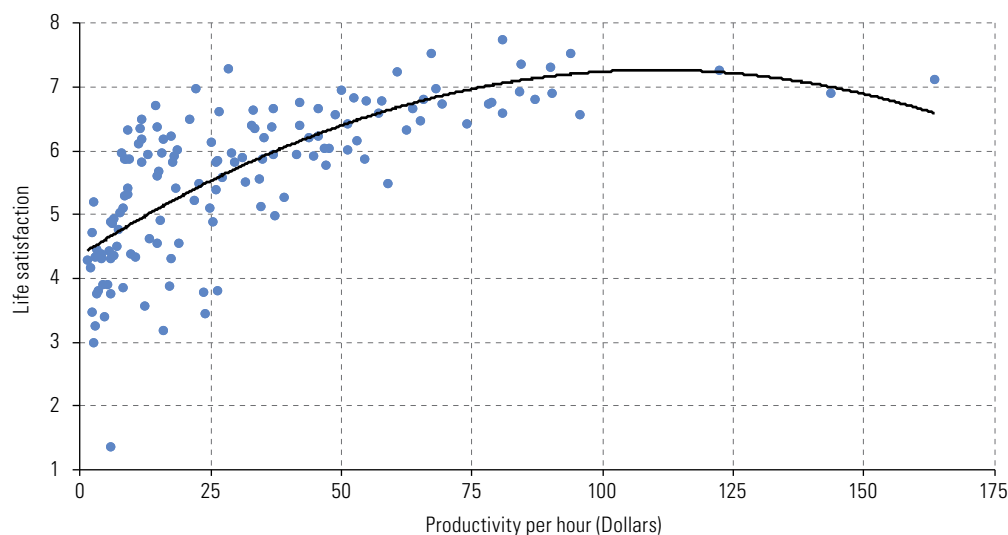
1. Recent trends in productivity

Productivity is central to the well-being of the population and, therefore, to countries' development, owing to its close link with income levels. Data show that as a country's labour productivity increases, its population tends, on average, to report greater satisfaction with life (see figure I.1). This is consistent with evidence on the significant effect of income on well-being (Gómez Álvarez and Ortiz Ortega, 2016; Rojas, 2020; Montero and Correa, 2023).¹

The importance of productivity as a determinant of income and population well-being underlies the call by ECLAC to scale up and improve productive development policies. Productive transformation is, in itself, one of the most powerful and effective ways to increase productivity. It refers to the process of sophistication, diversification and generation of positive structural change, that is, improving the productivity of existing activities, fostering the emergence of new higher-productivity activities and reallocating factors of production from lower-productivity sectors to higher-productivity sectors, as will be discussed in more detail below.

¹ The correlation between labour productivity and life satisfaction follows a quadratic form, indicating that productivity has a positive effect on well-being only up to a certain level. This is consistent with spline regression model estimates found in the relationship between income and life satisfaction (Jebb et al., 2018).

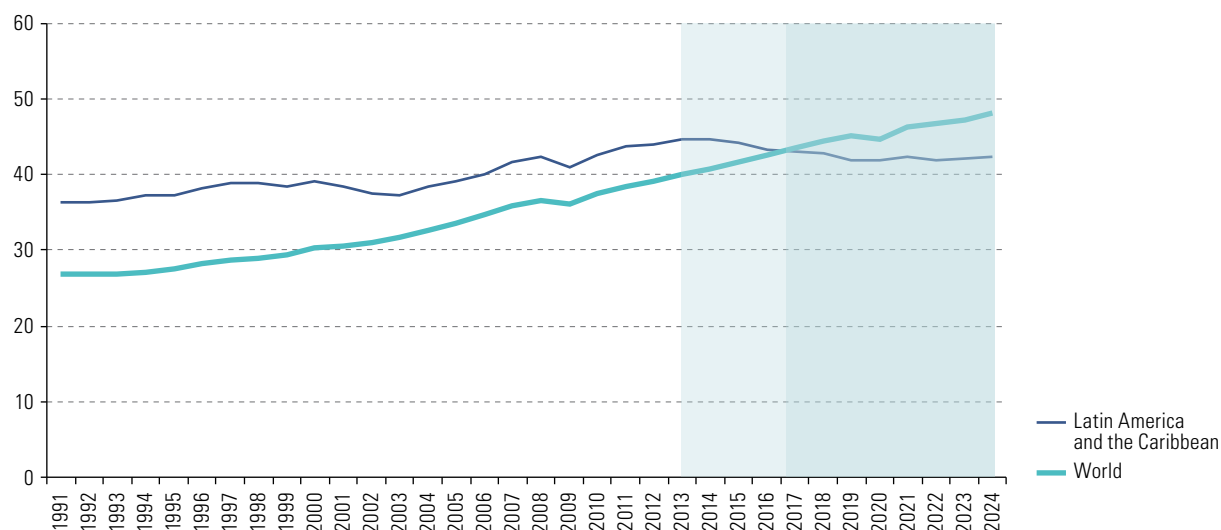
Figure I.1
144 countries: correlation
between life satisfaction
and productivity per hour,
average 2022–2024
(Scale of 1 to 10 and
international dollars at
2021 prices at purchasing
power parity (PPP))



Source: Economic Commission for Latin America and the Caribbean, on the basis of Helliwell, J. F., Layard, R., Sachs, J. D., De Neve, J. E., Aknin, L. B. and Wang, S. (Eds.). (2025). *World Happiness Report 2025*. University of Oxford; International Labour Organization. (2025). *ILOSTAT*. <https://ilostat.ilo.org/>.

Following an increase between 1990 and 2013, labour productivity in Latin America and the Caribbean has declined sharply in the last decade. This poor performance contrasts with average global productivity growth. The region's productivity fell below the global average for the first time in 2017, marking a milestone in this relative decline, and has since continued to drop further behind (see figure I.2).

Figure I.2
Latin America and the Caribbean (29 countries)^a and world (192 countries): labour productivity
per employed person, 1991–2024
(Thousands of constant dollars at 2021 prices at purchasing power parity (PPP))



Source: Economic Commission for Latin America and the Caribbean, on the basis of International Labour Organization. (2025). *ILOSTAT*. <https://ilostat.ilo.org/>.

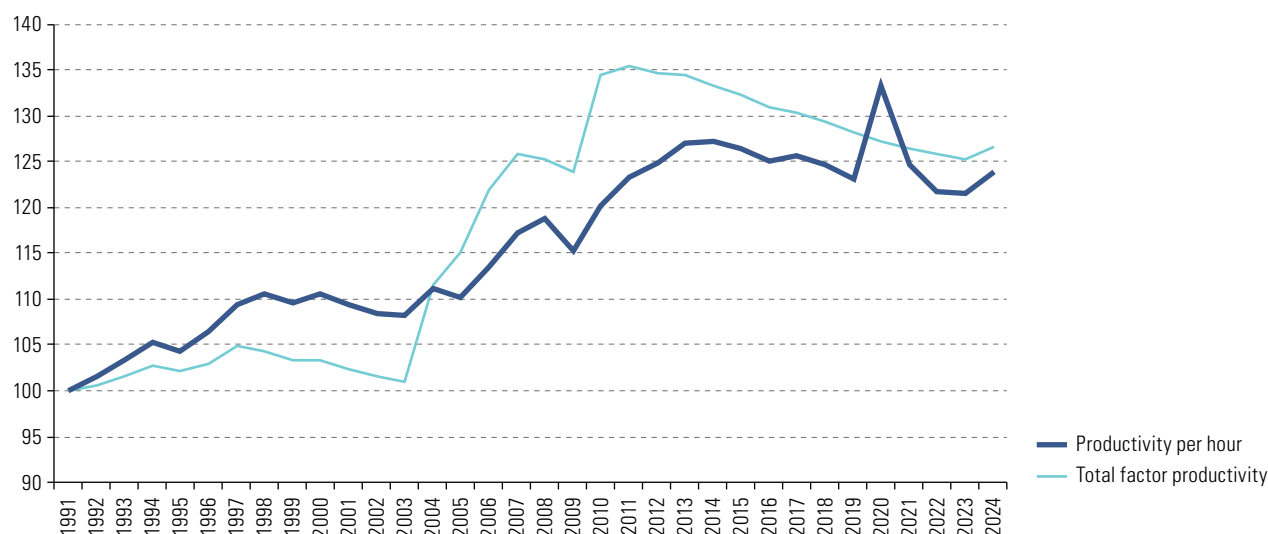
Note: Productivity per hour is calculated on the basis of international constant dollars at 2021 prices at purchasing power parity.

^a The countries considered are Argentina, The Bahamas, Barbados, Belize, the Bolivarian Republic of Venezuela, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, the Plurinational State of Bolivia, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago and Uruguay.

Moreover, total factor productivity in the region has followed the same trend as labour productivity per hour, albeit with larger year-on-year fluctuations and a downward trend beginning earlier, in 2011 (see figure I.3).² While both types of productivity recovered in 2024, the threats arising from geopolitical and climate-related factors underscore the need to address the challenge of increasing labour productivity and, consequently, the income of the population.³

Figure I.3

Latin America and the Caribbean (16 countries):^a productivity per hour and total factor productivity, 1991–2024
(Index: 1991 = 100)



Source: Economic Commission for Latin America and the Caribbean, on the basis of The Conference Board.

Note: Productivity per hour is calculated on the basis of constant dollars at 2022 prices at purchasing power parity.

^a The countries considered are Argentina, the Bolivarian Republic of Venezuela, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, Guatemala, Jamaica, Mexico, Paraguay, Peru, the Plurinational State of Bolivia, Trinidad and Tobago and Uruguay.

Recently, in 2024, productivity per hour in Latin America and the Caribbean increased by 2.2% compared with the previous year (see figure I.4). This rise in the region's average productivity is also reflected in year-on-year productivity growth in 23 countries of the region, 3 more than in 2023.

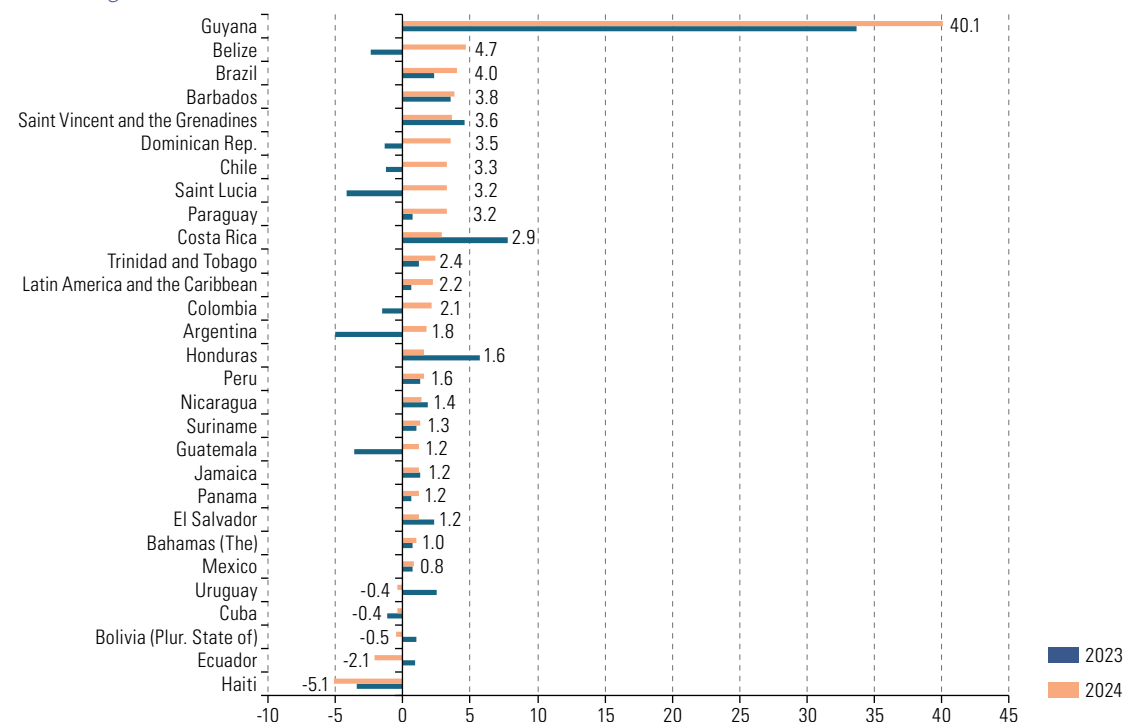
Latin America and the Caribbean is a highly heterogeneous region, and the pattern of labour productivity clearly reflects this diversity (see figure I.5). In 2024, the countries with the highest productivity levels were Guyana, The Bahamas, Barbados, Uruguay, Panama and Costa Rica.

² Total factor productivity is another complementary way of measuring productivity within the framework of growth accounting exercises. Known as the "Solow residual", it represents the unexplained portion of economic growth after accounting for the contributions of labour and capital. There is broad consensus that it measures the efficiency with which an economy uses its resources to produce goods and services, and is therefore interpreted as reflecting the contribution of technical progress, technological change and innovation. However, it may also capture organizational and institutional changes, as well as improvements in management, human resource quality and other factors affecting production. Given the wide range of elements that may be embodied in this "residual" and the limited understanding and debate surrounding it, the residual has been described as "the measure of our ignorance" regarding the causes of economic growth (Cornwall, 2017).

³ The peak in productivity per hour in 2020 reflects distortions in labour and production caused by the coronavirus disease (COVID-19) pandemic.

Figure I.4

Latin America and the Caribbean (28 countries): annual variation in labour productivity per hour worked in the week, 2023 and 2024
(Percentages)

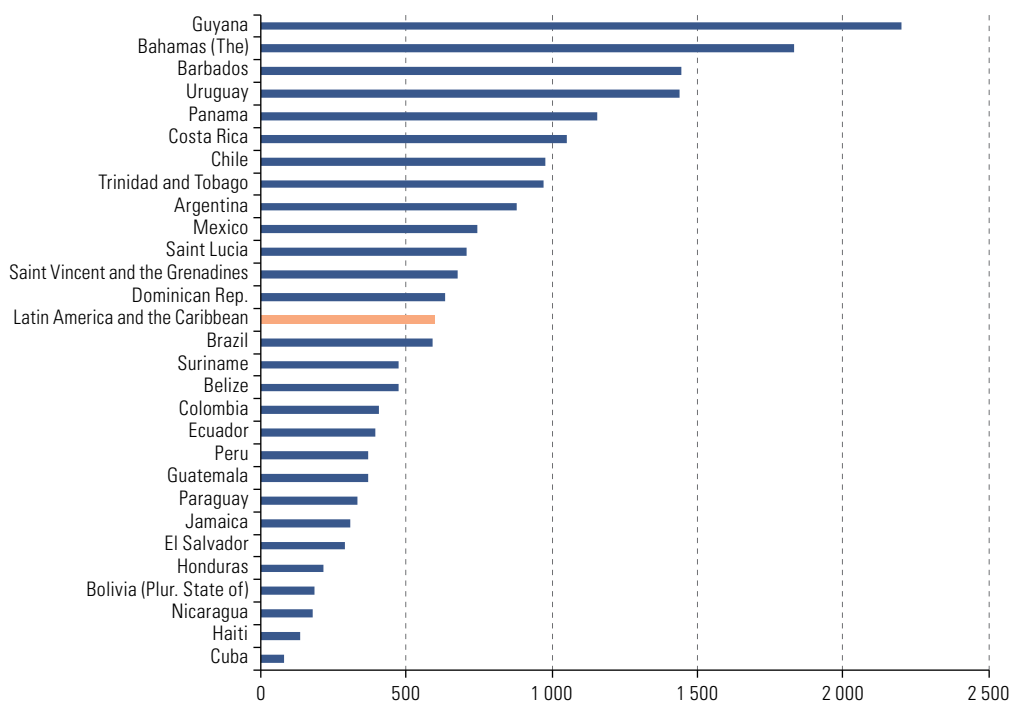


Source: Economic Commission for Latin America and the Caribbean. (2025). *CEPALSTAT*. <https://statistics.cepal.org/portal/cepalstat/index.html?lang=en>; International Labour Organization. (2025). *ILOSTAT*. <https://ilostat.ilo.org/>.

Note: Changes are calculated using constant dollars at 2018 prices.

Figure I.5

Latin America and the Caribbean (28 countries): labour productivity per hour worked in the week, 2024
(Current dollars)



Source: Economic Commission for Latin America and the Caribbean. (2025). *CEPALSTAT*. <https://statistics.cepal.org/portal/cepalstat/index.html?lang=en>; International Labour Organization. (2025). *ILOSTAT*. <https://ilostat.ilo.org/>.

Productivity levels and changes alike depend on a variety of factors, notably technical progress, innovation, capital intensity, the direction and speed of structural change and the sectoral profile of economies, agglomeration economies, access to public goods, the degree of market competition, the scale of production and the existence of economies of scale. These factors give rise to different perspectives in the observation of productivity differentials. Three of these perspectives are presented and analysed below: productivity by economic activity, productivity by territory and productivity by company size.

2. Productivity by economic activity

The level and overall dynamics of productivity and income in a country or territory are closely linked to the productivity levels and dynamics of its predominant economic activities or sectors. ECLAC has consistently emphasized the importance of understanding productivity differentials and dynamics between economic activities, and the link to overall productivity and income levels in the countries of the region. In 2023, there continued to be wide disparities in productivity levels between sectors, with some, such as mining, utilities and business services, exhibiting relatively high productivity, and others, such as agriculture and commerce, showing low productivity (see figure I.6).⁴

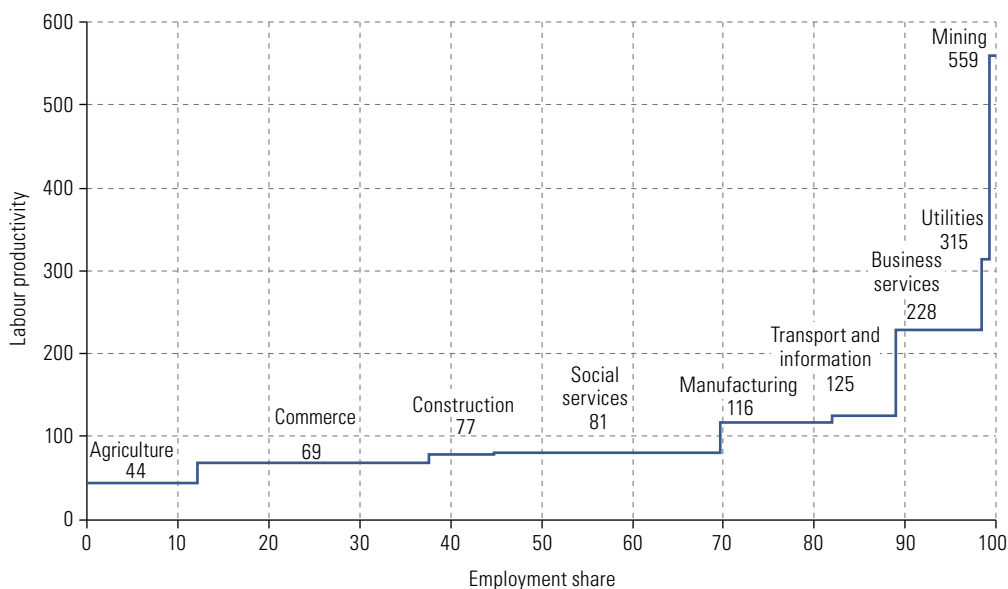


Figure I.6
Latin America and the Caribbean
(28 countries):^a internal
relative productivity and
employment share, by
economic activity, 2023
(Total productivity
index = 100 and
percentages)

Source: Economic Commission for Latin America and the Caribbean. (2025). *CEPALSTAT*. <https://statistics.cepal.org/portal/cepalstat/index.html?lang=en>; International Labour Organization. (2025). *ILOSTAT*. <https://ilostat.ilo.org/>.

^a The countries included are Argentina, The Bahamas, Barbados, Belize, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, the Plurinational State of Bolivia, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago and Uruguay.

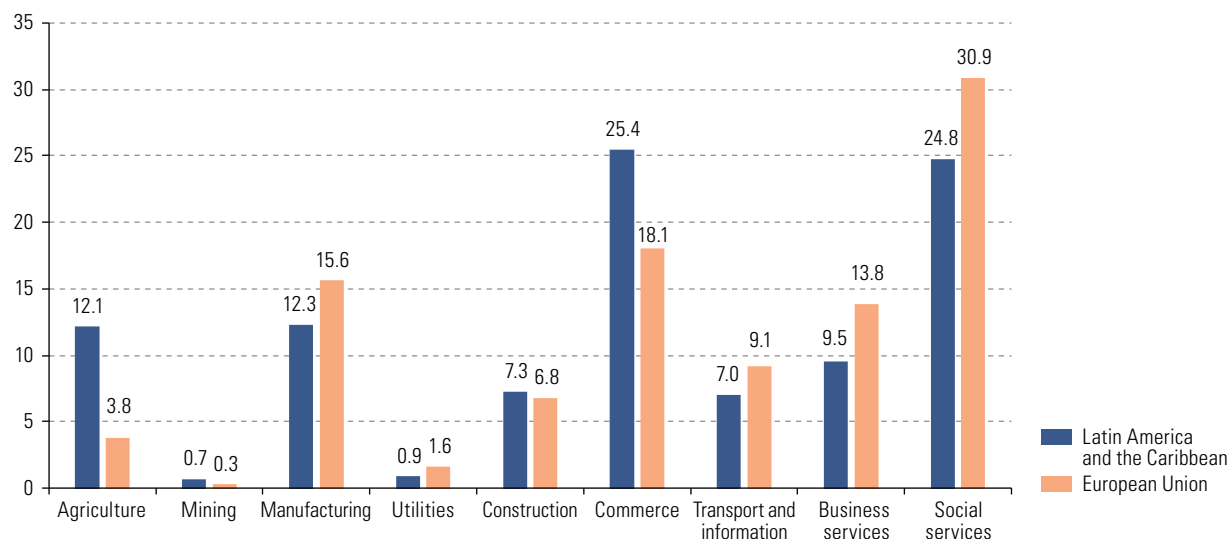
⁴ Differences in productivity across economic activities are not, in themselves, negative. The key issue, as will be examined below, lies in the significant presence of low-productivity sectors and the greater dispersion of productivity levels across sectors relative to more developed economies.

A second factor on top of the “intrinsic” differences in productivity between sectors is the high proportion of employment in lower-productivity sectors. Very high-productivity sectors (mining and utilities)⁵ account for only a tiny fraction of employment, while the vast majority of jobs are in lower-productivity activities.⁶

While it is normal in any economy for very high-productivity activities (such as mining and utilities) to account for a small fraction of employment, the difference between Latin America and the Caribbean and more developed economies is that low-productivity sectors account for substantially larger shares of total employment. For instance, when the sectoral employment structure of Latin America and the Caribbean is compared with that of the European Union, the region shows substantially higher shares of employment in the two lowest-productivity sectors (agriculture and commerce), while one of the highest-productivity sectors (business services) accounts for a significantly smaller share (see figure I.7).

Figure I.7

Latin America and the Caribbean (28 countries)^a and European Union (27 countries):^b employment shares, by economic activity, 2023
(Percentages)



Source: Economic Commission for Latin America and the Caribbean, on the basis of International Labour Organization. (2025). *ILOSTAT*. <https://ilostat.ilo.org/>; European Union. (2025). Eurostat. <https://ec.europa.eu/eurostat>.

^a The countries considered are Argentina, The Bahamas, Barbados, Belize, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, the Plurinational State of Bolivia, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago and Uruguay.

^b The countries considered are Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, the Kingdom of the Netherlands, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden.

⁵ Utilities include sections D and E of revision 4 of the International Standard Industrial Classification of All Economic Activities (ISIC), namely: electricity, gas, steam and air conditioning supply; and water supply, sewerage, waste management and remediation activities. Among the subsectors comprising this group, electricity generation, transmission and distribution tend to exhibit the highest productivity, owing both to their high capital intensity and to the knowledge embedded in their operations.

⁶ The relationship between labour productivity and employment levels is complex and may involve mutual causality. However, in a typical context of economic growth, it is changes in productivity that determine the level of employment required, rather than the reverse. A clear example is found in agriculture: mechanization tends to reduce the amount of labour needed to work the same plot of land, but the outmigration of rural workers to other sectors does not necessarily increase agricultural productivity if their labour input is not replaced by greater capital endowment.

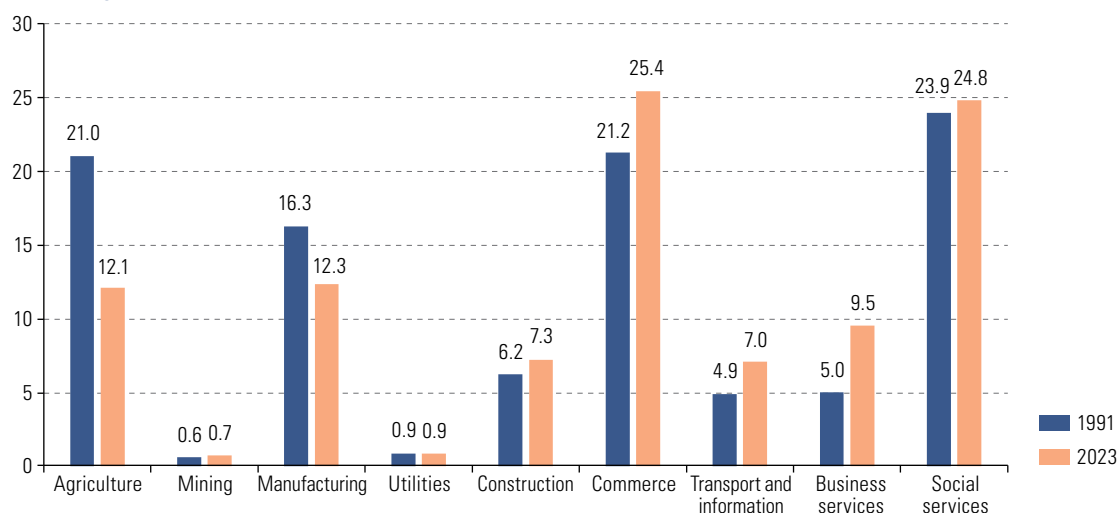
A positive factor that has partly explained productivity growth in the region since 1990 has been the process of “structural change.” A positive structural change, consistent with the discussion above, occurs when the share of employment in higher-productivity activities increases within total employment, leading to a corresponding decline in lower-productivity employment.⁷

Depending on the unit of analysis used to examine these employment variations, different types of structural change can be identified. From a sectoral perspective (or by economic activity), a positive structural change takes place when labour participation increases in higher-productivity activities. In other words, it occurs when labour shifts from lower-productivity activities to higher-productivity ones, including shifts towards previously non-existent high-productivity subsectors. This process is also referred to as a “between” productivity gain.

When the focus is on territories rather than sectors, positive structural change occurs when the share of employment grows in higher-productivity territories. Likewise, a positive structural change by company size takes place when the share of employment increases in the higher-productivity segment (large companies), while the relative weight of low-productivity micro- and small enterprises declines. The latter two types of structural change are analysed in the following subsections.

Regarding sectoral structural change, the most notable transformations over the past three decades concern the share of employment in agriculture and business services (see figure I.8). While in 1991 agriculture accounted for 21% of total employment, by 2023 its share had fallen to 12.1%; over the same period, the business services sector increased its share from 5% to 9.5%.⁸

Figure I.8
Latin America and the Caribbean (28 countries):^a employment share, by activity, 1991 and 2023
(Percentages)



Source: Economic Commission for Latin America and the Caribbean, on the basis of International Labour Organization. (2025). *ILOSTAT*. <https://ilostat.ilo.org/>.

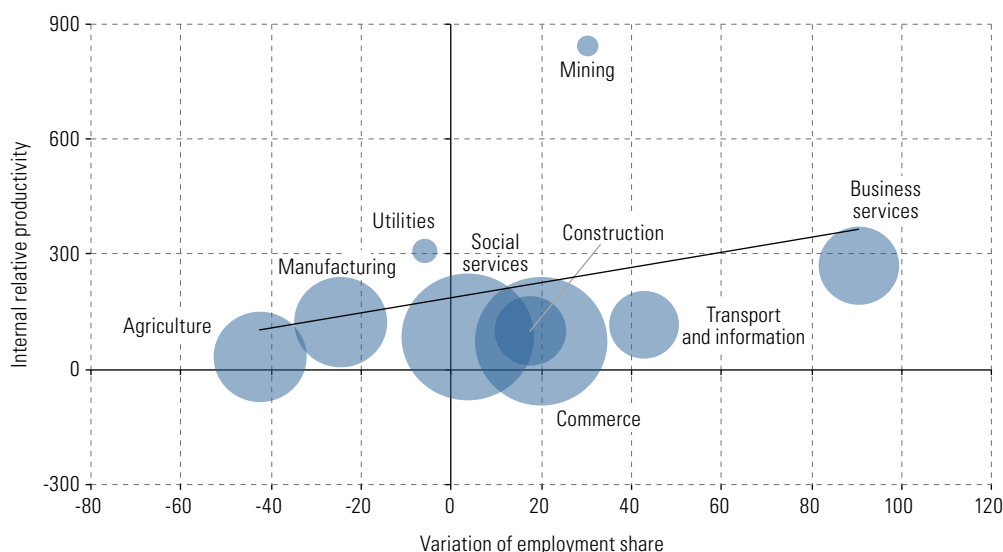
^a The countries included are Argentina, The Bahamas, Barbados, Belize, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, the Plurinational State of Bolivia, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago and Uruguay.

⁷ By contrast, a negative structural change takes place when the share of employment in higher-productivity activities declines and, as a result, lower-productivity employment grows.

⁸ Business services include financial and insurance activities, real estate activities, professional, scientific and technical activities, as well as administrative and support service activities. These service sectors are characterized by a highly knowledge-intensive use of human talent and are therefore often referred to as “knowledge-based services” (López et al., 2014; Rozemberg and Gayá, 2019; Álvarez et al., 2020).

The positive slope in figure I.9 provides a visual illustration of sectoral structural change. This slope shows that the sectors with higher internal relative productivity have been those that most increased their share of employment over the past three decades. Business services, one of the sectors with the highest productivity, recorded the greatest increase in its share of employment, whereas agriculture, the lowest-productivity sector among the nine considered, registered the largest decrease. The counterfactual scenario suggests that, had there not been a positive structural change during this period, the region's total labour productivity in 2023 would have been 9.5% lower than the level actually recorded.

Figure I.9
Latin America
and the Caribbean
(28 countries):
correlation between
variation of employment
share and internal
relative productivity,
by economic activity,
1991–2023
(Percentages, average
productivity = 100)



Source: Economic Commission for Latin America and the Caribbean. (2025). *CEPALSTAT*. <https://statistics.cepal.org/portal/cepalstat/index.html?lang=en>; International Labour Organization. (2025). *ILOSTAT*. <https://ilostat.ilo.org/>.

Note: The size of the circles reflects the sector's share of total employment in 2023.

^a The countries considered are Argentina, The Bahamas, Barbados, Belize, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, the Plurinational State of Bolivia, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago and Uruguay.

In line with the approach proposed by McMillan and Rodrik (2011) and Diao et al. (2019), and with the previous definition of productive transformation, the change in an economy's labour productivity results from a combination of structural change—that is, the variation in the “between” component of productivity change—and the “within” component, which corresponds to increases or decreases in labour productivity within each sector.⁹

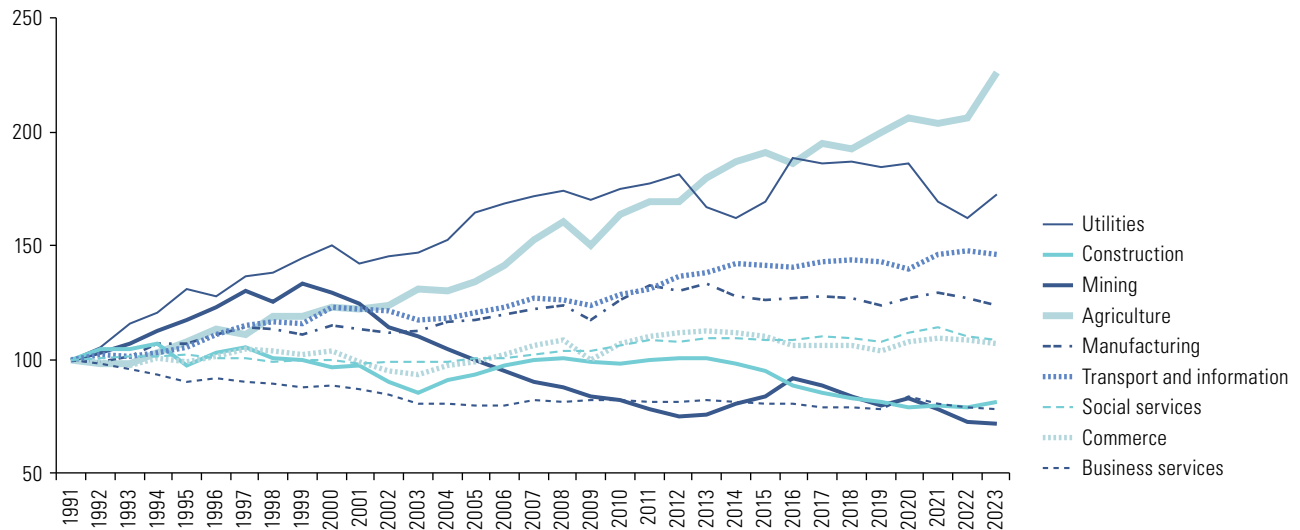
The variations in productivity in each sector of economic activity over the past three decades have followed the same pattern: high-productivity activities, such as mining and business services, have tended to decline in productivity, while low-productivity activities, such as agriculture, fishing and forestry, have tended to register increases (Economic Commission for Latin America and the Caribbean [ECLAC] and International Labour Organization [ILO], 2022) (see figure I.10).¹⁰ As a result, productivity differentials between economic activities have diminished during this period.

⁹ The main underlying equation is given by $\Delta Y_t = \sum_{i=1}^N \theta_{it} \Delta y_{it} + \sum_{i=1}^N y_{it} \Delta \theta_{it}$, where i denotes the economic activity sectors, Y and y represent total and sectoral labour productivity levels, respectively, and θ corresponds to the employment share of each sector. This decomposition is applied in numerous studies, including some by the World Bank (Dieppe, 2021) and the Organisation for Economic Co-operation and Development (OECD, 2025). The first term captures the variation in productivity within each sector of economic activity, thereby reflecting shifts in productive sophistication and diversification, as proposed by Verhoogen (2023). The second term, in turn, captures the effect of structural change.

¹⁰ Despite this, as noted above, this sector maintains the lowest level of labour productivity.

Figure I.10

Latin America and the Caribbean (28 countries): trends in labour productivity, by economic activity, 1991–2023
(Index: 1991 = 100)



Source: Economic Commission for Latin America and the Caribbean. (2025). *CEPALSTAT*. <https://statistics.cepal.org/portal/cepalstat/index.html?lang=en>; International Labour Organization. (2025). *ILOSTAT*. <https://ilostat.ilo.org/>.

^a The countries included are Argentina, The Bahamas, Barbados, Belize, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, the Plurinational State of Bolivia, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago and Uruguay.

Labour productivity in Latin America and the Caribbean is only 29.7% of the level seen in the European Union (see figure I.11). This difference is explained largely by the productivity gap in almost all sectors of economic activity (the exceptions being mining and hydrocarbons).¹¹ As a result, even if structural change were to accelerate in the desired direction—that is, with labour moving from low- to high-productivity sectors—the low productivity levels across all sectors in the region would prevent a substantial increase in overall productivity if sectoral productivity remained at current levels. In other words, even if Latin America and the Caribbean had the same sectoral employment structure as the European Union (see figure I.7), the region's productivity would increase by only 12%. Thus, the main productivity challenge for the region lies in the low productivity of nearly all economic activities, a condition that ECLAC has been underscoring for several decades and that remains a problem today (ECLAC, 1990, 2010a). This suggests that, in addition to promoting the creation and expansion of new high-productivity sectors, it will be essential to foster productivity growth within existing sectors.

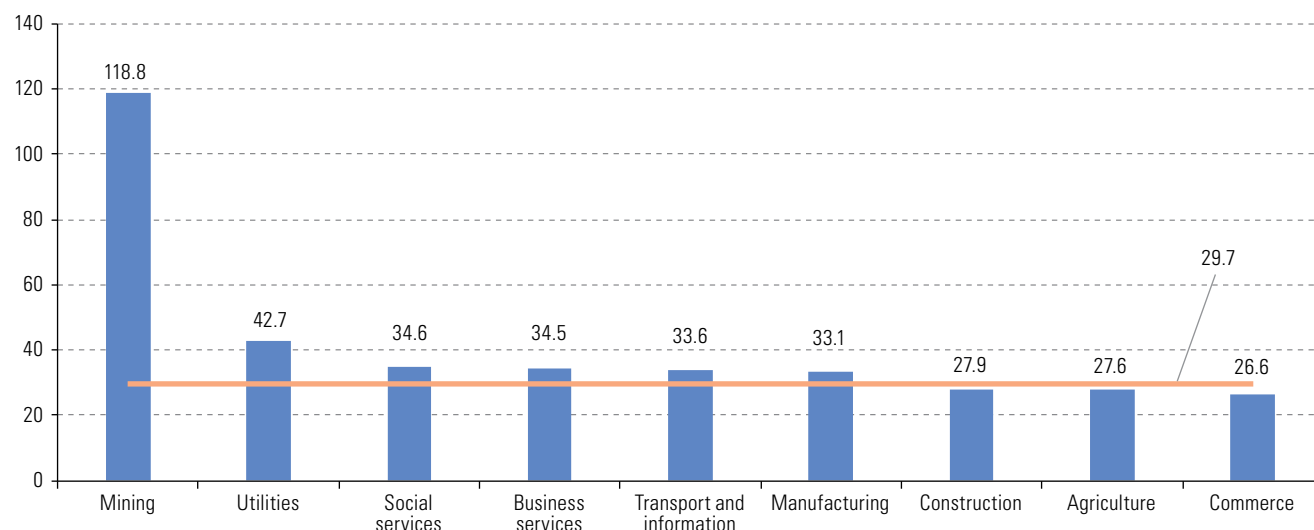
A comparison of the contribution of the “between” and “within” components to labour productivity growth in the region between 1991 and 2019 (the year prior to the pandemic) shows that all countries underwent positive sectoral structural change, but only a few achieved average productivity growth within sectors (see figure I.12). For the region as a whole, labour productivity per employed person increased by an annual average of 0.6%, of which the “between” component accounted for 0.5%, representing the main source of growth. This outcome stemmed in part from the fact that some of the region's largest economies—Argentina, Brazil and Mexico—showed a significant positive contribution from the “between” component, which exerted a strong influence on the regional average and even offset the negative “within” contribution recorded in a large number of countries.¹²

¹¹ The total gap would be even greater if compared with more productive economies, such as that of the United States.

¹² In Brazil and Mexico, productivity gains from sectoral structural change came mainly from the increased share of employment in business services; in Argentina, the sector that demonstrated the greatest impact on structural change was mining and hydrocarbons, which rose from 0.1% of employment in 1991 to 0.4% in 2019.

Figure I.11

Latin America and the Caribbean (28 countries)^a and European Union (27 countries)^b external relative labour productivity, by economic activity, 2023
(European Union productivity index = 100)



Source: Economic Commission for Latin America and the Caribbean. (2025). *CEPALSTAT*. <https://statistics.cepal.org/portal/cepalstat/index.html?lang=en>; International Labour Organization. (2025). *ILOSTAT*. <https://ilostat ilo.org/>; European Union. (2025). *Eurostat*. <https://ec.europa.eu/eurostat>.

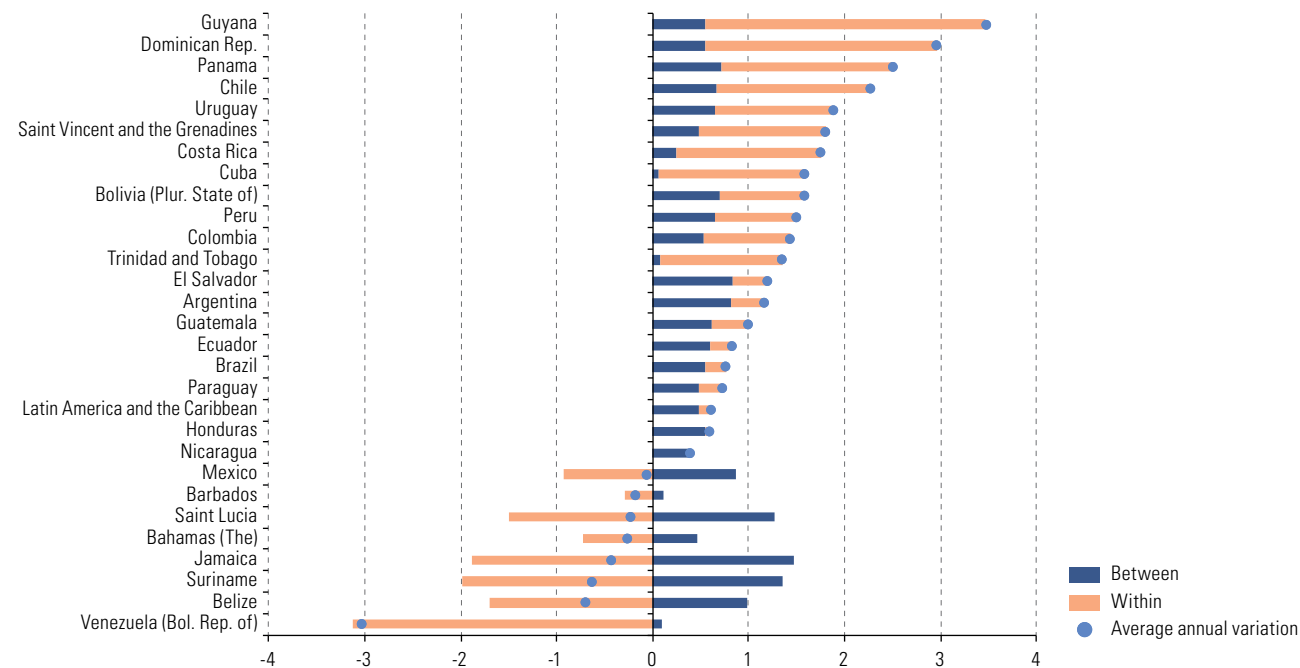
Note: External relative labour productivity measures labour productivity in Latin America and the Caribbean as a proportion of labour productivity in an external region, in this case the European Union, for the purposes of comparison.

^a The countries included are Argentina, The Bahamas, Barbados, Belize, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, the Plurinational State of Bolivia, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago and Uruguay.

^b The countries considered are Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, the Kingdom of the Netherlands, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden.

Figure I.12

Latin America and the Caribbean (28 countries): sectoral components of average annual variation in labour productivity, 1991–2019
(Percentages)



Source: Economic Commission for Latin America and the Caribbean. (2025). *CEPALSTAT*. <https://statistics.cepal.org/portal/cepalstat/index.html?lang=en>; International Labour Organization. (2025). *ILOSTAT*. <https://ilostat ilo.org/>.

An examination of both components reveals that, although the “between” component has consistently made a positive contribution to each country’s productivity trajectory, the “within” component has ultimately determined the direction and magnitude of total productivity change in the period. This is owing to the fact that, in the past three decades, a considerable number of countries have registered declines in the “within” component.

3. Productivity by subnational territory

A second approach to measuring structural change uses territory as the unit of analysis. The 2024 edition of this publication highlighted the heterogeneity in productivity across territories within the region’s countries, noting cases in which the least productive territory recorded productivity 12 times lower than that of the highest performing territory (ECLAC, 2024a, pp. 54–57).

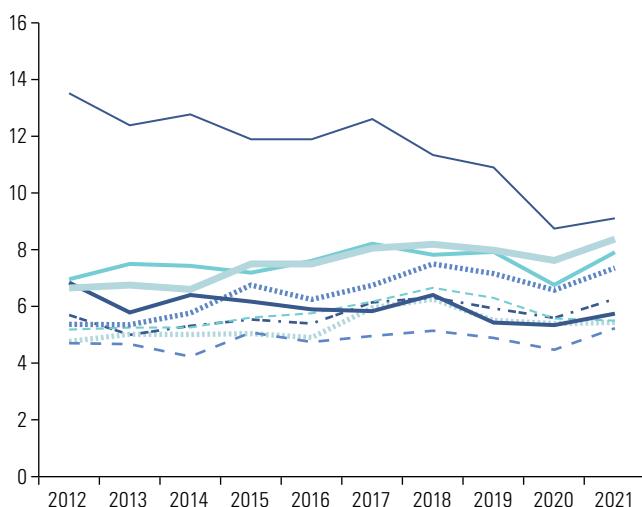
Over the past decade, territorial productivity performance has shown a negative trend in most of the 172 territories for which comparable labour productivity time series are available.

The most significant and striking productivity declines have occurred in territories that started the previous decade with high productivity (see figure I.13). Given the strong presence of mineral and hydrocarbon production in many of these territories, a plausible explanation for this decline is that the drop in international commodity prices over the past decade has affected these territories more severely than others.

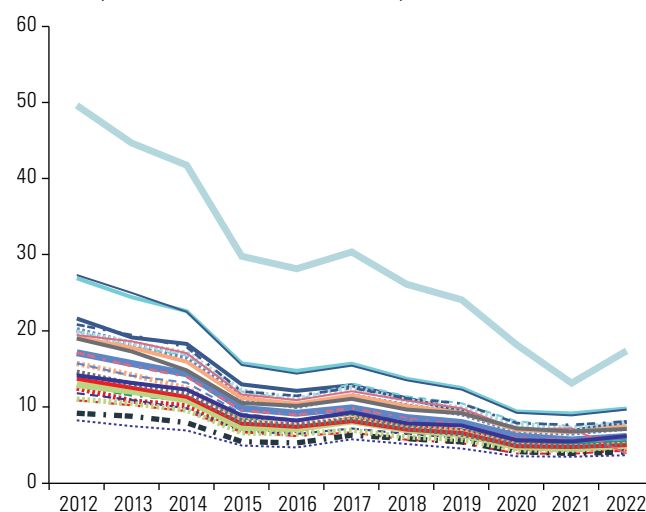
Figure I.13

Latin America (8 countries): labour productivity, by region, 2012–2023 or latest available year
(Thousands of constant dollars at 2018 prices)

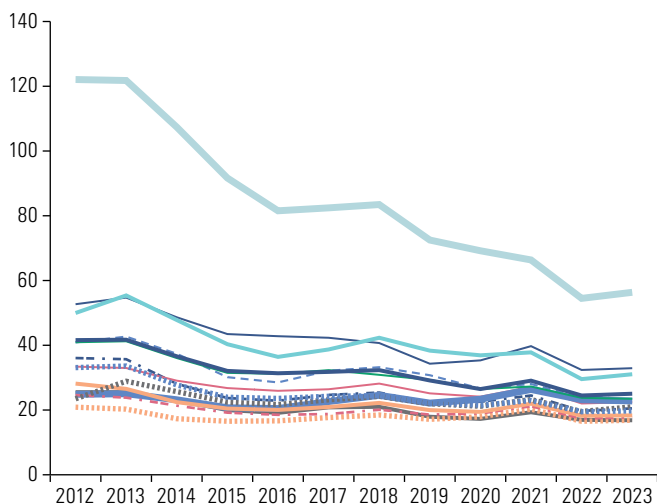
A. Bolivia (Plurinational State of) (9 departments)



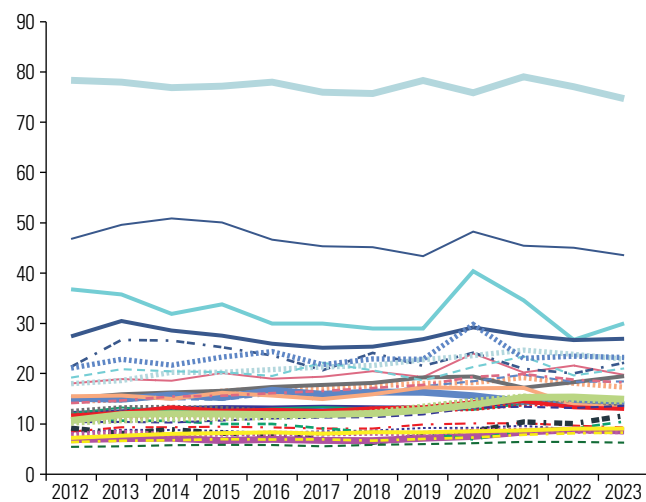
B. Brazil (Federal District and 26 States)



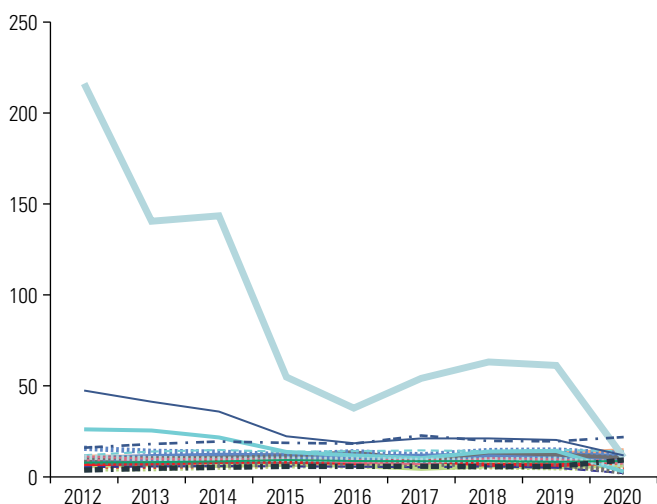
C. Chile (16 regions)



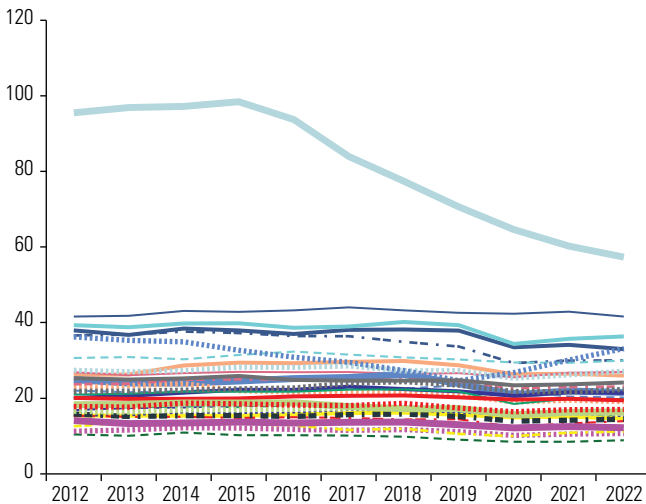
D. Colombia (Capital District and 32 departments)



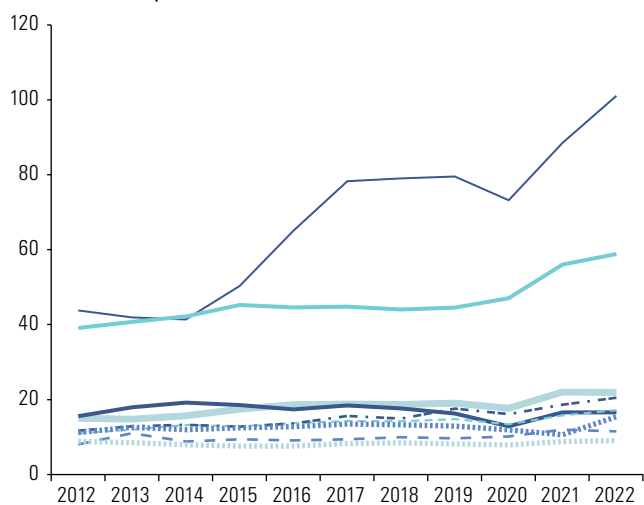
E. Ecuador (24 provinces)



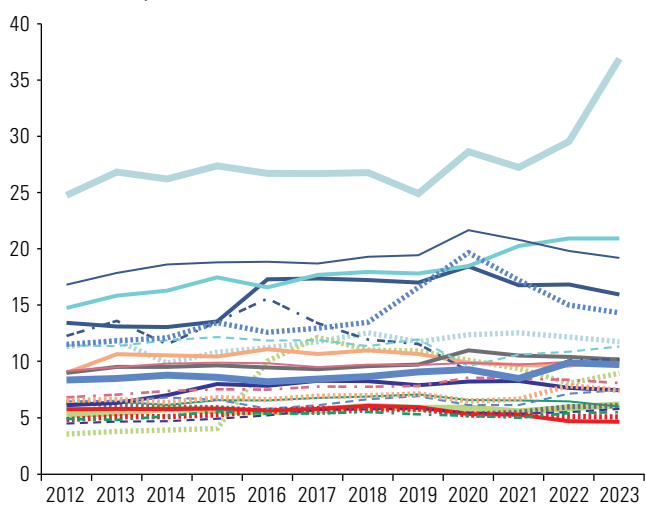
F. Mexico (32 federative entities)



G. Panama (10 provinces)



H. Peru (24 departments)



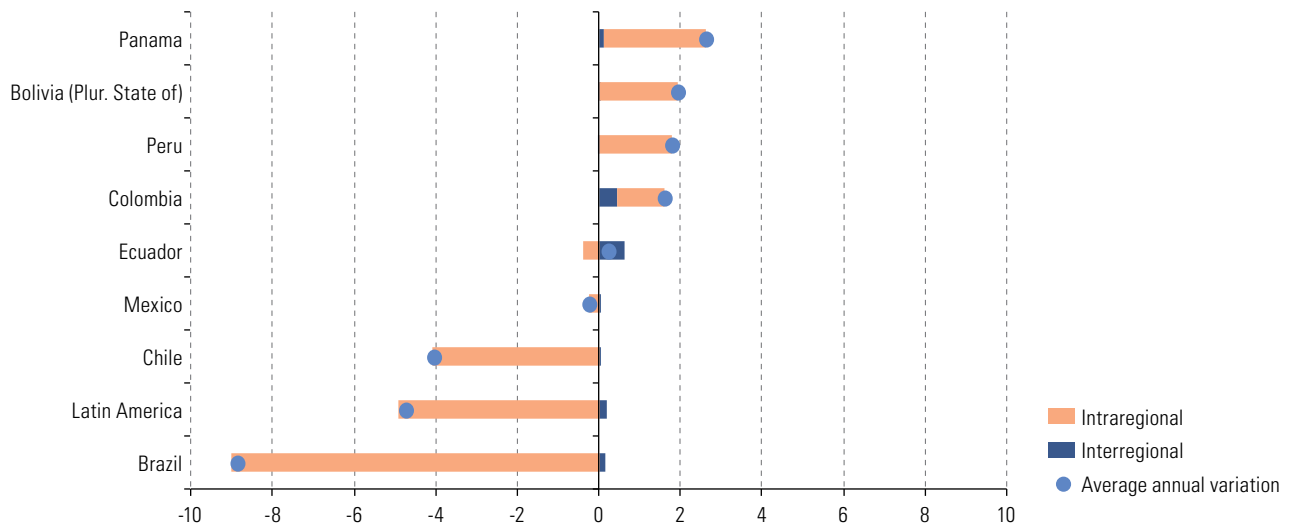
Source: Economic Commission for Latin America and the Caribbean. (2025). *CEPALSTAT*. <https://statistics.cepal.org/portal/cepalstat/index.html?lang=en>; and official figures from the respective countries.

Note: The regions of Ñuble and Bío-Bío are shown together for Chile; the provinces of Panamá and Panamá Oeste for Panama; the constitutional province of Callao, the province of Lima and the department of Lima for Peru; and the department of Cundinamarca and Capital District of Bogotá for Colombia. Detailed charts are presented in annex I.A1.

Applying the decomposition method for labour productivity changes outlined in the previous section, the territorial interregional component appears to have had a relatively minor influence on productivity variations (see figure I.14). This indicates that population changes between regions, stemming from migration or from differences in birth and death rates across regions, have had an almost negligible effect on changes in labour productivity.

Figure I.14

Latin America (8 countries): components of average annual variation in territorial productivity, 2012–2019
(Percentages)



Source: Economic Commission for Latin America and the Caribbean. (2025). *CEPALSTAT*. <https://statistics.cepal.org/portal/cepalstat/index.html?lang=en>; and official figures from the respective countries.

The predominance of the intraregional component in productivity trends underscores the importance of ECLAC recommendations that subnational governments play a more active role in implementation of productive development policies. The significant productivity gains in certain regions of Ecuador, Panama and Peru are noteworthy, as they illustrate that each subnational region has the potential to steer its territorial productivity in a desirable direction, even in unfavourable national contexts.¹³

Consistently with the above, the general decline in labour productivity in Latin America and the Caribbean in the last decade correlates with the decline in productivity in most subnational territories. This widespread trend coexists with regional productivity convergence, meaning that territories with higher and lower productivity are drawing closer in terms of labour productivity, and that regional disparities in both variables have decreased over the past decade.¹⁴

In contrast to the pattern in Latin America and the Caribbean, the dynamics of subnational regions within OECD member countries show the opposite trend —namely, a generalized increase in productivity accompanied by growing regional divergence

¹³ The 10 regions that have most increased their labour productivity per person employed during the period under review are Apurímac and Tacna (Peru), Colón, Los Santos and Herrera (Panama), Zamora Chinchipe and Esmeraldas (Ecuador), La Paz (Plurinational State of Bolivia), Tolima (Colombia) and Junín (Peru).

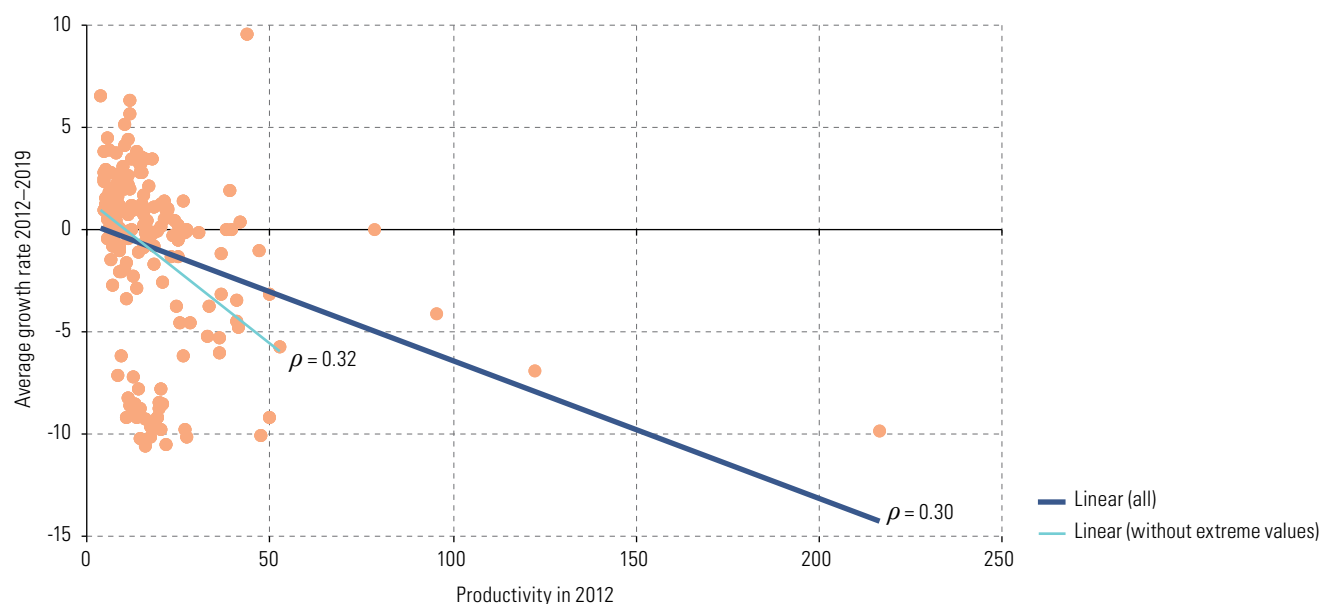
¹⁴ The literature refers to the first outcome as “beta” convergence and to the second as “sigma” convergence (ECLAC, 2010b, pp. 26–27). Territorial convergence based on the per capita GDP of subnational regions has been examined previously. Since 2010, a series of ECLAC publications on territorial development in Latin America and the Caribbean has consistently outlined evidence of some degree of convergence within countries, although this process has been moderate in those where inequality persists and the observed changes are not statistically significant (ECLAC, 2010b, 2012b, 2015, 2017; Genta et al., 2022; Díez Pinto et al., 2025).

(Organisation for Economic Co-operation and Development [OECD], 2023, p. 35). Similar to the comparison of regions across OECD member countries (OECD, 2023, p. 35), figure I.15 presents the variation in productivity among 172 regions of Latin America. It shows that the regions with higher productivity levels in 2012 were those that experienced the steepest declines between 2012 and 2019. The fact that this convergence has generally been accompanied by negative productivity growth is indicative of a process of “regressive convergence” (Di Tommaso, in press) —that is, the opposite of “progressive divergence,” characterized by productivity growth alongside increasing territorial inequality, as observed in OECD member regions.

Figure I.15

Latin America (172 regions): regressive convergence of productivity, 2012–2019

(Percentages and thousands of constant dollars at 2018 prices)



Source: Economic Commission for Latin America and the Caribbean. (2025). *CEPALSTAT*. <https://statistics.cepal.org/portal/cepalstat/index.html?lang=en>.

Note: The upper limit of the vertical axis was reduced from 25 to 10 to improve visualization, omitting one region with an extreme value. The correlation excluding extreme values omits the four regions with productivity levels above US\$ 60,000 in 2012.

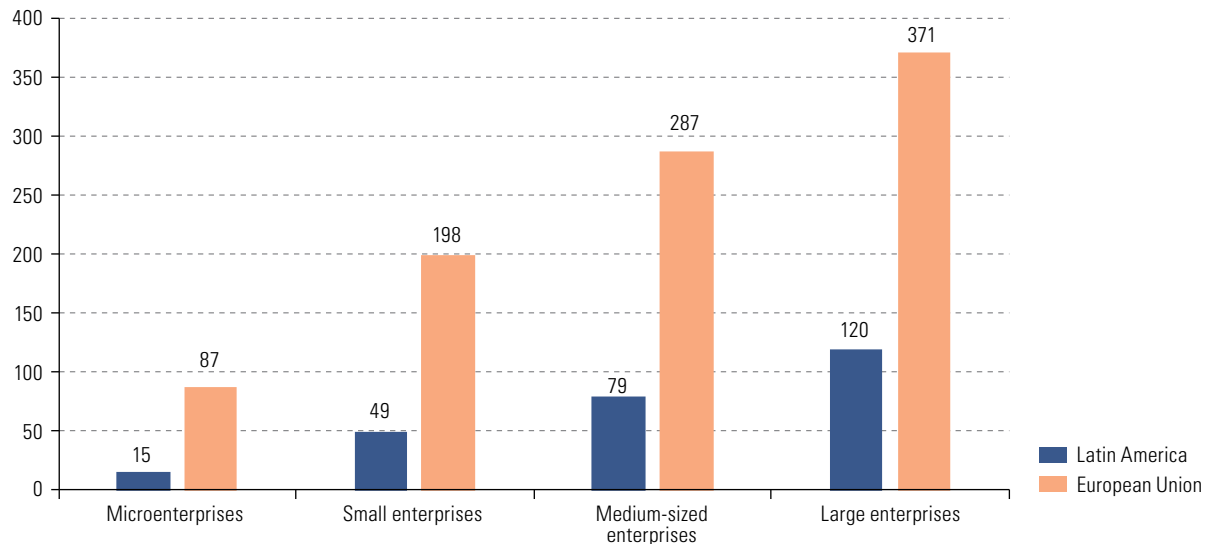
4. Productivity by company size

The third perspective to be examined are labour productivity differentials by company size. Productivity differentials between larger and smaller companies within an entire productive structure arise mainly from the different economies of scale associated with firms of varying sizes. Therefore, productivity differentials are observed both in Latin America and in more developed regions (Correa et al., 2020).

In this regard, Latin America has two characteristics that set it apart from more developed regions. The first is relatively low labour productivity in companies of all sizes. In 2023, the productivity of large firms in the region was 32.3% that of their counterparts in the European Union, while the productivity of formal microenterprises in the region was only 17.2% that of European microenterprises (see figure I.16). This broadly weaker productivity translates into lower incomes and, consequently, weighs on the well-being of workers and their families across the productive spectrum.

Figure I.16

Latin America (4 countries)^a and European Union (27 countries):^b labour productivity, by company size, 2023
(Thousands of current dollars)



Source: Economic Commission for Latin America and the Caribbean, on the basis of official data from the countries and European Union. (2025). *Eurostat*. <https://ec.europa.eu/eurostat>.

Note: Labour productivity is defined as the value of sales per employee.

^a The countries considered are Argentina, Brazil, Chile and Mexico.

^b The countries considered are Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, the Kingdom of the Netherlands, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden.

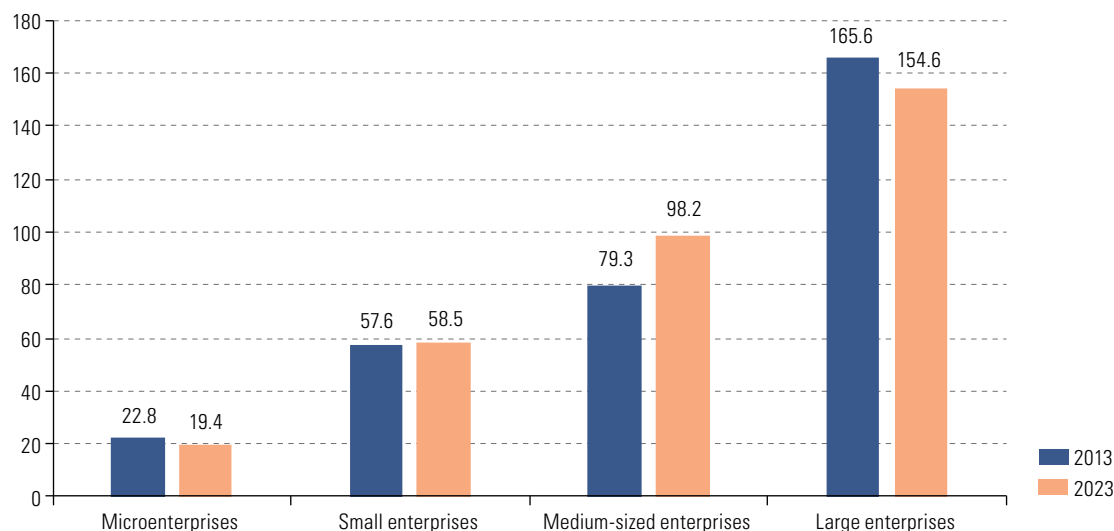
The second characteristic is the much greater productivity gap in smaller companies, especially microenterprises. In addition to the larger gap between microenterprises in Latin America and their counterparts in more developed regions, the distance in productivity between smaller and large firms is also greater in Latin America. In 2023, microenterprises in the European Union achieved 23.5% of the productivity of large firms, whereas in Latin America this share was only 12.4%. This larger difference hampers the internal integration of the productive system, making it difficult for large firms to use smaller suppliers owing both to their limited scales of production and to the gap in technical capabilities between the two types of firm, which reflects the productivity differential.¹⁵

When a 10-year period is taken into consideration, not only has overall productivity declined, as already noted, but the gap between large and smaller domestic companies has widened, which is detrimental to integration within the production system (see figure I.17). This highlights the need to consider ways of fostering productive linkages between companies of different sizes, for which cluster initiatives and other forms of productive coordination provide a powerful mechanism (see chapter III), alongside efforts to enhance productivity through technological extension in lower-productivity firms (see chapter II).

¹⁵ This means that smaller firms are generally unable to meet the production scale, timing and quality requirements demanded by larger firms. The limited level of business integration ultimately hinders the diffusion of innovation and technical progress through client and supplier networks. This inequality is thus one of the factors behind the greater lag in overall productivity, particularly among smaller firms.

Figure I.17Latin America (4 countries):^a labour productivity, by company size, 2013 and 2023

(Thousands of constant dollars at 2018 prices)

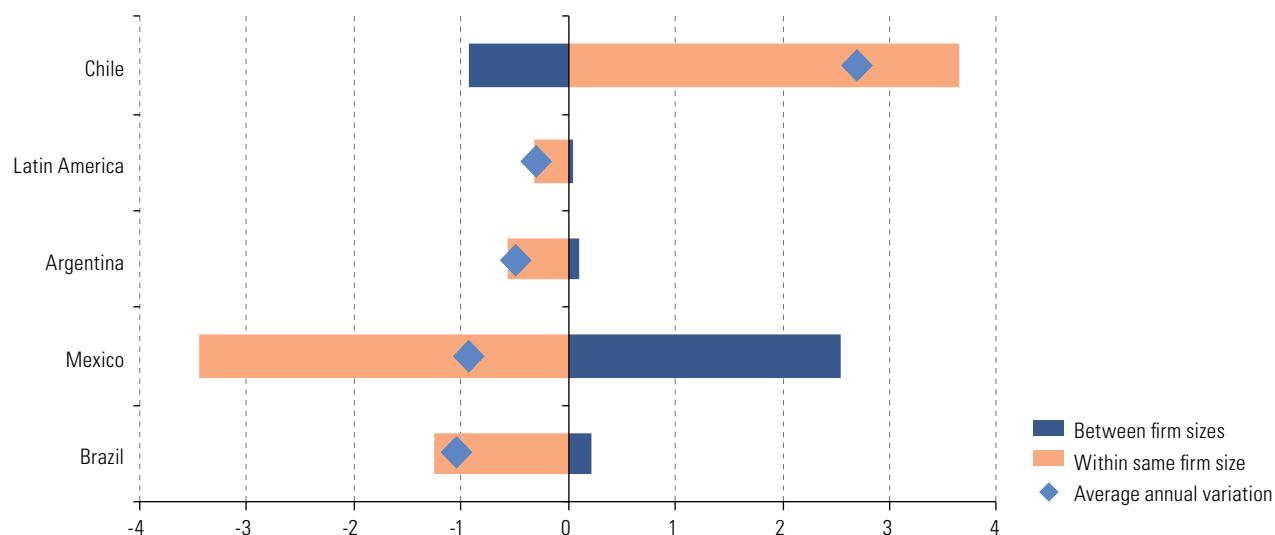
**Source:** Economic Commission for Latin America and the Caribbean, on the basis of official data from the countries.**Note:** Labour productivity is defined as the value of sales per employee.^a The countries considered are Argentina, Brazil, Chile and Mexico.

As in previous sections, the variation in productivity can be analysed according to employment mobility between firms of different sizes and changes in productivity within each size category. Thus, variations in productivity are explained mainly by changes within each firm-size category, with an overall decline in the past decade (see figure I.18).

Figure I.18

Latin America (4 countries): components of average annual variation in labour productivity, by company size, 2013–2023

(Percentages)

**Source:** Economic Commission for Latin America and the Caribbean, on the basis of official data from the countries.**Note:** Labour productivity is defined as the value of sales per employee.

The productivity figures and analyses by company size cover only the formal sector of the economy. These productivity differentials would likely be even more pronounced if the informal sector were taken into account, particularly in a region where nearly half of total employment is informal (ECLAC, 2024b, p. 145).

5. Productivity challenges

The analysis of productivity in the region indicates that major challenges will have to be overcome for its improvement, which is essential to advance towards higher income levels and well-being. The available statistics on labour productivity, disaggregated by economic activity, territory and company size, highlight the importance of strengthening productive capacities across all branches of economic activity, throughout national territories and in firms of all sizes.

From a sectoral perspective, the productivity gap between sectors in Latin America and the Caribbean suggests that significant potential remains for productivity growth through deeper, positive structural change. At the same time, the productivity gap between sectors in the region and their international peers indicates a substantial opportunity to raise productivity by moving closer to the technological frontier. Therefore, productive development policies are needed that not only foster positive structural change but also enhance productivity within existing sectors—including labour-intensive ones, as proposed by Rodrik and Stiglitz (2025)—and promote the development of higher-productivity sectors.

In territorial terms, while inequality between regions has gradually decreased over the past decade—extending a pattern observed in previous decades—, this has stemmed from a regressive convergence process, leading to lower overall productivity levels. The productivity challenge is thus present both in domestic policies and in the productive development strategies implemented by subnational governments across the region.

Lastly, analyses of productivity by company size show that over the past decade, productivity has declined across the board while the gap between larger and smaller firms has widened. This calls for renewed efforts to boost the productivity of micro-, small and medium-sized enterprises, particularly microenterprises, which continue to show the greatest lag when compared with both larger firms and microenterprises in more developed countries.

B. Productive development policies in Latin America and the Caribbean

1. Reaffirming a new vision for these policies

The three traps facing Latin America and the Caribbean may become even more restrictive in the current international context of heightened geopolitical tensions and economic uncertainty. This stems from both the direct negative impact that a shift in United States trade policy may have on the countries of the region—particularly those with strong trade and investment ties to that country—and the indirect effects of market volatility and high uncertainty, which could undermine the economic performance of the region's economies. Moreover, the persistence and escalation of armed conflicts have prompted the world's major powers to redefine their priorities, allocating more resources to the development of their productive and defence capabilities, to the detriment of areas supporting developing countries.

For Latin America and the Caribbean, this new scenario only underscores the urgency of defining strategies for countries and territories that enable them to confront these three traps and address underlying structural problems. In particular, as highlighted in the previous section, the region faces the major challenge of productivity remaining stagnant, or even declining, which largely explains why it remains caught in the trap of low capacity for growth.

Productive transformation can only be achieved if the countries of the region advance in the design and implementation of larger-scale, high-impact productive development policies that promote increased investment and productivity. Consistent with the analysis in the previous section, this can be achieved through productive development policies aimed at: (i) raising the productivity of the sectors, firms and territories lagging the furthest behind; (ii) improving the productivity of leading sectors, firms and geographical areas; (iii) encouraging investment and the development of new higher-productivity sectors and activities; and (iv) fostering structural change that allows the migration of factors towards higher-productivity sectors and firms. In other words, productive development policies should encourage new investment and innovation, identify and address bottlenecks that limit the productive transformation process and enable the development of strategic agendas that promote this transformation.

The region has undertaken various productive development policy efforts.¹⁶ However, ECLAC (2024a) posits that such efforts: (i) have been marginal in the face of the existing productivity challenge and compared with other countries' efforts in this area; (ii) have been carried out in a disjointed manner, thus there are significant opportunities to improve coordination between different ministries, agencies, stakeholders and government levels; (iii) have been discontinuous, with policy shifts owing to changes of government; (iv) have been managed primarily with a centralist, top-down approach from capital cities and without any major role for local territories and actors; (v) have not been sufficiently evaluated, bearing in mind that evaluation is essential to determine what works and what does not, with a view to scaling up, adjusting or discarding them and (vi) have been generally low-impact, when considered in the light of the region's insufficient performance in terms of productivity and growth.

In the vision proposed by ECLAC (2024a), several key elements are highlighted to help the region achieve better outcomes in its efforts linked to productive development policies. The key components of this vision can be summarized as follows:

- These policies may be understood as horizontal and vertical efforts aimed directly at the productive transformation of economies, as a vehicle for increasing their productivity.
- These policies are applicable to all sectors of the economy, not just the manufacturing sector.
- Countries and their respective territories should define their productive priorities, for which ECLAC has proposed a reference portfolio of driving sectors.¹⁷
- These policies are understood primarily as collaborative efforts by multiple actors from the public and private sectors, academia and civil society, to identify and address bottlenecks that constrain productive transformation and develop strategic agendas that foster this process.

¹⁶ Concrete examples can be found in ECLAC (2007, 2024a), Oqubay and Lin (2020), and Peres (1997), among others.

¹⁷ Key driving sectors include the pharmaceutical and life sciences industry; the medical device industry; advanced manufacturing; export of modern or information and communications technology-enabled services; the care society; labour-intensive services; e-government; the energy transition (renewable energies, green hydrogen and lithium); electromobility; the circular economy; the bioeconomy (sustainable agriculture, genetic resources and bioindustrialization); agriculture for food security; sustainable water management; and sustainable tourism, in addition to a cross-cutting geographical rearrangement of production and value chains worldwide.

- In light of the above, governance for productive development is crucial, broadly understood as the mechanisms —be they coordination bodies or rules of the game, dynamics and incentives— that support the coordination of multiple stakeholders, resources and efforts around strategic productive development agendas.
- These policies entail coordinated work in multiple areas, such as science, technology and innovation, technological extension services, entrepreneurship, digital transformation, closing human talent gaps, financing, investment, specific infrastructure and other public goods, policy and regulatory agendas, and internationalization.
- A considerable share of productive development efforts must be undertaken at the local level, in other words subnationally, in the territories and with local stakeholders. Work on far-reaching productive development agendas must therefore be conducted at the subnational level, where subnational governments play a leading role. Ideally, all this should take place while striking a good balance between national and subnational efforts, based on robust multilevel governance plans.
- An experimentalist governance model must be promoted, in which initiatives are implemented, evaluated and then adjusted, followed by renewed implementation, in a continuous iterative learning process.
- The cluster initiative approach is recommended as a way of organizing productive development efforts that combines multi-stakeholder governance, sectoral prioritization, a territorial approach and experimentalist governance, and enables work on strategic agendas for productive development and productivity growth (see chapter III).
- A focus on internationalization is recommended, in the broadest sense of the term, which implies: positioning Latin American and Caribbean goods and services in international markets; effectively competing with imports; attracting foreign direct investment and maximizing its impact; linking productive sectors with global sources of technology and knowledge (including universities, technology centres, entrepreneurship networks and the diaspora); designing and implementing regional productive development agendas; and establishing links with other regions' productive development policies.

2. National productive development policies in the region

The countries of the region take varying approaches to productive development, with multiple strategies, various institutional design and implementation frameworks and a wide array of programmes and instruments. ECLAC (2024a) conducted an initial comparative exercise to characterize and quantify the instruments comprising productive development policies, analysing more than 850 instruments from five countries and a wide range of institutions.

In this publication, an additional analysis identifies countries where work on productive development strategies has been conducted within the framework of national development plans. A first objective is to identify the extent to which the region has made use of the productive development strategies and policies being implemented in the rest of the world, in the well-known cases of the United States, China and the countries of the European Union, and to which it has presented proposals for coordinated strategies or

policies in a structured format, as opposed to de facto programmes and instruments with no organizing or structuring strategy or policy. A second objective is to analyse whether these plans include certain features that, according to ECLAC (2024a), might contribute to their success, e.g. whether (i) there is prioritization between productive activities; (ii) the resources available for the plan are specified; (iii) multi-stakeholder and multilevel governance mechanisms are in place, including participation by subnational actors; and (iv) evaluation and adjustment mechanisms are provided for.¹⁸

With regard to the first objective, five countries of the region were identified as having structured productive development policy strategies in place: Brazil with its New Industry Brazil plan, Chile with its Sustainable Productive Development Programme, Colombia with its National Reindustrialization Policy, Mexico with its Plan Mexico and Peru with its National Industrial Development Policy.¹⁹

On this occasion, the analysis focuses on policy statements, without reviewing implementation, which is expected to be addressed in future editions of this report. Taking this methodological approach, it is not possible to determine whether countries will actually implement these policies as stated, which constitutes a considerable limitation in light of the fact that problems with implementation and multi-stakeholder coordination have been among the main barriers to the success of productive development policies in the region. In any case, this analysis presents a summary, with a common analytical perspective, of the main efforts being proposed by the countries of the region to boost productive development in their territories. This perspective is valuable for understanding how some countries of the region are addressing the issue, along with its scope and key definitions. It enables an awareness, at the very least, of the proposals that countries are putting forward and how they envisage implementation, indicating, to some extent, their highest level of ambition on the matter. Studies to analyse implementation and impact will be possible in subsequent editions, once sufficient time has elapsed for the effects of policies to be felt.

Following is a summary of the main elements of each of these policies, with an analysis of some of their building blocks in the framework of the vision proposed by ECLAC (2024a).

(a) Brazil: New Industry Brazil plan

The New Industry Brazil plan is the productive development policy launched in January 2024, to be implemented by the federal government over the next 10 years.

This strategy was developed through a wide-ranging dialogue among National Council for Industrial Development²⁰ working groups, and is based on three premises: first, that strengthening Brazilian industry is key for the country's sustainable development, from the social, economic and environmental perspectives; second, that Brazil has faced early

¹⁸ This analysis is not an evaluation of these policies, since a reasonable time must elapse after measures are implemented before it is possible to identify their impact, given that the effects of productive development policies may be medium- and long-term. Furthermore, identifying policy impact requires access to firm-level information, and this usually necessitates specific studies by country or type of policy, something that exceeds the scope and objectives of this chapter.

¹⁹ At the time of the preparation of this chapter, the Dominican Republic was defining the measures to be implemented under *Plan Meta RD 2036*, and it is therefore not included in this analysis. The strategy nonetheless has an innovative institutional design, with governance led at the presidential level and robust inter-agency, public-private and territorial coordination. *Plan Meta RD 2036* aims to establish a new model for accelerated, sustainable and inclusive economic development, with a view to doubling the country's GDP by 2036 and achieving full development. It is premised on the notion that the country must implement second-generation reforms, focused on strengthening human capital and fostering productivity. The plan's innovative design includes a *Meta RD 2036* commission and 12 public-private sectoral committees, established and appointed, respectively, by the Office of the President, and a dynamic approach to diagnosis, implementation, learning, evaluation and feedback on policies and initiatives (Government of the Dominican Republic, 2025).

²⁰ The National Council for Industrial Development has 42 members and includes ministers and representatives of industrial trade associations and labour unions.

and accelerated deindustrialization since the 1980s, characterized by a reprimarization of its production structure and the shortening and weakening of production chain linkages; and lastly, that the country's exports are concentrated in low-technology products, which limits the benefits of international trade.

The plan therefore aims to: (i) stimulate technical progress and, in turn, national productivity and competitiveness, thus creating quality jobs; (ii) use the country's competitive advantages more efficiently; and (iii) reposition Brazil in international trade (National Council for Industrial Development [CNDI] and Ministry of Development, Industry, Trade and Services [MDIC], 2025).

The New Industry Brazil plan clearly recommends the prioritization of production. It is structured around policies guided by six missions, each one focused in 2024 on at least three priority production chains (see table I.1), which in many cases coincide with the driving sectors outlined by ECLAC (2024a). Objective political and technical criteria were used to identify promising production chains for Brazil; the results show that ecosystems have already been established around each chain.

Mission	Priority chains
1 Sustainable and digital agribusiness chains for food, nutrition and energy security	Precision agriculture (drones and sensors); agricultural machinery and its parts and components; fertilizers and biofertilizers; technical textiles
2 Resilient economic-industrial health complex to reduce the vulnerabilities of the Unified Health System and expand access to healthcare	Medicines and biological active ingredients; vaccines, blood derivatives and advanced therapies; medical devices
3 Infrastructure, sanitation, housing and sustainable mobility for productive integration and well-being in cities	Propulsion systems; electric batteries; ships, trains and their parts and components
4 Digital transformation of industry to boost productivity	Semiconductors; industrial robots; advanced products and services (digital platforms and cloud computing; advanced digital and audiovisual services)
5 The bioeconomy, decarbonization, and energy transition and security to secure resources for future generations	New energy sources (hydrogen, green diesel and sustainable aviation fuel) green energy equipment (solar panels and wind turbines), and decarbonization of basic industries (cement, steel and green chemicals)
6 Technologies of interest for national sovereignty and defence	Launch vehicles, radar devices and satellites

Table I.1
Missions of the New Industry Brazil plan

Source: Economic Commission for Latin America and the Caribbean, on the basis of National Council for Industrial Development and Ministry of Development, Industry, Trade and Services. (2025). *Nova Indústria Brasil: forte, transformadora e sustentável. Plano de Ação para a Neointustrialização 2024-2026*.

The New Industry Brazil plan relies on financial and non-financial instruments coordinated with support from the National Council for Industrial Development, which are grouped into three major areas of action: first, use of financial instruments —such as sustainable finance for the green transformation— and financing for areas such as innovation, infrastructure and exports, with credit lines, grants and subsidies, and tax incentives; second, improvement of the business environment using a set of measures aimed at boosting the competitiveness of the national productive sector through upskilling, trade promotion, and the reduction of regulatory inefficiencies in areas such as intellectual property, metrology, taxation, infrastructure and foreign trade; and third, use of the State's purchasing power for public procurement, so that purchases, public works and acquisitions by the administration itself and by State-owned companies drive industrial development in strategic areas such as infrastructure, clean energy, health and defence.

In addition, for each mission, specific objectives and goals were defined through stakeholder round tables, to ensure that they would be quantifiable and data-driven. Each mission also specifies what needs to be done to achieve objectives, leverage opportunities and face the related challenges over the period 2024–2026, with financial and non-financial instruments.

With regard to financial instruments, the plan factors in the mobilization of considerable non-refundable resources, and the institutional frameworks tasked with spending them.²¹ As such, it includes not only a strategy and action plan, but also specifies from the outset the financial resources available for implementation, from now up to 2026. It incorporates the use of existing financing modalities, such as State purchasing power, and private sector stimuli, with the aim of boosting private investments.

In terms of governance, this policy includes a complex network of public and private institutions incorporated into various working groups. The National Council for Industrial Development is responsible for management, and its chair is the Minister for Development, Industry, Trade and Services, who reports to the President of the Republic (Presidency of the Republic of Brazil, 2023).²² In 2023 and 2024, some working groups were established for each of the policy's missions while others were created for specific matters concerning all missions. Beginning in 2025, these working groups have been meeting regularly to discuss the monitoring of each mission's actions, programmes and targets.

Five cross-cutting working groups had been proposed by December 2024.

(i) Working group for coordinating actions under the More Production Plan

The More Production Plan is the primary means of coordinating the financial instruments that public banks and development institutions have established to support industry in Brazil.

The purpose of this group is to optimize resources and actions to support industrial development and innovation for the plan's implementation. It includes the National Bank for Economic and Social Development, the Funding Authority for Studies and Projects, regional banks (Banco do Nordeste do Brasil and Banco da Amazônia), and national banks that support the major federal programmes envisaged in the New Industry Brazil plan (Banco do Brasil and Caixa Econômica Federal).

(ii) Brazil cost reduction working group

Its purpose is to advise the Executive Committee of the National Council for Industrial Development on proposing measures and directives to boost the Brazilian economy's long-term productivity and competitiveness and improve the business environment.

(iii) Working group for coordinating territorialization and regional development²³

This working group's objective is to align efforts at the territorial level under the New Industry Brazil plan and to support the reduction of territorial inequalities. Its workplan is structured around three areas, each corresponding to a working subgroup: (i) territorialization of New Industry Brazil programmes, with coordination by the Ministry of Development, Industry, Trade and Services; (ii) industrialization in the territories, with coordination by the Ministry of Integration and Regional Development; and (iii) supply chain development (automotive sector), with coordination by the Ministry of Development, Industry, Trade and Services.

(iv) Working group on training, certification and retention of highly educated personnel for technological development in the industrial sector

²¹ To implement the plan, 300 billion Brazilian reais (approximately US\$54 billion) will be allocated (Presidency of the Republic of Brazil, 2024).

²² https://www.planalto.gov.br/ccivil_03/_ato2023-2026/2023/decreto/d11482.htm

²³ ECLAC participates in this working group, providing technical support.

The purpose of this working group is to recommend guidelines for resource optimization and to enhance the work of the bodies and organizations comprising the New Industry Brazil implementation group. It was established in light of a shortage in firms of professionals with the training and qualifications required to meet the challenges posed by industry 4.0 and to foster innovation.

- (v) Working group on challenges for strengthening supplier linkages within of New Industry Brazil missions

This group aims to establish and coordinate measures to develop the business, productive and technological capabilities to address specific challenges related to missions' priority production chains. The group, established in December 2024, is meant to create 18 subgroups, one for each of the three priority chains of each New Industry Brazil mission. The plan is for it to coordinate with innovative national firms seeking to expand markets and engage with priority production chains or with those situated near these chains, and with research institutions that have experience with these chains' challenges and can establish strategic partnerships with these firms.

The New Industry Brazil policy was conceived and developed through an innovative methodology for dialogue between the government and the productive sector. The National Council for Industrial Development designed it for continuous assessment of the measures adopted, with a view to scaling up those that are successful and revising or phasing out any that are ineffective. Actions taken under the plan are to be reviewed by a monitoring network in which focal points from the member bodies of the National Council will participate. A database is being prepared that will have a dashboard with monitoring and evaluation indicators to ensure transparent implementation. It is expected to include social impact indicators developed on the basis of policy responses in the territories, with States and municipalities participating in the provision of inputs for the database. A data panel will also be developed with the support of the Brazilian Agency for Industrial Development, using the data models already defined by the office for information to support decision-making in the the Office of the President of the Republic.

(b) Chile: Sustainable Productive Development Programme

In Chile, the scope of the initiative analysed is considerably narrower than that of Brazil. The Sustainable Productive Development Programme is an interministerial initiative that seeks to strategically guide productive transformation efforts by boosting firms' use of science, technology, knowledge and innovation. The Programme is structured around three major strategic objectives: (i) fair decarbonization; (ii) resilience to the climate crisis and its socioenvironmental impacts; and (iii) sustainable sophistication and diversification of the country's productive sectors.²⁴

Within these three major strategic objectives, implementation of the planned actions includes initiatives that may belong to various productive sectors. However, among the specific objectives and calls for proposals, some sectors have been indicated as priorities: clean energy, in particular green hydrogen; the local biopharmaceutical and vaccine industry; sectors linked to food security and sovereignty; and the lithium value chain (Ministry of Energy of Chile, 2023).

Implementation will involve financial tools such as subsidies and investment, public procurement bodies, improvement of firms' access to information and development of State capacities. The Programme's design sets out the source of the funds to

²⁴ See <https://programadps.gob.cl/preguntas-y-respuestas/>.

implement the actions envisaged, composed each year of the revenue obtained by the Production Development Corporation from lithium extraction in the country. The Programme's financing is thus well defined and will be directed towards achieving the objectives and priorities established.

The Programme's governance structure includes an interministerial committee to coordinate actions and establish guidelines, with members from sectoral ministries.²⁵ Other participants include the Production Development Corporation and an executive secretariat in the Ministry of Economy, Development and Tourism, which is responsible for monitoring implementation. Implementation is coordinated with other productive sector support initiatives and with the Regional Productive Development Committees,²⁶ ensuring that the Programme incorporates a territorial perspective of the various challenges.²⁷

The executive secretariat has been responsible for monitoring implementation of the budget programme, on the basis of strategic objectives, guidelines, targets and results, while the Production Development Corporation has handled financial monitoring, as provided for in the performance agreements that have regulated the Programme's resource transfers. The public account of the Ministry of Economy, Development and Tourism establishes the actions carried out under the Programme. While no adjustment mechanisms have been identified in the proposal, as a budgetary programme that demands annual resource allocation and actions, its implementation entails continuous monitoring.

(c) Colombia: National Reindustrialization Policy

The primary objective of this public policy presented in late 2023 is to boost value added in the production of goods and services in the country, in order to transition from an economy that relies on extractive activities to a productive, sustainable and inclusive knowledge-based economy that supports territorial development and narrows productivity gaps (National Council on Economic and Social Policy [CONPES], 2023). The policy covers the period from 2024 to 2034 and proposes five specific objectives, namely to: (i) close productivity gaps; (ii) enhance the diversification and sophistication of Colombia's production mix; (iii) further consolidate production chains; (iv) deepen Colombia's integration with Latin America and the Caribbean, Asia, Africa, Europe and North America to balance its international relations and leverage its foreign direct investment flows; and (v) improve the institutional and incentive framework to boost value added, and hence productivity, competitiveness and innovation (CONPES, 2023).

CONPES (2023) prioritizes four strategic intersectoral commitments at the national level that should underpin coordinated work across the entire government. These commitments include: (i) a fair energy transition; (ii) agro-industry and food sovereignty; (iii) reindustrialization based on the health sectors; and (iv) reindustrialization based on the defence for life sector. The policy also includes a fifth commitment relating to the territories and their business fabric (Ministry of Trade, Industry and Tourism of Colombia

²⁵ Ministry of Economy, Development and Tourism; Ministry of Finance; Ministry of the Environment; Ministry of Mining; Ministry of Energy; and Ministry of Science, Technology, Knowledge and Innovation.

²⁶ The Regional Productive Development Committees were established by the Production Development Corporation to support the transfer of productive development policy competencies from national institutions to the regional governments of the country's 16 regions. More specifically, the role of these Committees is to administer the funds associated with the development instruments delegated to them by the Production Development Corporation and the Technical Cooperation Service. The main characteristics of these Committees, composed of representatives of the public, private and academic sectors, are as follows: they are chaired by their respective regional government; they are autonomous with respect to the Production Development Corporation and the Technical Cooperation Service in the administration of the funds delegated to them; and they are primarily composed of representatives of regional entities.

²⁷ ECLAC worked with the Ministry of Economy, Development and Tourism in the review and reform of the Regional Productive Development Committees (Yáñez et al., 2023).

[MINCIT], 2023). Although various productive sectors linked to these commitments are mentioned in the plan and a direction for their development is suggested, clear sectoral frameworks with specific targets or actions for each production chain are not proposed.

The plan includes a total projected cost of the actions proposed under each strategic objective and stipulates that the implementing entities will manage and prioritize the resources to finance the activities, within the framework of their competencies, pursuant to an action and monitoring plan. However, no clear governance structure is defined for spending those resources on the production commitments.

While the participation of a wide range of institutions is envisaged in the governance of each of the five objectives, no coordination mechanism or explicit formal governance structure was identified for the coordination of national and subnational stakeholders. However, the plan does provide for a “bottom-up” approach and for the “territorialization” of national priorities. According to MINCIT (2023), in order to obtain inputs for the policy, several regional meetings were held with public, trade union, political, academic, social and labour organizations in practically all regions of the country, with 19 municipal development secretariats also participating. This reveals a strategic intention for the policy to be rooted in the specific needs and capacities of local territories rather than being driven solely by central authorities.

The plan also includes an action and monitoring plan that presents a comprehensive list of reindustrialization policy actions, the entities tasked with their implementation, the indicators associated with their fulfilment, and the related milestones and respective targets for yearly progress. To monitor the implementation of actions and the associated budget execution, the national government uses the SisCONPES web application, which requires the preparation of half-year reports. According to this platform, 38.56% of the policy was projected to be implemented by late 2024; however, progress stood at a mere 17.37%, indicating challenges in executing the actions envisaged.²⁸ Mechanisms are already in place in the country to strengthen the collection of public information for the evaluation of evidence-based policies, which was also incorporated into this plan.

(d) Mexico: Plan Mexico

Plan Mexico was presented in January 2025 and is an equitable and sustainable economic development strategy for shared prosperity (Government of Mexico, 2025a) that seeks to transform the country’s economy through industrialization, innovation and social inclusion. Through public and private investment, administrative streamlining and the development of strategic sectors, the plan aims to foster a more competitive economy, with shared well-being by 2030.

The plan’s starting point is that there is no need for Mexico to depend on external suppliers, particularly from Asia, to obtain goods it is capable of producing, and that its production must be diversified towards the new generation products that support the industries of the future (Government of Mexico, 2025b). It proposes that strengthening domestic industry is also a social policy. A more integrated and diversified economy enables the benefits of growth to be distributed throughout the country, thus closing development gaps between regions and preventing the concentration of investment in a few industrial areas. An increased presence of Mexican firms in the supply chain will create a virtuous circle in which domestic industry drives internal growth and strengthens the labour market (Government of Mexico, 2025b). On this basis, the following elements are proposed within the mission (Government of Mexico, 2025a): (i) formulating long-term plans for the country’s regional development; (ii) encouraging relocation; (iii) increasing national and regional content in strategic sectors and substituting

²⁸ See <https://sisconpes.dnp.gov.co/sisconpesweb/>.

imports; (iv) relaunching the Made in Mexico programme; (v) creating well-paid jobs in manufacturing and services sectors; (vi) increasing value added in the local supply chain; (vii) establishing development and well-being hubs based on regional specializations; (viii) expanding access to higher and upper secondary education and strengthening their link with the development plan; (ix) strengthening scientific and technological development and innovation; and (x) fostering continental integration.

Plan Mexico prioritizes the strategic sectors (see table I.2) that must contribute to relevant objectives, such as generating better jobs, combating climate change and furthering economic diversification. They must also meet supply- and demand-side viability requirements, support the expansion of existing sectors and establish new productive activities or substitute industrial imports.

Table I.2
Plan Mexico priority
sectors

Agro-industry	Textiles and footwear
Aerospace	Circular economy
Automotive industry and electromobility	Clean energy
Consumer goods (food and beverages, personal hygiene and cleaning products, household appliances, toys, handicrafts, furniture and decoration, consumer electronics)	Basic metals
Pharmaceuticals and medical devices	Paper and paper products
Electronics and semiconductors	Plastics
Energy	Logistics
Chemicals and petrochemicals	Fabricated metal products

Source: Government of Mexico. (2025). *Plan México: Estrategia de Desarrollo Económico Equitativo y Sustentable para la Prosperidad Compartida. Primer borrador*. <https://www.planmexico.gob.mx/>.

This sectoral approach has a well-defined territorial counterpart and strategic sectors are located in 10 regional corridors. A decree was issued in May 2025 establishing economic development hubs for well-being, which proposes that meeting the strategy's commitments will require fostering linkages between the private sector and the three levels of government: federal, State and municipal (Ministry of the Interior of Mexico, 2025), considering the productive attributes of each region in the country.

In terms of the resources available for the Plan, the strategy incorporates financial and non-financial actions, as well as tax incentives, regulatory actions and measures for access to financing, public procurement, investment facilitation and streamlining of operations, for example. To date, the amount of resources available under the Plan remains undefined, given the heterogeneity and development over time of the proposed measures, which have been gradually announced or implemented since January 2025. In any case, it encompasses multiple methodological approaches and also includes complementary public investment programmes for infrastructure (energy, water and transport), professional and vocational education, and housing, which require large-scale investments.

Public institutions linked to the different sectors involved in Plan Mexico's actions participate in its governance. An advisory council for regional economic development and relocation was also established, comprising business and public sector representatives. Its primary objective is to advance and shape the national relocation strategy and private sector actions to secure investment, create jobs and foster regional development (Presidency of the Republic of Mexico, 2024). During the design of the 2025–2030 National Development Plan, which includes Plan Mexico, public consultations were undertaken through State forums organized in the country's 32 federative entities, with an option to submit proposals online, aiming to ensure that the plan reflects the concerns and proposals of the public and private sectors and civil society. Turning to territorialization, Mexico has been working on productive development at the State level

for many years, particularly with regard to cluster initiatives (as in Nuevo León, Jalisco, Chihuahua, Puebla and Baja California) (see chapter III). The documents reviewed to date do not explicitly state whether mechanisms exist to coordinate these initiatives with the actions to be taken under Plan Mexico. However, because of the territorial scope of the Plan's elements —particularly in the economic development hubs for well-being— and the private sector coordination bodies in many of these cluster initiatives, implementation is expected to involve coordination.

Evaluation and adjustment mechanisms have not yet been specified in the documents available. However, many of the plan's 13 objectives have clear and measurable quantitative targets, such as creating 1.5 million additional jobs in specialized manufacturing and strategic sectors; ensuring that products made in strategic sectors in Mexico account for 50% of domestic supply and consumption; achieving a 15% increase in global value chain content in the automotive, aerospace, electronics, pharmaceutical, chemical and semiconductor sectors; and ensuring that 30% of small and medium-sized enterprises (SMEs) have access to financing. It can therefore be expected that mechanisms will be proposed, during implementation, for monitoring the various actions.

(e) Peru: National Industrial Development Policy

The National Industrial Development Policy was presented in 2022 and seeks to address the public problem of limited competitiveness of the manufacturing industry, through a set of objectives and actions with a time horizon of 2030.

According to the analysis conducted, this problem is caused primarily by: (i) low and uneven productivity; (ii) limited complexity of manufactured products; (iii) scarcity of productive infrastructure and specialized services; and (iv) a disadvantageous institutional and regulatory environment for the development of productive activities. Likewise, the assessment undertaken in designing the Policy establishes that: (i) production of highly complex and value added goods is low; (ii) there is limited development of manufacturing firms; (iii) there is weak appetite for capital- and technology-intensive investments; (iv) tax revenue in the manufacturing industry is limited; and (v) jobs are low quality (Presidency of the Republic of Peru, 2022).

Four priority objectives are therefore proposed in this policy: (i) boost productivity among manufacturing sector firms; (ii) increase the complexity of manufactures in that sector; (iii) increase suitable industrial production infrastructure and specialized services for manufacturing firms; and (iv) improve the institutional and regulatory environment for the development of manufacturing activities. To achieve these objectives, 43 actions —called services— are identified and will be implemented.

No explicit sectoral prioritization is proposed in the Policy. In order to attain the second objective of enhancing the sophistication of manufacturing production, the Policy specifies the prioritization of sectors targeted by actions, and the inclusion of guidelines for prioritization criteria, but no industrial sectors are selected a priori. These criteria could include the existence of comparative advantages, prioritization of sectors with strong job creation and the inclusion of areas linked to food security and of sectors with a deep commitment to circular economy principles.

Information on financing the actions is not included. Multiple institutions have implemented the actions, with each financing their components from their own budgets or by creating new instruments, in accordance with relevant regulations and in coordination with regional and local governments. As such, given that no resources were proposed from the outset, implementation has relied mainly on the coordination and implementation capacities of the entities involved.

Turning to governance, the Ministry of Production is responsible for coordination, intersectoral linkages, monitoring and evaluation of the national and regional public entities responsible for service provision and operational activities under the plan (National Association of Industries [SNI], 2022). To achieve the second objective, this policy also recommends the establishment of public-private coordination spaces to promote industrial sectors or products with comparative advantages in manufacturing sector firms.

With regard to monitoring and evaluation, in accordance with the regulations in force in the country, the policy's design, implementation and results must be evaluated using the procedures established for national policies. The policy also envisages a mechanism for monitoring specific indicators for each objective, which will be compared with a baseline. The Ministry of Production is responsible for collecting and systematizing the information submitted by the various entities involved in implementing the plan, and an application (CEPLAN v.01) is used for monitoring. In the 2024 monitoring report, for example, the management rating, which is calculated on the basis of average achievement of the indicators of the priority objectives, is 79.3, positioning progress in the middle range (Ministry of Production of Peru, 2024).

3. Concluding remarks

This brief analysis of the supporting documents for five productive development policies currently being implemented in the region shows that some countries in Latin America and the Caribbean are implementing strategies with a very high political profile to achieve productive transformation of their production structures by pursuing environmentally sustainable and socially beneficial growth. This is being done explicitly, and sometimes with a clear focus on particular sectors, the result being a regional trend, in 2025, towards advocacy of this type of policy and a growing realization that there is a role for the State in economic growth and revitalization based on a modern approach to collaboration with the business sector and other key stakeholders in pursuit of productive development. It also transpires that these efforts incorporate several aspects recommended by ECLAC (2024a) as positive building blocks in these policies (see table I.3). These are welcome steps in the right direction.

Table I.3
Identification of variables analysed in national policy documents

Country	Productive development plan	Prioritization of sectors	Resources determined in advance	Leadership at the highest presidential level	Collective construction	Territorialization	Cluster or other productive coordination initiatives used	Evaluation and follow-up mechanisms
Brazil	New Industry Brazil plan	✓	✓	✓	✓	✓	✓	✓
Chile	Sustainable Productive Development Programme	✓	✓		✓	✓	✓	
Colombia	National Reindustrialization Policy	✓			✓	✓		✓
Mexico	Plan Mexico	✓		✓	✓	✓		
Peru	National Industrial Development Policy	✓			✓	✓		✓

Source: Economic Commission for Latin America and the Caribbean, on the basis of official information from the countries.

With regard to the availability of resources, ECLAC (2024a) calls for policies to be scaled up. An analysis of the plans shows that they vary widely. A minority establish from the outset what resources will be available and the structure for their management. The very design of some initiatives, for example tax exemptions, makes

a priori estimation of the fiscal effort required very complex. In other cases, however, the plan is designed with an identified source of resources, which should simplify and enhance the efficiency of implementation.

Regarding governance and the participation of the private sector and national and subnational entities, mechanisms for private sector coordination and territorial specificities are included in most cases, at least during design. However, governance and coordination mechanisms, such as cluster or other productive coordination initiatives, are not always clear, an aspect that could be further explored in defining the plans (see chapter III).

With respect to monitoring and evaluation, there was a significant shortage, two decades ago, of systematic impact assessment for productive development policies (ECLAC, 2007). Progress has been made in the mechanisms for tracking the attainment of objectives, and three of the five policies analysed have predefined monitoring bodies, while in two cases, to date, mechanisms are not so easily identified. However, for the most part, it is not clear whether mechanisms to assess impact and fine-tune tools are proposed in addition to those for monitoring. This calls for these processes to be better defined, then for policies to be evaluated and adjusted on the basis of assessment results. Overlapping programmes and institutions with similar objectives have been a problem in systems supporting the region's productive sector, partly because this has resulted in the continued use of tools that do not fulfil the stated objectives.

Following the recommendations of ECLAC (2025), when considering how productive development policies in the region might be improved, a number of points accompanying the recommendations that will be presented in the remaining chapters of this publication should be highlighted.²⁹ It should be noted that these are general recommendations, and their relevance and applicability will depend on specific conditions in the different countries or territories, as regards both the degree of sophistication of their productive apparatus and their institutional capacities.

First, there is a need for greater coordination between actors and efforts at different levels of government, while strengthening the commitment of all actors, particularly in the private sector, to productive development policies. It is also essential to build up technical, operational, political and prospective (TOPP) capabilities in the institutions responsible for productive development policies and ensure continuity. Productive development policies must be State policies and, as such, not subject to the vagaries associated with political cycles. Lastly, it is essential to further territorialize these policies and create and strengthen cluster and other productive coordination initiatives so that they act as a driving force in the implementation of productive development policies by national and subnational agencies in the territories.

For the countries of Latin America and the Caribbean to be able to transform their economies, thereby escaping the low growth capacity trap, productive development policy efforts will need to be scaled up and improved with the aim of increasing productivity and incomes and thereby enhancing social welfare. The analyses presented here show that, although major productivity challenges persist, progress has also been made in policy design. Outcomes will depend on multiple factors, many beyond countries' control, even more so in the current international context of heightened tension and volatility. However, among the elements that do fall within their scope of action is the implementation of ambitious productive development agendas that will enable the region to advance towards a more productive, inclusive and sustainable future.

²⁹ ECLAC (2025) groups 113 recommendations under 14 general guidelines.

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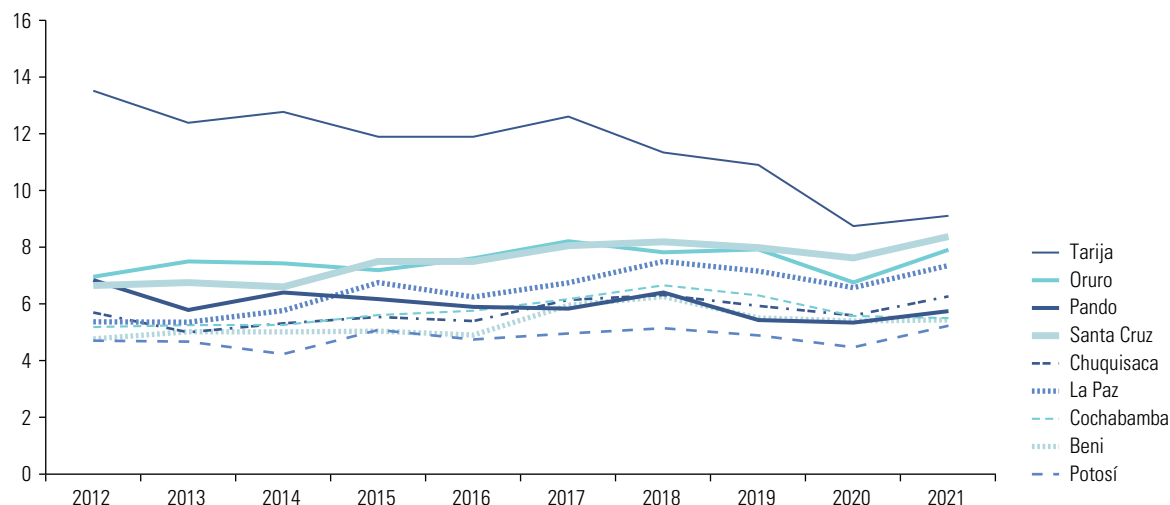
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Annex I.A1

Figure I.A1.1

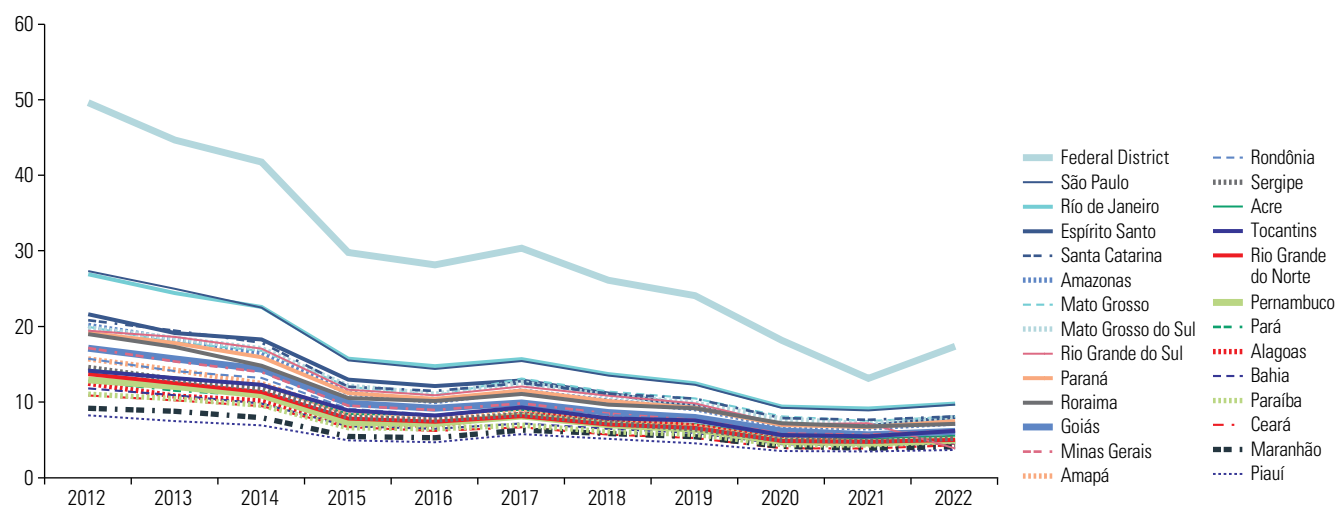
Plurinational State of Bolivia (9 departments): territorial labour productivity, 2012–2021
(Thousands of constant dollars at 2018 prices)



Source: Economic Commission for Latin America and the Caribbean. (2025). *CEPALSTAT*. <https://statistics.cepal.org/portal/cepalstat/index.html?lang=en>; and official figures from the country.

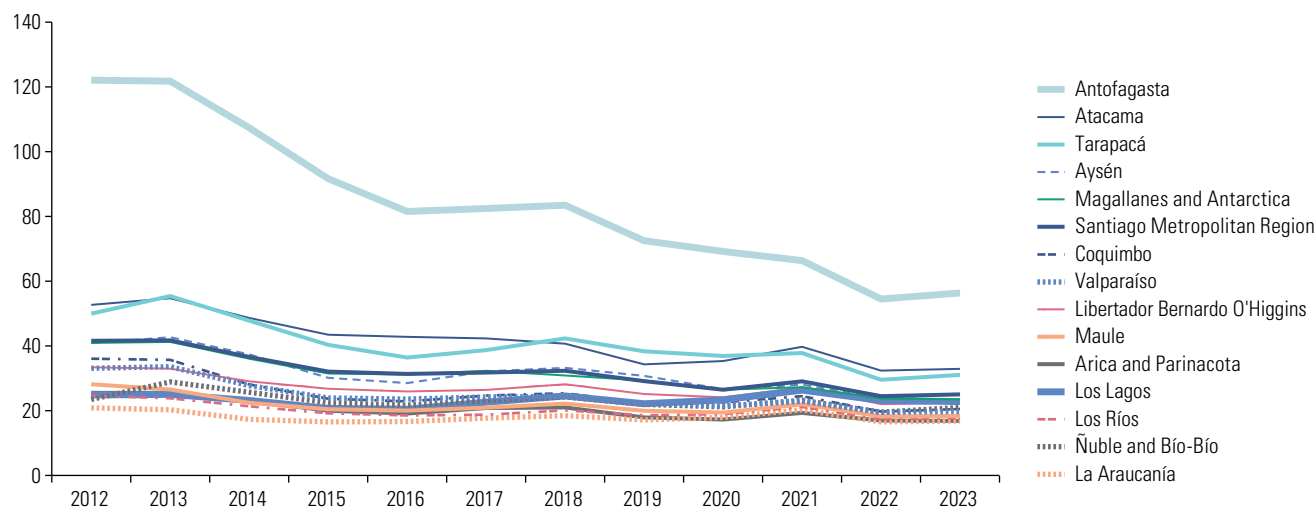
Figure I.A1.2

Brazil (26 states and one Federal District): territorial labour productivity, 2012–2022
(Thousands of constant dollars at 2018 prices)



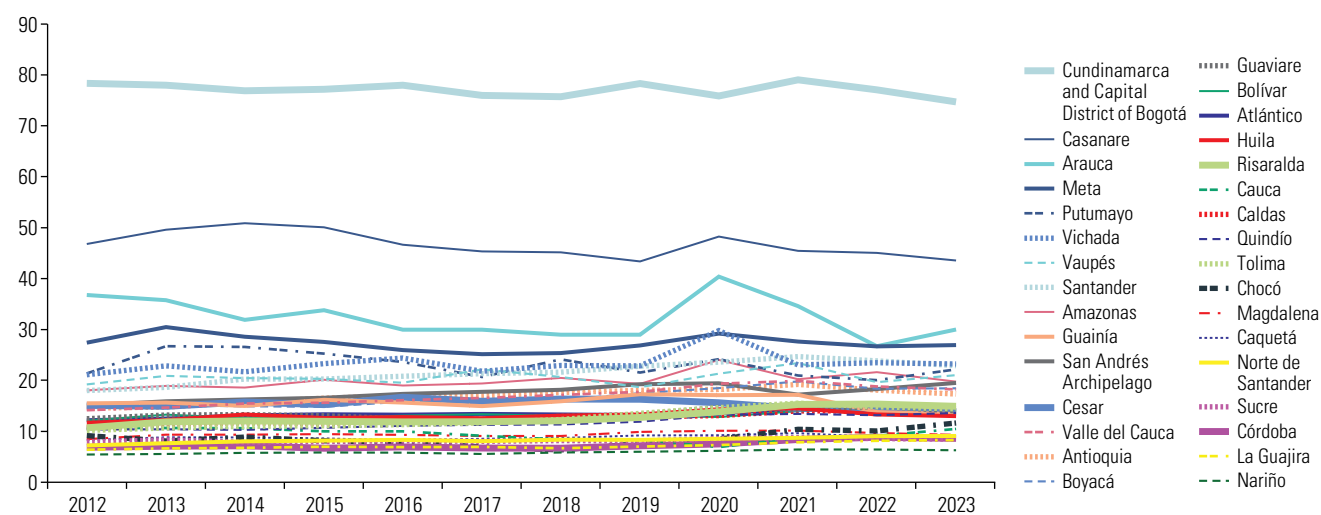
Source: Economic Commission for Latin America and the Caribbean. (2025). *CEPALSTAT*. <https://statistics.cepal.org/portal/cepalstat/index.html?lang=en>; and official figures from the country.

Figure I.A1.3
Chile (16 regions): territorial labour productivity, 2012–2023
(Thousands of constant dollars at 2018 prices)



Source: Economic Commission for Latin America and the Caribbean. (2025). *CEPALSTAT*. <https://statistics.cepal.org/portal/cepalstat/index.html?lang=en>; and official figures from the country.

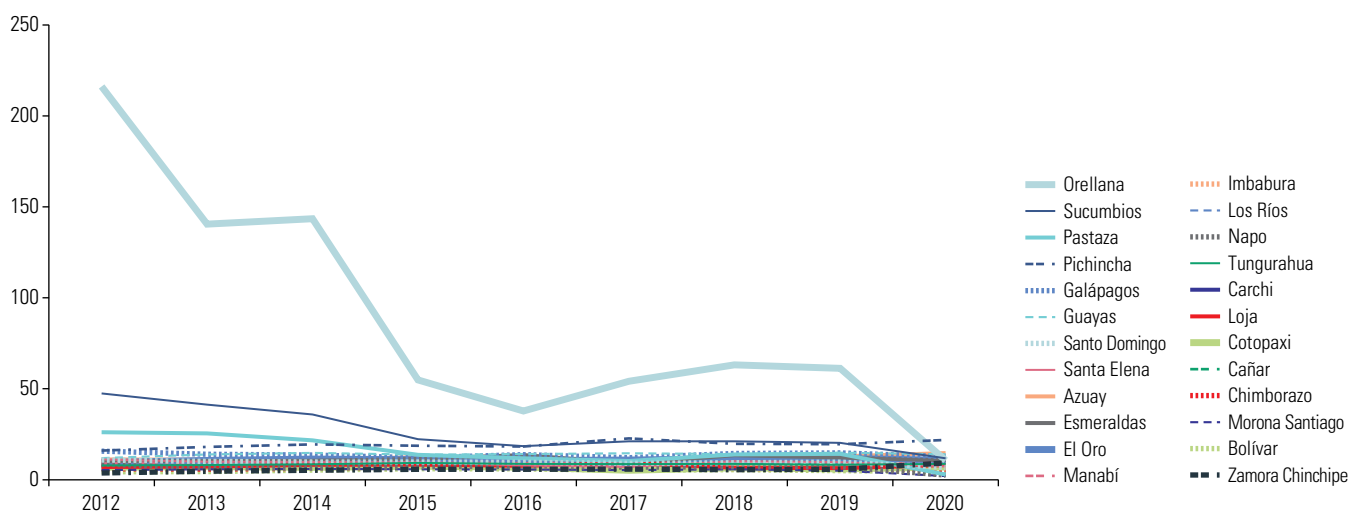
Figure I.A1.4
Colombia (32 departments and one Capital District): territorial labour productivity, 2012–2023
(Thousands of constant dollars at 2018 prices)



Source: Economic Commission for Latin America and the Caribbean. (2025). *CEPALSTAT*. <https://statistics.cepal.org/portal/cepalstat/index.html?lang=en>; and official figures from the country.

Figure I.A1.5

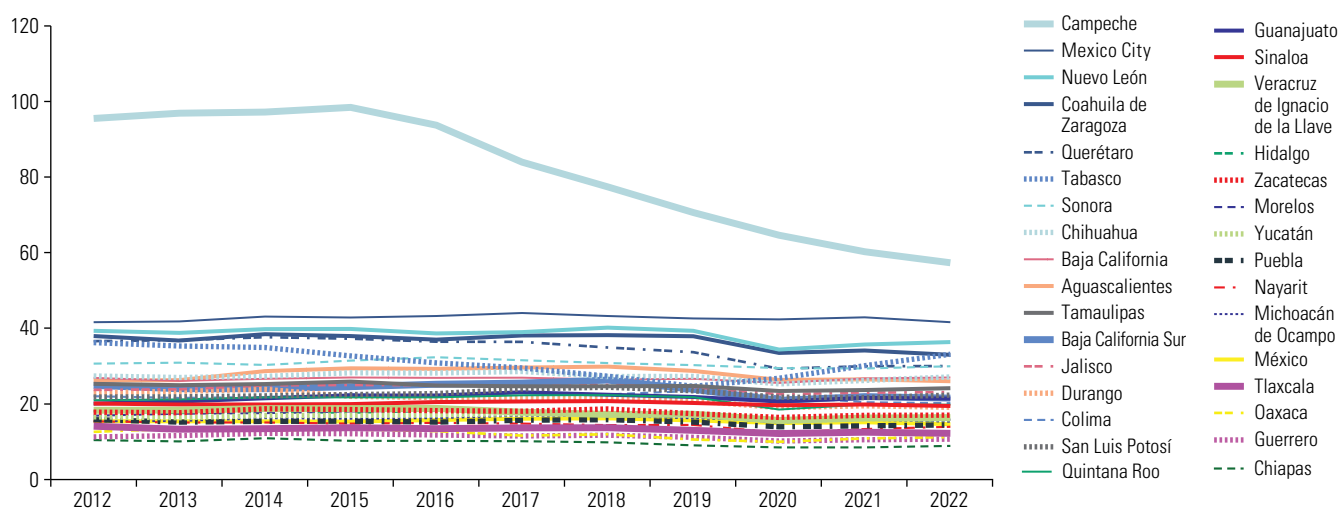
Ecuador (24 provinces): territorial labour productivity, 2012–2020

(Thousands of constant dollars at 2018 prices)

Source: Economic Commission for Latin America and the Caribbean. (2025). *CEPALSTAT*. <https://statistics.cepal.org/portal/cepalstat/index.html?lang=en>; and official figures from the country.

Figure I.A1.6

Mexico (32 federative entities): territorial labour productivity, 2012–2022

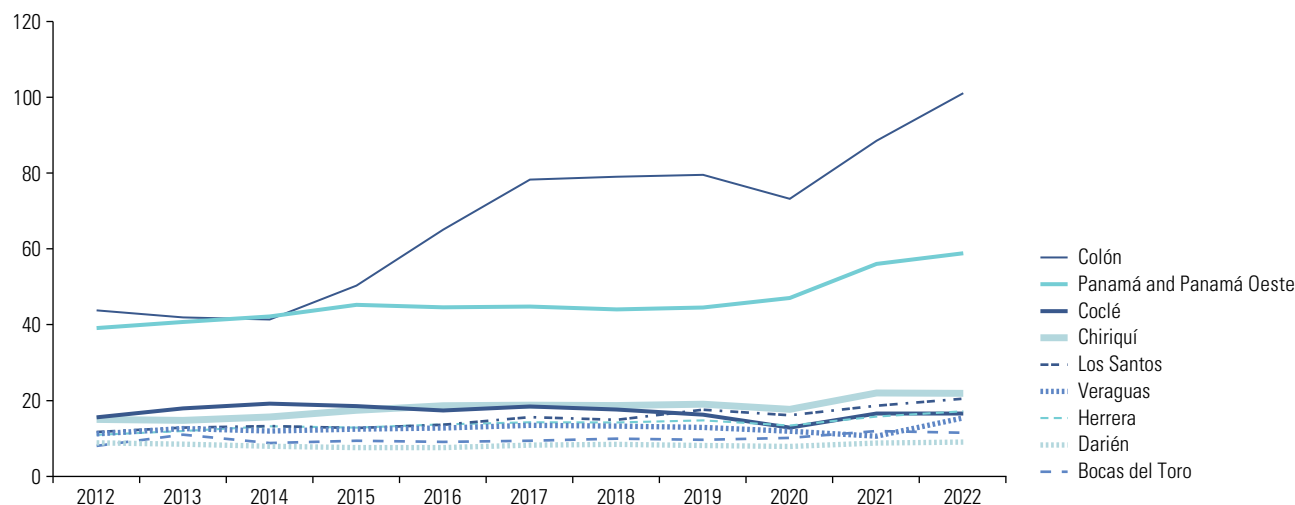
(Thousands of constant dollars at 2018 prices)

Source: Economic Commission for Latin America and the Caribbean. (2025). *CEPALSTAT*. <https://statistics.cepal.org/portal/cepalstat/index.html?lang=en>; and official figures from the country.

Figure I.A1.7

Panama (10 provinces): territorial labour productivity, 2012–2022

(Thousands of constant dollars at 2018 prices)

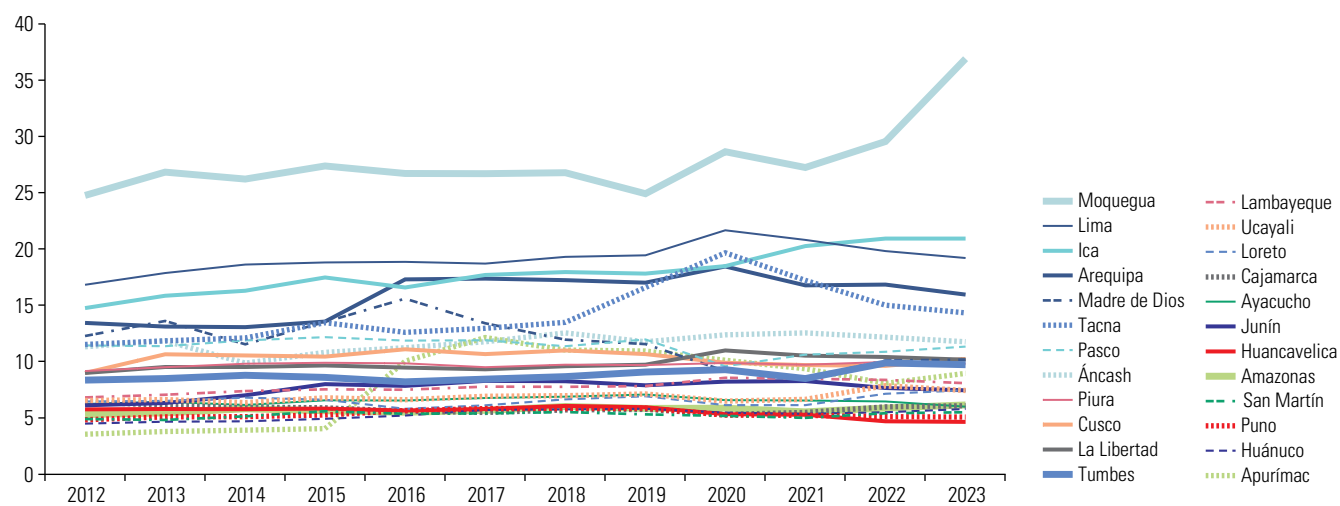


Source: Economic Commission for Latin America and the Caribbean. (2025). *CEPALSTAT*. <https://statistics.cepal.org/portal/cepalstat/index.html?lang=en>; and official figures from the country.

Figure I.A1.8

Peru (24 departments): territorial labour productivity, 2012–2022

(Thousands of constant dollars at 2018 prices)



Source: Economic Commission for Latin America and the Caribbean. (2025). *CEPALSTAT*. <https://statistics.cepal.org/portal/cepalstat/index.html?lang=en>; and official figures from the country.

CHAPTER



Science, technology and innovation policies for productive development

Introduction

- A. National science, technology and innovation (STI) strategies and plans
- B. Institutions associated with science, technology and innovation
- C. Science, technology and innovation (STI) policy instruments
- D. Reflections and proposals

Bibliography

Introduction

As was pointed out in chapter I, Latin America and the Caribbean is caught in three traps that are limiting its development: one of low capacity for growth, one of high inequality and low social mobility and cohesion, and one of weak institutional capacities and governance. The first trap is largely due to the stagnation of productivity resulting both from a lack of positive structural movement into more dynamic sectors and from limited progress within existing sectors. Escaping from this trap will require a productive transformation geared toward modernization, diversification and sustained productivity growth. A transformation of this kind will not happen on its own: it requires deliberate, coordinated public policies, in partnership with the private sector and other key stakeholders, and with a strategic focus on the reconfiguration of production capacities.

In this context, science, technology and innovation (STI) have a central role to play. The two-way relationship between innovation and economic growth is widely acknowledged (Griliches, 1979; Romer, 1990; Hall and Jones, 1999; Dutta et al., 2024). In principle, greater investment in STI fosters economic growth by increasing productivity, creating new markets and improving process efficiency, while sustained economic growth facilitates and encourages new investment in these areas. Strengthening innovation systems is thus crucial for overcoming stagnation and boosting sustainable development in the region.

In Latin America and the Caribbean, however, this virtuous dynamic has been constrained by the persistent weakness of STI systems, in terms both of investment and institutional capacities and of results. The region's relatively poor performance in STI is a structural problem that has not only persisted for decades but has worsened over time, resulting in a widening gap with other developing regions and more advanced economies (Economic Commission for Latin America and the Caribbean [ECLAC], 2024b, 2022a, 2022b).¹

In a context of limited fiscal space, it may be unviable or difficult in practice to increase resources for research, development and innovation, and in particular for STI policies and the institutions responsible for them. Thus, there is a need to focus on more than just the volume of resources and review how these policies are designed, implemented and evaluated.²

¹ This analysis forms part of an extensive literature on the structural challenges of innovation in developing countries and in Latin America and the Caribbean. See, for example, the discussions on the theoretical and empirical links between the production structure, innovation and inequality in ECLAC (2012, 2014); conceptual and diagnostic frameworks (Navarro, Benavente and Crespi, 2016); comparative analyses of capacities in developing countries (Cirera and Maloney, 2017); the need for robust statistics and systematic monitoring in the region (Crespi et al., 2011); application of the mission-oriented approach in the region (Mazzucato and Penna, 2020); the centrality of innovation for structural change (ECLAC, 2016) to remedy the inefficiency of inequality (ECLAC, 2018) and for a transformative and green recovery (ECLAC, 2020); and the strategic role of innovation in dealing with systemic crises and accelerating sustainable transitions (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2021; Organisation for Economic Co-operation and Development [OECD], 2021).

² STI policies are considered to be part of the broader set of productive development policies, insofar as they contribute to the overall objectives of these (ECLAC, 2024a). However, it is important to note that not all STI policy areas and instruments are classified as productive development policies. These latter have productive transformation and productivity improvement as their main goals, whereas STI policies target a broader spectrum, including the generation of knowledge that is not necessarily associated with any immediate practical use. Furthermore, although often grouped under a single acronym, science, technology and innovation have their own separate bodies of knowledge and fields of action involving different logics, actors and instruments. Science entails the systematic generation of knowledge, technology the application of knowledge to solve practical problems, and innovation processes of technical, organizational or commercial change that generate value in specific contexts. The research and development function is also identified as a subset of STI and involves activities that can be divided into basic research (connected to science), applied research (associated with technological development) and experimental development (linked to innovation, e.g., prototyping and product testing). In turn, innovation can manifest itself in many ways, encompassing product, process, organizational and commercial innovation that may be radical or incremental in nature and include activities such as technology extension or entrepreneurship. Given these characteristics, the operational limits of science, technology and innovation policies tend to be context-specific, with one variable being the internal organization of the institutions responsible, and to evolve over time in a way that depends on the priorities and actors involved, which makes policies difficult to compare across countries.

The basic hypothesis is that improving the impact of STI policies does not depend exclusively on the volume of resources allocated, but that the quality of strategies, institutional design, the capacities of the agencies involved and consistency between instruments and goals all play a part.

In line with the work programme of the Conference on Science, Innovation and Information and Communications Technologies of ECLAC (ECLAC, 2024b), this chapter analyses STI policies for productive development in Latin America and the Caribbean, identifying their characteristics and the challenges and opportunities they present, while proposing recommendations for improvement on six fronts: strategies, coordination mechanisms, institutional capacities, instruments, financing and cooperation.³

The methodology used to conduct the comparative analysis is a mixed approach that includes a review of public information and specific studies,⁴ fieldwork in selected countries involving surveys and semi-structured interviews with stakeholders, and the processing of specialized databases (see table II.1).

Table II.1
Latin America and the Caribbean: science, technology and innovation (STI) policy review, structure and methodology

Section		1. Strategies Coordination mechanisms	2. Institutional arrangements		3. Instruments
			Coordination mechanisms	Core entities	
Aspects analysed		Characterization			
			Budget		
				Technical, operational, political and prospective (TOPP) capabilities	
Inputs	Document review: 33 countries	✓	✓	✓	
	Surveys: 12 countries (16 entities)			✓	✓
	Interviews: 6 countries (8 entities)	✓	✓	✓	✓
	International databases ^a				✓

Source: Economic Commission for Latin America and the Caribbean.

^a Organisation for Economic Co-operation and Development (OECD), Organization of Ibero-American States for Education, Science and Culture (OEI) and United Nations Educational, Scientific and Cultural Organization (UNESCO).

The reference year for most of the information used in this analysis is 2024, while primary data were collected from entities that submitted inputs voluntarily up until 30 June 2025. The analysis places special emphasis on identifying regional patterns and persistent challenges in STI policies.

This chapter is organized into four sections in addition to the present introduction. Section A examines national STI strategies and plans and analyses design and implementation properties. Section B addresses the institutional arrangements associated with STI policies, explores the extent to which they are cross-cutting, characterizes the coordination mechanisms and core entities involved in formulating and administering these policies, and includes an analysis of technical, operational, political and prospective (TOPP) capabilities. Section C analyses different aspects of policy instruments. Lastly, drawing on the foregoing analysis and previous ECLAC work, section D presents reflections and recommendations for improving STI policies for productive development in the region, taking a differentiated approach based on the level of maturity of these policies.

³ Although it is a central theme of the work programme of the ECLAC Conference on Science, Innovation and Information and Communications Technologies, subnational STI policy has not been included in the analysis of this chapter, and so will be a subject for future research.

⁴ Six studies were commissioned for this purpose: Britto (2025), Cattivelli (2025), Heredia (2025), Oliver (2025), Varela (2025) and Vargas (2025).

A. National science, technology and innovation (STI) strategies and plans

National STI strategies and plans are a fundamental component of public policy in this field. When well formulated, they serve to develop a long-term vision, set clear priorities, promote synergies among stakeholders and direct resources toward high-impact goals. Furthermore, an STI strategy formulated with a high level of political support, through participatory and inclusive mechanisms that endow it with social and technical legitimacy, is an important tool for aligning public and private action.

In Latin America and the Caribbean, 16 countries were identified as having formal, publicly accessible documents labelled as STI plans, strategies or policies,⁵ with 11 of these having been prepared in the last five years (see table II.2).⁶ Although strategies may be explicit (formal document) or implicit (inferred from observation of public action), this section only reviews formal documents, applying predetermined criteria that allow their formulation, targeting, implementation and monitoring to be compared.⁷

Country	Name of document	Year adopted
Argentina	National Science, Technology and Innovation Plan 2030	2023
Bolivia (Plurinational State of)	National Science, Technology and Innovation Plan	2013
Brazil	National Science, Technology and Innovation Strategy (ENCTI) 2016–2022 ^a	2016
Chile	National Science, Technology, Knowledge and Innovation Strategy for the Development of Chile – 2022 ^b	2022
Colombia ^c	Mission-Oriented Research and Innovation Policies (PIIOM) 2024–2033	2024
Costa Rica ^c	National Science, Technology and Innovation Plan 2022–2027 (PNCTI)	2022
Dominican Republic	National Innovation Policy 2030	2022
Ecuador	National Plan for the Social Economy of Knowledge, Creativity, Innovation and Ancestral Lore	2023
Guatemala ^c	National Strategic Plan for Scientific and Technological Development 2018–2025	2017
Jamaica	National Science, Technology and Innovation Policy	2022
Mexico	Special Programme for Humanities, Sciences, Technologies and Innovation 2021–2024 ^d	2024
Panama ^c	National Strategic Plan for Science, Technology and Innovation (PENCYT) 2019–2024	2020
Paraguay ^c	National Science, Technology and Innovation Agenda	2022
Peru	National Science, Technology and Innovation Policy (POLCTI) ^e	2024
Uruguay ^c	National Strategic Plan for Science, Technology and Innovation (PENCTI) ^f	2010
Venezuela (Bolivarian Republic of) ^c	National Science, Technology and Innovation Plan ^g	2005

Table II.2
Latin America and the Caribbean
(16 countries): selected science, technology and innovation (STI) policies

Source: Economic Commission for Latin America and the Caribbean, on the basis of official information.

^a The 2023–2030 strategy was not considered because it was still being developed at the time of writing.

^b Includes the Action Plan, which forms part of the National Policy on Science, Technology, Knowledge and Innovation.

^c Although there are other strategic documents on STI, to facilitate comparison with other countries strategies we chose to use the most recent ones with comparable characteristics or those that were publicly available at the time of writing.

^d The Special Programme for Science, Technology and Innovation 2021–2024 was adapted to become the Special Programme for Humanities, Sciences, Technologies and Innovation 2021–2024, which was adopted in 2024.

^e The 2024 version was used because the 2025 version (extending out to 2030) was published after this chapter was finalized.

^f The country is in the process of transitioning to a new STI policy that is still under development, so the latest available plan was used.

^g In the absence of a public document on the Great Science, Technology and Innovation Mission launched in 2024, the latest available plan was used.

⁵ Although differences could be established between these concepts, in practice the terms are used interchangeably and their scope depends on who is using them.

⁶ No formal STI strategies were identified in the other countries, where the subject is usually dealt with as part of general development plans, other sectoral policies or governing bodies' institutional plans, with a scope limited to their own sphere of action.

⁷ The limitations of this type of analysis are recognized, since the absence of a particular element in a document does not necessarily mean that it is not part of a strategy being implemented in practice, only that it has not been included in the strategy document.

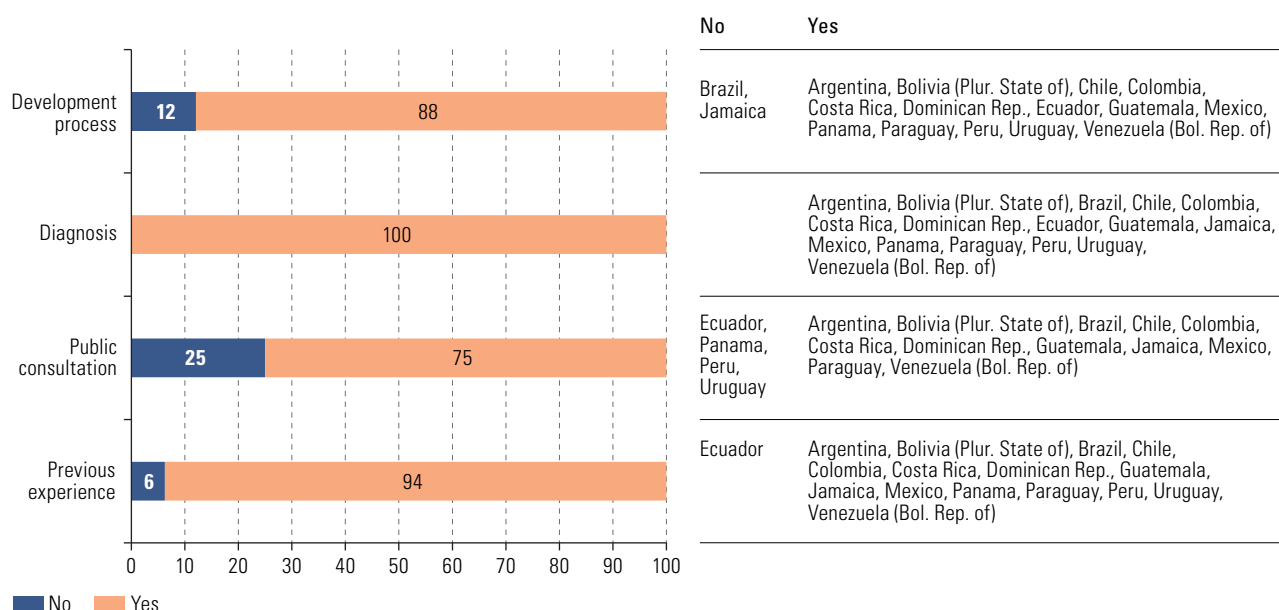
1. Formulation, targeting and coordination with other policies

Most of the STI strategies analysed have medium- and long-term horizons, with 22% prescribing a time frame of between three and five years, 57% one of between six and ten years, and 21% looking more than a decade ahead. This distribution reflects a growing recognition that STI capacity-building must involve sustained planning, cumulative effects and policy continuity.

The strategies examined incorporate good formulation practices. Most describe the formulation process (88%) and refer to previous experiences with STI (94%), while all include a formal diagnosis (see figure II.1). This demonstrates methodological traceability and facilitates understanding of the rationale behind the priorities set and the actions designed. However, 25% do not make any explicit mention of public consultation, indicating that there is room for improvement where collective strategy development is concerned.

Figure II.1

Latin America and the Caribbean (16 countries): selected science, technology and innovation (STI) policymaking practices (Percentages)



Source: Economic Commission for Latin America and the Caribbean, on the basis of official information and national studies.

The strategies analysed all incorporate some form of targeting to provide explicit guidance for policy efforts. The most common is sectoral targeting, present in 62% of the documents (see table II.3). Some strategies adopt approaches associated with transformative technologies, such as artificial intelligence, or mission-oriented policies focused on addressing major challenges and solving specific problems. Half the strategies incorporate other forms of targeting whereby sectors, technologies or challenges are grouped under headings such as “areas”, “axes” and “themes”.

Country	Sectors	Technologies	Missions	Other
Argentina	✓	✓		✓
Bolivia (Plurinational State of)	✓			
Brazil	✓	✓		✓
Chile				✓
Colombia	✓		✓	
Costa Rica	✓	✓		
Dominican Republic				✓
Ecuador	✓			✓
Guatemala				✓
Jamaica	✓			✓
Mexico	✓		✓	✓
Panama	✓			
Paraguay			✓	
Peru				✓
Uruguay	✓	✓		
Venezuela (Bolivarian Republic of)				✓
Total countries	10	4	3	10

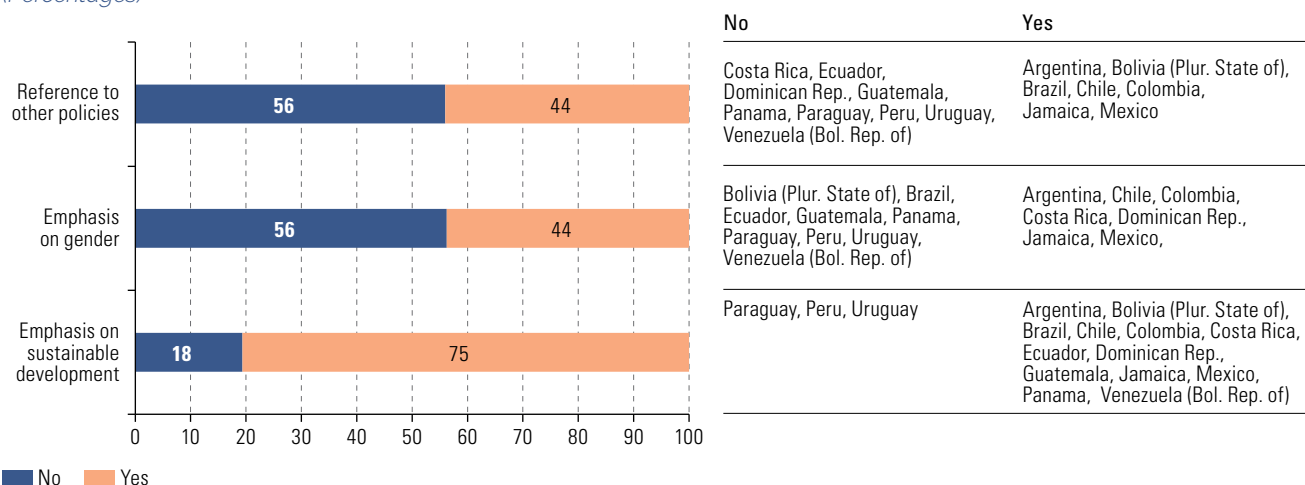
Table II.3
Latin America and the Caribbean (16 countries): types of targeting used in selected science, technology and innovation (STI) policies

Source: Economic Commission for Latin America and the Caribbean, on the basis of official information and national studies.

However, the strategies analysed evince limitations when it comes to coordination with other themes of interest or strategic agendas. Only 44% establish explicit links with other public policies, such as productive development strategies or policies or other sectoral agendas (see figure II.2). The weakness of these connections reduces their potential systemic impact, given that, as ECLAC (2024b) has argued, linkage with other productive development policies is vital.

Figure II.2

Latin America and the Caribbean (16 countries): relationships with other selected science, technology and innovation (STI) policy areas
(Percentages)



Source: Economic Commission for Latin America and the Caribbean, on the basis of official information and national studies.

Again, 75% of the strategies analysed explicitly incorporate sustainable development, while only 44% expressly include the gender perspective, which represents an improvement but is still inadequate, given the urgent need to align STI efforts with the social inclusion and climate⁸ challenges facing the region.

⁸ See chapter IV on green productive development policies.

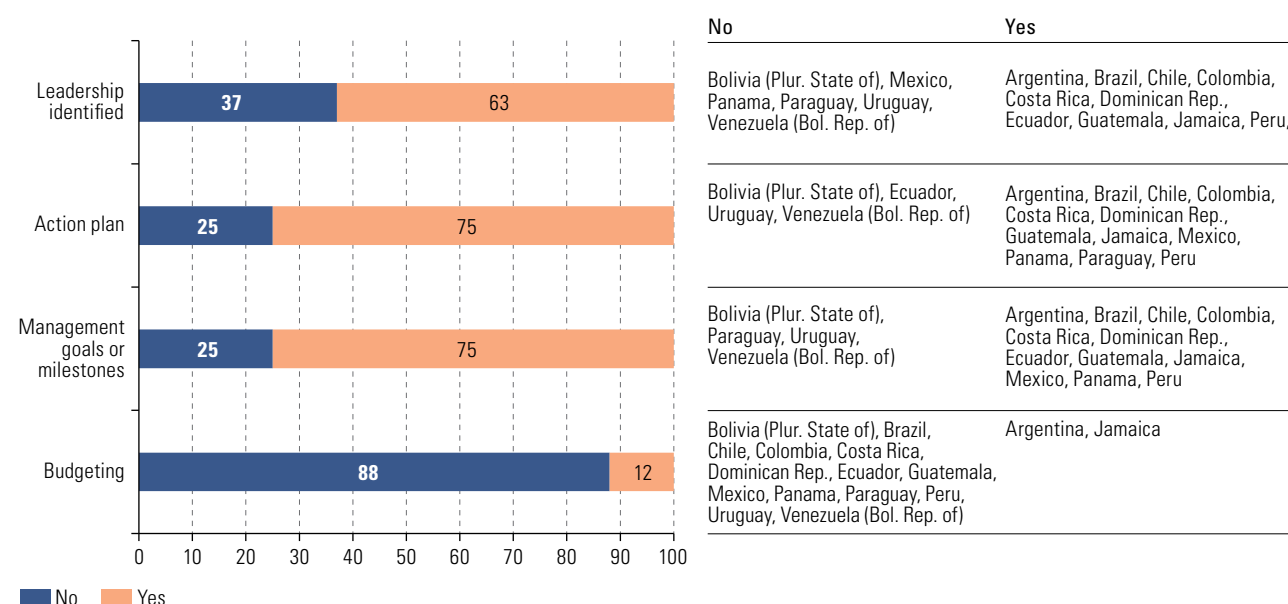
2. Implementation, monitoring and evaluation of results

STI strategies tend to be formulated as declarative exercises, with no clearly identified responsible entities, management goals or budget specified in the strategy documents. Only 63% of strategies explicitly identify who is responsible for implementing them, which hampers accountability and inter-agency coordination (see figure II.3). Some 25% do not contain a clear road map to guide interventions, nor do they include milestones or management targets, which indicates a weak culture of detailed follow-up and reduces the potential for institutional learning and strategy adjustment. Lastly, and even more critically, only 12% of the strategies include budget estimates or detailed costings in the documents, which calls into question the viability of the actions proposed.

Figure II.3

Latin America and the Caribbean (16 countries): implementation practices for selected science, technology and innovation (STI) policies

(Percentages)



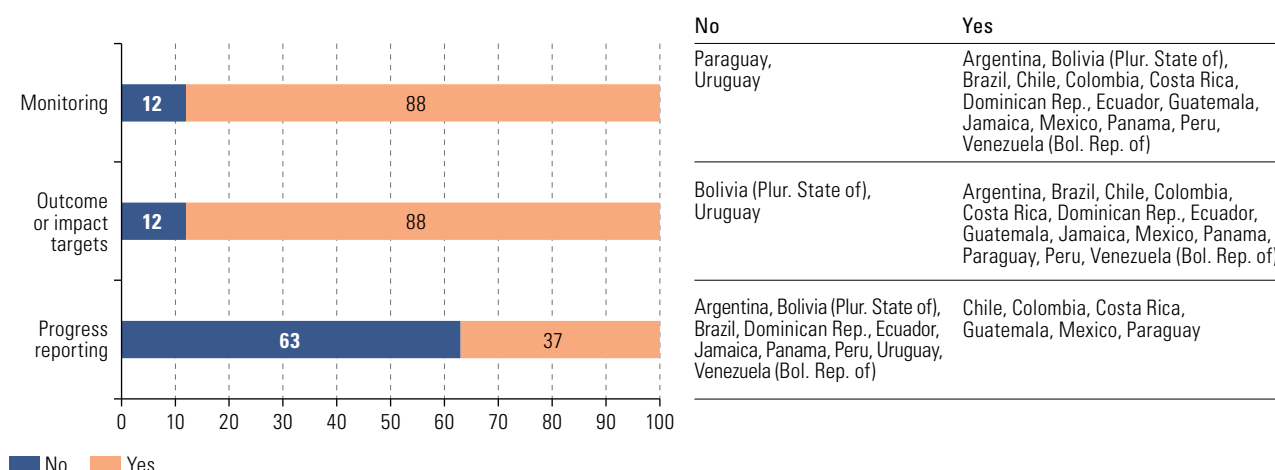
Source: Economic Commission for Latin America and the Caribbean, on the basis of official information and national studies.

The strategies analysed display weaknesses in progress reporting and the traceability of their results monitoring and evaluation systems, which compromises the transparency and oversight of public management. Although 88% of the documents identify goals at the outcome or impact level, or include general monitoring provisions, they do not usually provide details of the specific interventions to be evaluated. Furthermore, only 37% of the strategies spell out the mechanisms for reporting on progress with implementation, reflecting limited institutionalization of compliance and accountability practices (see figure II.4).

In summary, the analysis of STI strategies reveals not only great heterogeneity but also positive formulation and prioritization practices alongside persistent challenges in key areas such as coordination with other policies, identification of leadership, budgeting and progress reporting in monitoring and evaluation mechanisms. Addressing these weaknesses is essential to strengthen policy governance and make it more inclusive, transparent and learning-oriented.

Figure II.4

Latin America and the Caribbean (16 countries): monitoring and evaluation practices for selected science, technology and innovation (STI) policies
(Percentages)



Source: Economic Commission for Latin America and the Caribbean, on the basis of official information and national studies.

B. Institutions associated with science, technology and innovation (STI) policy

This section presents the findings of the analysis of the public institutions involved in the formulation, coordination and implementation of STI policies.

The content is organized into four subsections. Section II.B.1 examines the transversal character of the STI function, which cuts across multiple sectors and entities of the State apparatus rather than being confined to the institution with the leading or coordinating role in this area.

Sections II.B.2 and II.B.3 analyse formal coordination mechanisms and the core institutions responsible for STI policy. The characteristics and structures of these institutions are analysed by using budgetary data to assess their capabilities and the importance of their role.

Lastly, section II.B.4 complements the analysis with qualitative information from interviews that focused on assessing the TOPP capabilities⁹ of selected STI institutions, using a tool created specially for this purpose.

1. The transversality of science, technology and innovation (STI) policy

The task of designing, implementing and evaluating STI policy is not limited to the core entities in this area (which are identified and characterized in section II.B.3). On the contrary, the STI function is cross-cutting, spanning multiple government portfolios, which complicates coordination and linkage.

⁹ ECLAC understands these capabilities as the organizational and functional attributes that enable institutions to formulate evidence-based policies (technical), implement them effectively and efficiently (operational), influence strategic decision-making by the State (political) and anticipate technological, productive or social changes (prospective). See ECLAC (2024c) for a detailed definition and explanation.

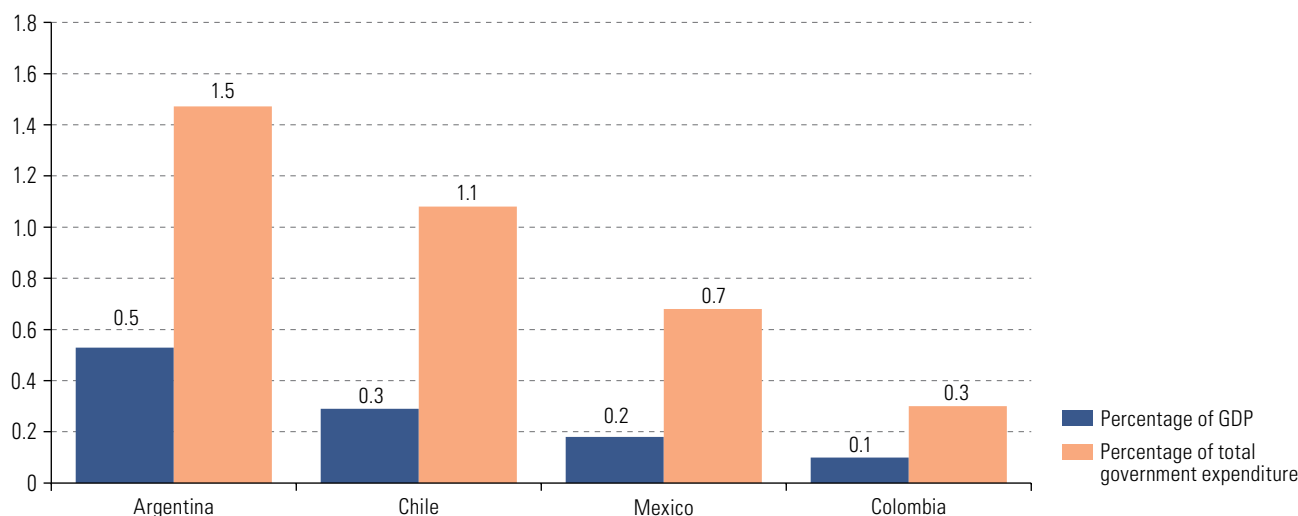
To illustrate the situation, budgetary information was used to analyse institutions with STI policy functions in Argentina, Chile, Colombia and Mexico.¹⁰ In Mexico, for example, the STI policy budget is distributed between 11 institutions, while in Argentina, a limited sample reveals the participation of at least 17 entities.

Figure II.5 shows estimates of public budget allocations to STI policies in these countries,¹¹ expressed as proportions of GDP and central government expenditure.¹² Argentina leads the ranking, with estimated expenditure of 0.5% of GDP and 1.5% of the national budget in 2023, followed by Chile, with 0.3% and 1.1%, respectively.

Figure II.5

Latin America and the Caribbean (4 countries): budget allocated to science, technology and innovation (STI) policies, 2024 or latest year available

(Percentages of GDP and percentages of total government expenditure)



Source: Economic Commission for Latin America and the Caribbean, on the basis of Budget Directorate of Chile, Chamber of Deputies of Mexico, National Planning Department of Colombia, official information and national studies; Britto, F. (2025). *Sistema de ciencia, tecnología e innovación e innovación productiva de la República Argentina. Análisis del nivel nacional y las jurisdicciones subnacionales de Buenos Aires, Córdoba, Santa Fe y Ciudad Autónoma de Buenos Aires* [Unpublished manuscript]. Economic Commission for Latin America and the Caribbean; Balbontín, R., Roeschmann, J. A. and Zahler, A. (2018). *Ciencia, tecnología e innovación en Chile: un análisis presupuestario. Estudios de Finanzas Públicas series*. Budget Directorate. Ministry of Finance; Budget Directorate. (2024). *Ley de Presupuestos del Sector Público: año 2024 (Ley N° 21.640 publicada en el Diario Oficial el 18 de diciembre de 2023)*. Ministry of Finance. https://www.dipres.gob.cl/597/articles-330063_doc_pdf.pdf; Chamber of Deputies. (2024). *Presupuesto Público Federal para la función ciencia, tecnología e innovación, 2023-2024* (SAE-ASS-11-24).

Note: The figures are presented for reference purposes and to illustrate the cross-cutting nature of STI policy, and do not include financial credits or tax incentives. The quantification methodology differs from country to country. For Argentina, Britto (2025) uses 2023 data from the Budget Office of the Ministry of Economy; for Chile, the methodology of Balbontín et al. (2018) is extended using the central government budget (Budget Directorate, 2024); for Colombia, the investment component of the 2022 General National Budget is analysed using the Investment Project Monitoring System (National Planning Department, 2022); and for Mexico, information from the federal budget on the STI function is used (Chamber of Deputies, 2024).

¹⁰ These countries were selected because they have information available that allows the resources allocated to STI policy to be estimated. For the purposes of this exercise, however, financial credits and tax incentives were not included.

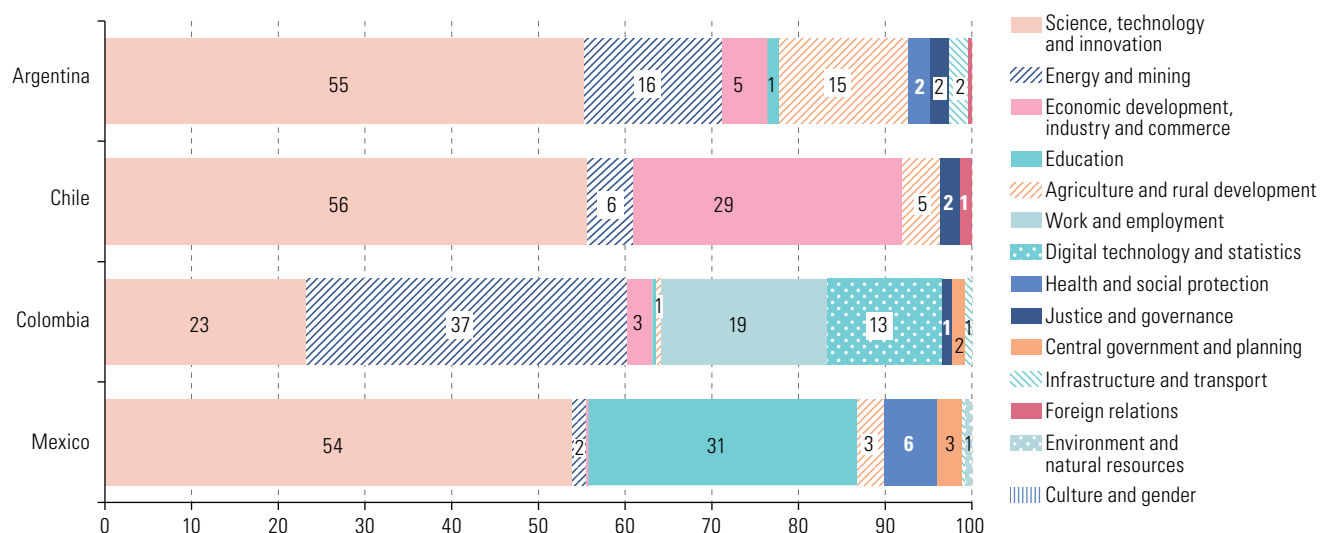
¹¹ The methodologies used to quantify expenditure differ between countries, which limits their comparability. However, they do provide a benchmark for gauging the importance of STI policy in the public expenditure framework.

¹² It is important to distinguish between the research and development expenditure indicator, which measures total expenditure by different actors on research and development activities in a country, and public expenditure on science, technology and innovation policy, which are the resources implemented by the State apparatus to finance instruments, initiatives and investments in these areas. Although the two concepts are linked, they are not equivalent or directly comparable. These estimates should be treated as minimum reference values, whose purpose is to show the relative weight of institutions, the degree of dispersion and the need for greater linkage and strategic allocation of resources. Lastly, where possible, the estimates include entities that provide research and development-related services, such as research centres, technology transfer units or technology service providers, provided that they have public funding explicitly allocated through the national budget.

Figure II.6 shows the distribution of the budget allocated to STI policy by ministerial area. In the countries analysed, entities in the STI portfolio¹³ account for no more than 55% of the government budget in this area and in some cases are not the main implementing agency. In Colombia, for example, energy and mining sector entities executed 37% of public STI investment in 2022, compared to 23% by the Ministry of Science, Technology and Innovation.

Figure II.6

Latin America and the Caribbean (4 countries): distribution of the budget allocated to science, technology and innovation (STI) policies, by ministerial area, 2024 or latest year available (Percentages of total STI spending)



Source: Economic Commission for Latin America and the Caribbean, on the basis of Budget Directorate of Chile, Chamber of Deputies of Mexico, National Planning Department of Colombia, official information and national studies; Britto, F. (2025). *Sistema de ciencia, tecnología e innovación e innovación productiva de la República Argentina. Análisis del nivel nacional y las jurisdicciones subnacionales de Buenos Aires, Córdoba, Santa Fe y Ciudad Autónoma de Buenos Aires* [Unpublished manuscript]. Economic Commission for Latin America and the Caribbean; Balbontín, R., Roeschmann, J. A. and Zahler, A. (2018). *Ciencia, tecnología e innovación en Chile: un análisis presupuestario. Estudios de Finanzas Públicas series*. Budget Directorate. Ministry of Finance; Budget Directorate. (2024). *Ley de Presupuestos del Sector Público: año 2024 (Ley N° 21.640 publicada en el Diario Oficial el 18 de diciembre de 2023)*. Ministry of Finance. https://www.dipres.gob.cl/597/articles-330063_doc_pdf.pdf; Chamber of Deputies. (2024). *Presupuesto Público Federal para la función ciencia, tecnología e innovación, 2023-2024 (SAE-ASS-11-24)*. <https://www.diputados.gob.mx/sedia/sia/se/SAE-ASS-11-24.pdf>.

Note: Although the quantification methodology differs from country to country, the results are presented in a comparable form to illustrate the cross-cutting nature of government STI policy. The figures do not include financial credits or tax incentives. For Argentina, Britto (2025) uses 2023 data from the Budget Office of the Ministry of Economy; for Chile, the methodology of Balbontín et al. (2018) is extended using the central government budget (Budget Directorate, 2024); for Colombia, the investment component of the 2022 General National Budget is analysed using the Investment Project Monitoring System (National Planning Department, 2022); and for Mexico, information from the federal budget on the STI function is used (Chamber of Deputies, 2024).

Where specific institutions are concerned, it can be seen that most spending in Mexico has been accounted for by the National Council for Humanities, Sciences and Technologies (CONAHCyT) (now the Secretariat for Science, Humanities, Technology and Innovation (SECIHTI)) and the Secretariat for Public Education, with little involvement of productive development entities. In Chile, Colombia and Mexico, three or four entities account for more than 85% of the budget allocated to STI policies.

In the area of productive development, it is noteworthy that in Chile the Production Development Corporation (CORFO) channels 29% of spending on STI policies, including instruments to promote productive innovation. In Argentina, the agricultural and nuclear sectors play a central role: the National Institute for Agricultural Technology (INTA) and the National Atomic Energy Commission (CNEA) each account for 15% of the national budget allocated to these policies.

¹³ In these countries, the ministerial areas of science, technology and innovation are deemed to include the secretariats or ministries responsible for policymaking and the lower-level entities institutionally attached or linked to them.

Ministries responsible for public goods, such as education, health, and information and communications technology (ICT) ministries, also play a large role in STI systems. In Mexico the education sector accounts for 38% of STI spending, while in Colombia the ICT sector was responsible for 13% of public investment in this area in 2022.

2. Coordination mechanisms

Inter-agency coordination mechanisms are vital for enhancing policy consistency, facilitating decision-making and aligning STI efforts with national development goals.¹⁴

An analysis of the 33 countries in the region shows that 13, mainly in the Caribbean, do not have dedicated formal coordination mechanisms for STI. This does not necessarily mean there is no coordination, since this function is usually performed by the entity overseeing or responsible for STI policies through bilateral interactions with other institutions. In addition, this entity may be governed by an executive committee or participate in other coordination forums, such as ministerial cabinets, where it links up with other institutions.

In the remaining countries, several types of formal inter-agency STI coordination mechanisms were identified (see table II.4). These countries have mixed arrangements involving stakeholders from the public sector, academia, the private sector and civil society. This is good practice, as it is conducive to the inclusion of multiple perspectives, to decision-making legitimacy and to alignment between public policy and the dynamics of the innovation system.

Table II.4
Latin America and the Caribbean: countries with formal institutional coordination mechanisms for science, technology and innovation (STI), 2024

Main formal STI coordination mechanism		
Advisory mechanisms with mixed membership	Coordination mechanisms with mixed membership	Coordination mechanisms with mixed membership and public-private coordination mechanisms
Three countries Belize, Ecuador and Haiti	Seven countries Bolivia (Plurinational State of), Colombia, Costa Rica, Cuba, Honduras, Jamaica and Paraguay	Ten countries Argentina, Brazil, Chile, Dominican Republic, Guatemala, Mexico, Panama, Peru, Uruguay and Venezuela (Bolivarian Republic of)

Source: Economic Commission for Latin America and the Caribbean, on the basis of official information and national studies.

In three countries, coordination mechanisms have an advisory role, but their large membership means that they effectively act as coordination mechanisms. Seven countries have formal arrangements explicitly designed to facilitate STI coordination among participants. Lastly, 10 countries have both mixed mechanisms and exclusively public coordination bodies, such as committees or interministerial cabinets.

Table II.5 presents a selection of 11 institutional coordination mechanisms of a mixed character for which public information on composition, institutional status, organization and operation was available.

¹⁴ Coordination mechanisms are just one of the many types of governance machinery needed to bring together actors, resources and efforts around strategic productive development agendas. These mechanisms need to be complemented by ground rules, institutional dynamics and incentive systems (ECLAC, 2024a, p. 96).

Country	Coordination mechanism
Argentina	Inter-Agency Science and Technology Council (CICyT)
Brazil	National Council of Science and Technology (CCT)
Colombia	National Council for Science, Technology and Innovation Policy (CONACTI)
Cuba	Inter-Agency Council for the Science, Technology and Innovation Macroprogramme
Dominican Republic	National Council for Higher Education, Science and Technology (CONESCYT)
Guatemala	National Council of Science and Technology (CONCYT)
Honduras	National Council for the Promotion of Science, Technology and Innovation (CONFOCIT)
Jamaica	National Commission on Science and Technology (NCST)
Mexico	Strategic National Programmes (PRONACES)
Panama	National Commission for Science, Technology and Innovation (CONACYT)
Venezuela (Bolivarian Republic of)	Presidential Commission on Science and Technology

Table II.5
Latin America and the Caribbean
(11 countries): selected institutional coordination mechanisms for science, technology and innovation (STI), 2024

Source: Economic Commission for Latin America and the Caribbean, on the basis of official information and national studies.

(a) Composition and institutional status

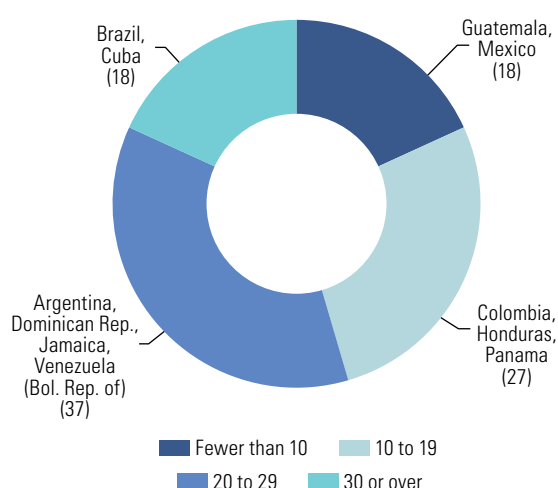
Of the bodies analysed, 27% have between 10 and 19 members,¹⁵ which represents an effort to balance representativeness with operational efficiency (see figure II.7A). Another 18% have fewer than 10 members, which streamlines decision-making but could mean that some significant stakeholders are not included. In contrast, 37% have between 20 and 29 members and 18% more than 30, which implies broader governance but entails risks of fragmentation or operational difficulties.

Figure II.7

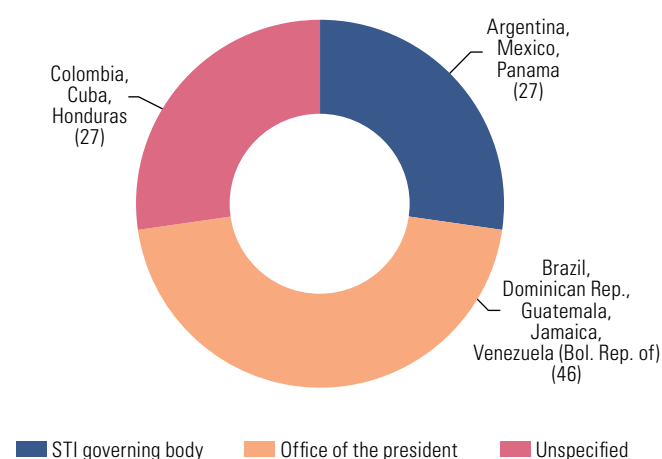
Latin America and the Caribbean (11 countries): distribution of selected science, technology and innovation (STI) coordination mechanisms, by number of members and overseeing authority, 2024

(Percentages)

A. Number of members



B. Overseeing authority



Source: Economic Commission for Latin America and the Caribbean, on the basis of official information and national studies.

Of these mechanisms, 46% come directly under the office of the country's president, which could facilitate interministerial coordination and access to strategic government decision-making (see figure II.7B), while 27% operate entirely within the purview of the STI governing body, which implies greater technical specialization, although their political influence will depend on the institutional status of that body.

¹⁵ Members are individuals who formally participate in the coordination arrangement, either on behalf of an entity or group, or by delegation from a higher authority (e.g., the office of the president).

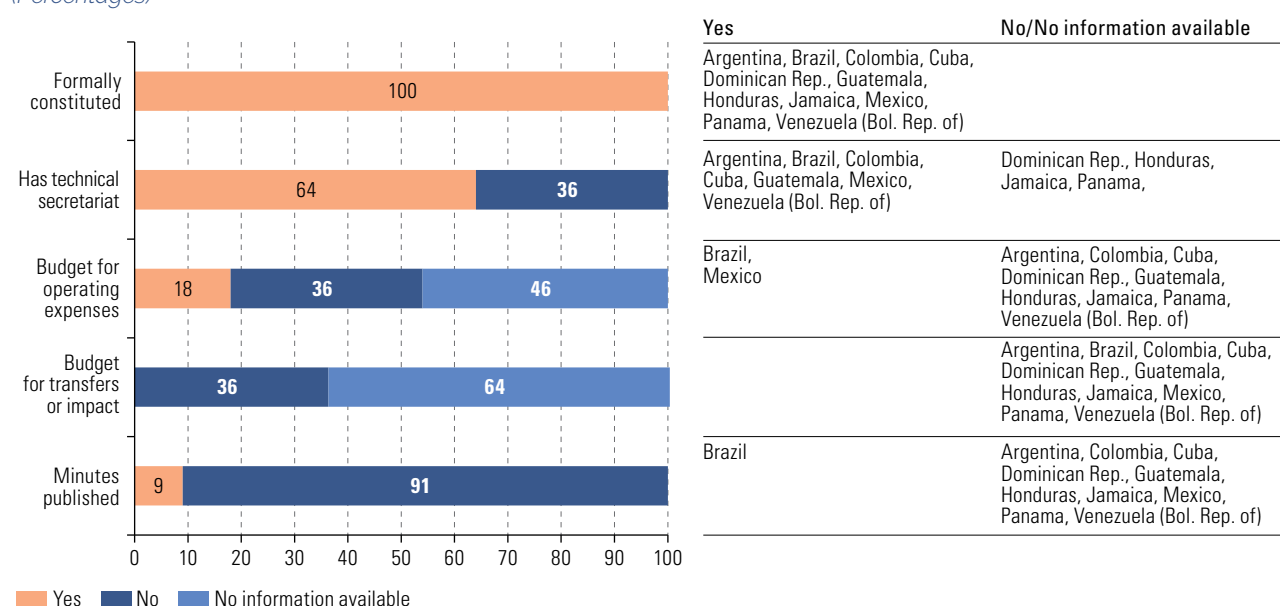
(b) Organization and operation

Although all the coordination mechanisms analysed are formally constituted, which guarantees their legal existence and a degree of institutional support, this does not necessarily translate into the functional capabilities needed to ensure real influence over strategic decision-making in the national STI system. For example, only 64% have a technical secretariat for operational support (see figure II.8), and just 18% have their own allocated operating budget, which could limit their work agenda and capacity for action.

Figure II.8

Latin America and the Caribbean (11 countries): distribution of science, technology and innovation (STI) coordination mechanisms, by different operational aspects, 2024

(Percentages)



Source: Economic Commission for Latin America and the Caribbean, on the basis of official information and national studies.

Furthermore, none of the mechanisms analysed has explicit influence over budget allocations, meaning the funds allocated to finance or co-finance policies, programmes or projects. Nor, except in Brazil, are minutes systematically published, which raises questions about traceability, transparency and accountability. The lack of accessible records of deliberations and decisions prevents there being adequate external oversight and limits informed participation.

3. Core science, technology and innovation (STI) institutions

This subsection analyses the core public STI institutions in greater depth. By core institutions are meant both the governing bodies that coordinate STI policies and the main entities responsible for administering policy instruments such as calls for proposals, services and other forms of support.

(a) The diversity of institutional arrangements

The core STI institutions in the 33 countries of the region can be characterized and classified into four groups, depending on the degree of specialization of the governing body and the existence of other entities with specific mandates related to the implementation and administration of instruments (see table II.6).

Table II.6

Latin America and the Caribbean (33 countries): classification of countries by entities governing and administering science, technology and innovation (STI) policy, 2025

Governing body			
Devoted solely to STI	Shared with other themes or agendas		
Group A 7 countries (21%) Argentina, Brazil, Chile, Colombia, Honduras, Peru, Venezuela (Bolivarian Republic of)	Group C 7 countries (21%) Barbados, Costa Rica, El Salvador, Jamaica, Nicaragua, Trinidad and Tobago, Uruguay	Yes	Also has one or more entities administering instruments
Group B 4 countries (12%) Guatemala, Mexico, Panama, Paraguay	Group D 15 countries (46%) Antigua and Barbuda, Bahamas, Belize, Bolivia (Plurinational State of), Cuba, Dominica, Dominican Republic, Ecuador, Grenada, Guyana, Haiti, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname	No	

Source: Economic Commission for Latin America and the Caribbean, on the basis of official information and national studies.

Note: This classification covers only public entities with an explicit mandate to administer STI policy instruments (such as innovation agencies, funds, councils and specialized institutes). It does not extend to universities, research centres or other institutions that carry out STI activities but whose functions do not include the administration of policy instruments.

The institutional architecture for STI policies in the region is very heterogeneous, which conditions its capacity to formulate, coordinate and implement effective policies is limited. Table II.6 shows that:

- Seven countries (21%) have a governing body exclusively for STI and one or more public implementing bodies. This combination is conducive to a clear functional division between strategy and operations, allowing for greater specialization of functions (group A).
- Four countries (12%) have governing institutions devoted exclusively to STI, but without separate implementing entities, which may compromise implementation capacity (group B).
- Seven countries (21%) have a governing institution that shares functions with other thematic areas besides STI, but there are technical entities that work in these areas and administer specific policy instruments (group C).
- In 15 countries (46%), mostly Caribbean islands, the institutions responsible for STI share functions with other themes or agendas and lack implementing entities, reflecting institutional limitations typical of smaller economies (group D).

These four categories reflect differing degrees of maturity in institutional architecture, an aspect that will be elaborated on later in this chapter.

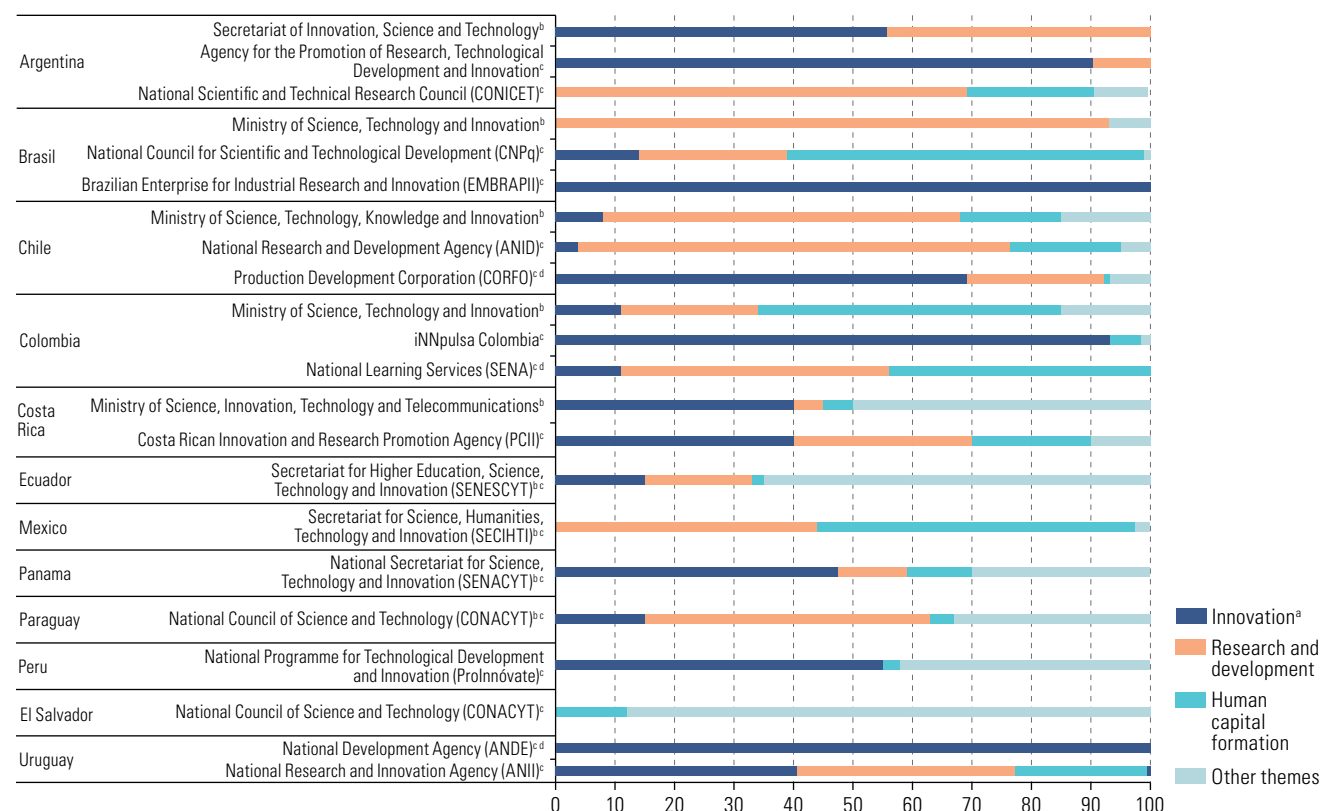
(b) Characterization of selected institutions

Figure II.9 presents the budgetary distribution of the main entities by area of STI action, divided into four categories:

- Support for research and development activities: funding aimed at generating new or applied knowledge and going mainly to universities and research centres, although companies with research and development capabilities are also included.
- Advanced human capital formation: usually fellowships to study within the country or abroad for the purposes of technical and scientific capacity-building, especially at postgraduate level.
- Support for innovation: instruments aimed primarily at businesses, ranging from research-based innovation to technology extension services, development of new products and services and support for innovative entrepreneurship.
- Other STI policy areas: these include interventions such as scientific outreach, social appropriation of knowledge and measures to strengthen institutions and improve the governance of the innovation system.

Figure II.9

Latin America and the Caribbean (12 countries): distribution of the institutional budget for science, technology and innovation (STI), by activity type and country, 2024
(Percentages)



Source: Economic Commission for Latin America and the Caribbean, on the basis of official information and national studies.

^a The “innovation” category also includes activities related to technological extension and support for science- and technology-based business ventures.

^b Governing body.

^c Implementing body.

^d These bodies carry out activities beyond the field of STI, but only the budget allocated to STI areas is considered for the purposes of this analysis, and the percentages are calculated on the basis of that amount.

In the cases of Argentina, Brazil, Chile and Colombia (group A), a governing body with ministerial status and two entities administering policy instruments were identified.

Entities with different profiles can coexist within the same country. In Brazil, for example, the Brazilian Enterprise for Industrial Research and Innovation (EMBRAPPI) focuses its STI budget on innovation and technology transfer activities, while the National Council for Scientific and Technological Development (CNPq) concentrates its resources on research and development and training activities. The specialization patterns of countries and their entities are shaped not only by policy decisions, but also by development models, institutional trajectories, installed capacity and budgetary constraints.

A cross-country comparison of entities with similar functions (or hierarchical levels) reveals different patterns of budget allocation. These entities in turn can be divided into governing and implementing bodies, as in figure II.9. Governing bodies distribute their STI resources in a diversified way across all areas; examples include Chile’s Ministry of Science, Technology, Knowledge and Innovation, Colombia’s Ministry of Science, Technology and Innovation and Panama’s National Secretariat for Science, Technology and Innovation (SENACYT). This reflects their strategic character and their responsibility for coordinating the entire STI system.

In contrast, implementing entities, such as CORFO in Chile, iNNpulsa in Colombia and the National Programme for Technological Development and Innovation (ProInnovate) in Peru concentrate most of their STI spending on activities geared towards innovation, technology transfer and entrepreneurship, reflecting an institutional mandate focused on productive transformation.

For their part, organizations such as Chile's National Research and Development Agency (ANID), Argentina's National Scientific and Technical Research Council (CONICET) and Mexico's Secretariat for Science, Humanities, Technology and Innovation (SECIHTI) allocate most of their STI budget to research and development and training activities, in accordance with their commitment to the generation of scientific knowledge. Then there are institutions such as Ecuador's Secretariat for Higher Education, Science, Technology and Innovation (SENECYT), the Ministry of Science, Innovation, Technology and Telecommunications of Costa Rica and the National Council of Science and Technology (CONACYT) in El Salvador that allocate a considerable proportion of their STI budget to other important policy areas within the field, such as institutional and management capacity-building, support for initiatives centred on the social appropriation of knowledge, and the production of information and statistics.

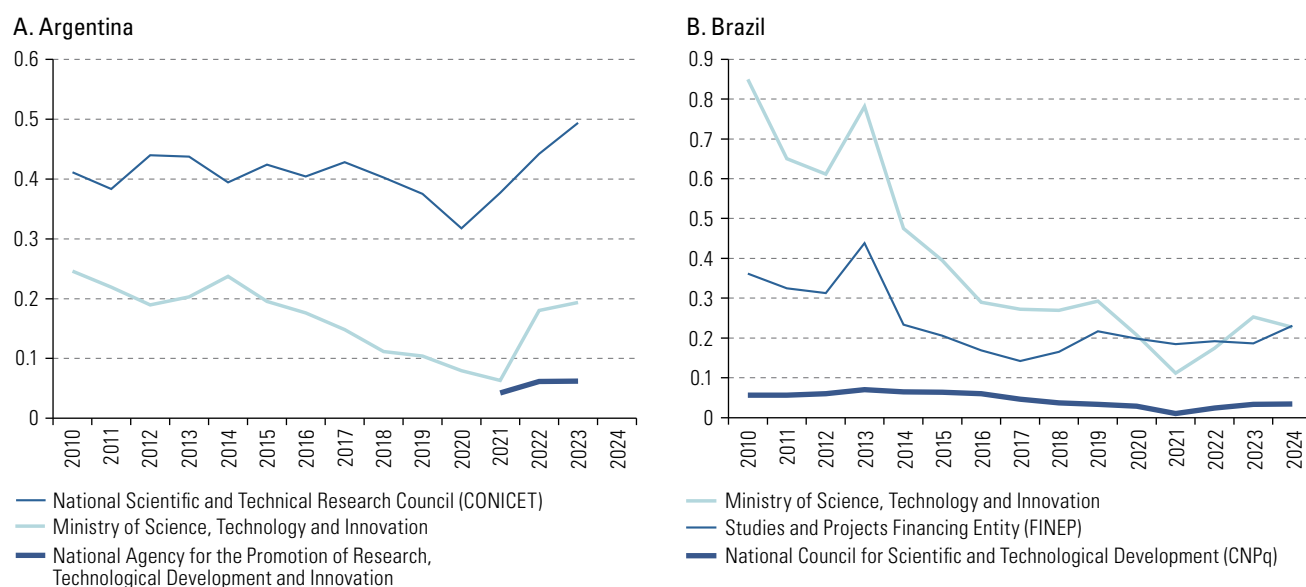
(c) Budget trends as an indicator of the importance of science, technology and innovation (STI)

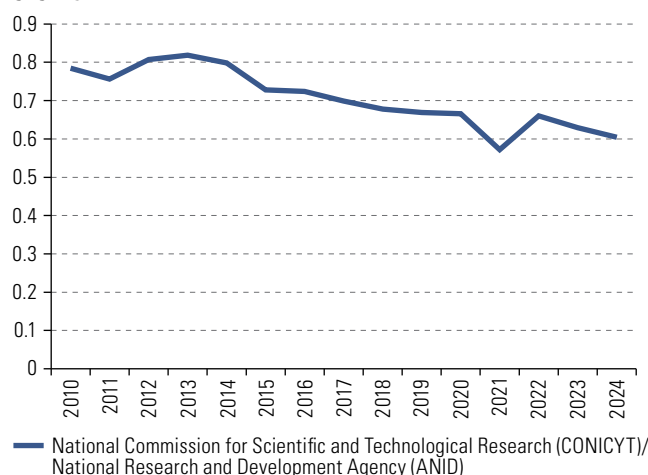
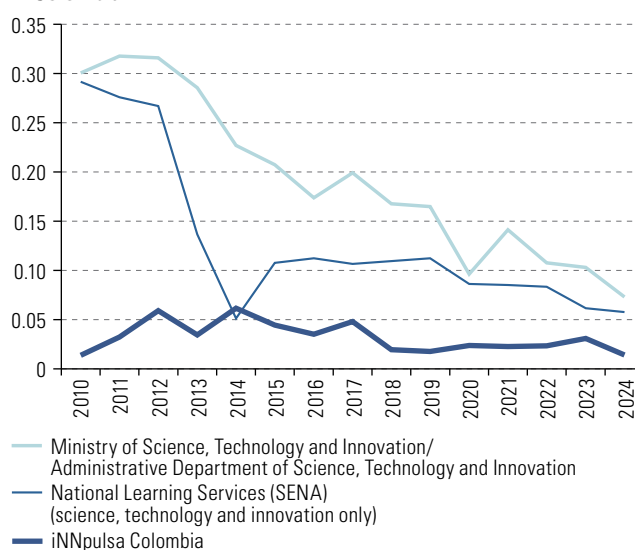
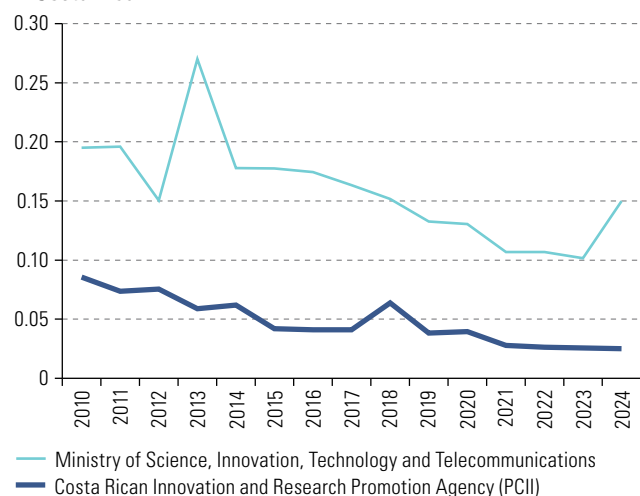
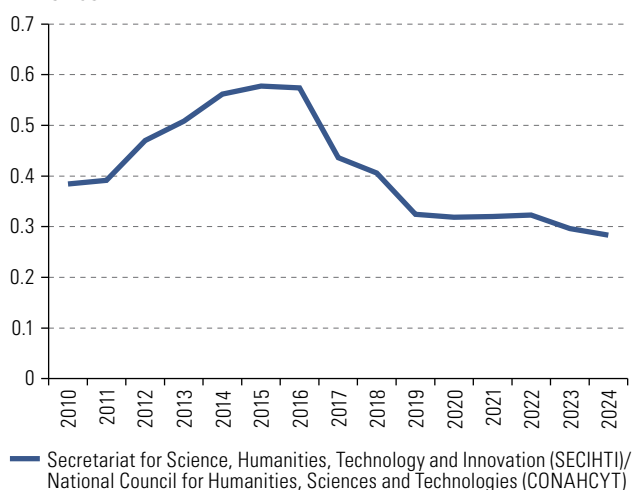
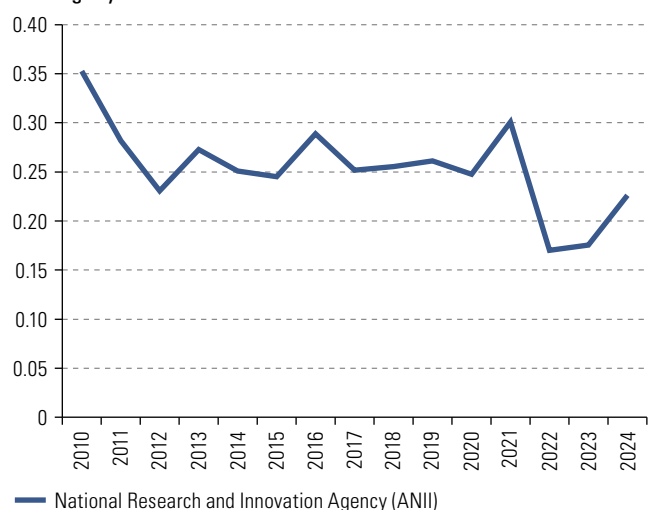
Analysis of the budget allocations of leading STI entities shows that their funding has stagnated or contracted as a share of the total government budget. As shown in figure II.10, the budget allocations of most of the institutions analysed in seven countries remained below 0.5% of the total national public budget between 2010 and 2024, and in many cases the trend was flat or even declining.

Figure II.10

Latin America and the Caribbean (7 countries): budgets of selected science, technology and innovation (STI) entities, by country, 2010–2024

(Percentages of the national government budget)



C. Chile**D. Colombia****E. Costa Rica****F. Mexico****G. Uruguay**

Source: Economic Commission for Latin America and the Caribbean, on the basis of official information and national studies.

The data indicate that, although there have been certain institutional advances, such as the creation of ministries of science, technology and innovation, these have not been accompanied by a commensurate increase in funding. Although the impact of STI policies does not depend exclusively on the volume of resources, this funding gap limits their effects, especially in productive development, and underscores the urgency of reviewing fiscal commitments to consolidate STI activities as an engine of transformation in the region.

4. Technical, operational, political and prospective (TOPP) capabilities

Some of the differences in policies, coordination mechanisms and budgets may be due to gaps in the TOPP capabilities of core STI entities.

Setting out from this hypothesis, semi-structured interviews were conducted with eight entities¹⁶ in six countries to characterize their organizational context and level of institutional development in each TOPP dimension (see table II.7). The aim was to understand not only what the institutions reported doing, but also how they did it and what capabilities they had for achieving it.

Country	Institution
Brazil	Ministry of Science, Technology and Innovation
Chile	Ministry of Science, Technology, Knowledge and Innovation
	Production Development Corporation (CORFO)
Costa Rica	Ministry of Science, Innovation, Technology and Telecommunications
	Costa Rican Innovation and Research Promotion Agency (PCII)
Panama	National Secretariat for Science, Technology and Innovation (SENACYT)
Paraguay	National Council of Science and Technology (CONACYT)
Uruguay	National Research and Innovation Agency (ANII)

Table II.7
Latin America and the Caribbean (6 countries): core science, technology and innovation (STI) entities interviewed about their technical, operational, political and prospective (TOPP) capabilities, 2025

Source: Economic Commission for Latin America and the Caribbean.

The following subsections present the main findings and best practices for TOPP capabilities as a benchmark for core STI entities in the region.

(a) Technical capabilities

The entities interviewed have strong planning and targeting capabilities, but limitations when it comes to the evaluation of interventions, the characterization of users and organizational learning mechanisms. This weakens results-oriented management and continuous improvement in institutions (see table II.8).

¹⁶ The entities interviewed were those that showed interest and willingness to participate in the study when invited by ECLAC.

Table II.8

Latin America and the Caribbean (6 countries): main findings on the technical capabilities of the science, technology and innovation (STI) entities interviewed, 2025

Capability	Finding	Example of good practice
Planning	Most have multi-year plans but limited capacity to apply logical frameworks, use outcome or impact indicators or consult empirical and documentary information in a systematic way.	Ministry of Science, Innovation, Technology and Telecommunications of Costa Rica: has an STI policy running through to 2050 and implemented through five-year plans; seeks to depoliticize priorities and foster consistency between different agencies across periods.
Targeting	Although targeting criteria are applied on the basis of institutional priorities, these are not always shared at government level and may be limited to the field of competence of each entity.	Ministry of Science, Technology and Innovation of Brazil: the new STI policy (2023–2030) ^a focuses on Brazil's six productive development policy missions, known as New Industry Brazil, aligning STI promotion instruments with high-priority productive development priorities.
User segmentation	There have been efforts to characterize users, but institutionalization is very incipient and remains dependent on staff discretion, which limits their extension to different groups.	Ministry of Science, Innovation, Technology and Telecommunications of Costa Rica: implements community innovation laboratories focused on populations with educational gaps (older persons, youth and campesinos).
Monitoring and evaluation	Although there are systems for monitoring institutional management, few entities carry out repeated evaluations of their interventions, and impact is rarely estimated.	Production Development Corporation (CORFO) of Chile: conducts periodic impact assessments using advanced techniques to continuously improve its portfolio of instruments.
Learning	A lack of formal mechanisms for systematizing learning is a common weakness, so that these exercises tend to be discretionary and unsustainable over time.	National Secretariat for Science, Technology and Innovation (SENACYT) of Panama: holds internal and external workshops every six months to systematize learning and adjusts instruments on the basis of lessons learned.

Source: Economic Commission for Latin America and the Caribbean, on the basis of interviews.

^a This policy was being formulated at the time of writing.

(b) Operational capabilities

In this area, challenges were found in human talent management, digital transformation and the use of data for decision-making. A lack of robust analytical platforms, the weakly binding nature of citizen participation mechanisms and limited dissemination of disaggregated information are all obstacles to the establishment of more open and effective institutions (see table II.9).

Table II.9

Latin America and the Caribbean (6 countries): main findings on the operational capabilities of the science, technology and innovation (STI) entities interviewed, 2025

Capability	Finding	Example of good practice
Human resources	A lack of incentives and job stability at a number of entities makes it difficult for them to retain technical talent and provide structured ongoing training.	Production Development Corporation (CORFO) of Chile: retains talent thanks to stability of employment, training plans and workplace climate measurements. Fosters an organizational culture of continuous learning and institutional commitment.
Information management	Although all entities use digital tools, some lack analytical platforms and integrated databases, which prevents information being used strategically.	Production Development Corporation (CORFO) of Chile: its DataInnovación online platform provides open access to information on business research and development projects.
Digitalization	Although entities provide online services, few have strategies for digital transformation or the use of artificial intelligence as a core component of their management and the value they provide to users.	Ministry of Science, Technology, Knowledge and Innovation of Chile: has an artificial intelligence tool that organizes and analyses scientific information and data from the national STI system.
Transparency	Although open data portals exist, few entities systematically publish disaggregated information on outcomes, instruments or beneficiaries.	National Research and Innovation Agency (ANII) of Uruguay: publishes its impact studies and associated documentation in full, whether the results obtained have been positive or negative.
Citizen satisfaction	There are surveys and formal channels for gathering information on user experiences, but passive participation needs to be transformed into active and ongoing feedback to improve management.	National Council of Science and Technology (CONACYT) of Paraguay: has feedback mechanisms and assigns each beneficiary a single specialist as a focal point to manage their entire experience.

Source: Economic Commission for Latin America and the Caribbean, on the basis of interviews.

(c) Political capabilities

The entities analysed participate actively in legislative processes and strive for coordination with public, private and social actors. However, a lack of stable and binding coordination mechanisms limits the continuity of these processes, which vary depending on circumstances and personal leadership (see table II.10).

Table II.10

Latin America and the Caribbean (6 countries): main findings on the political capabilities of the science, technology and innovation (STI) entities interviewed, 2025

Capability	Finding	Example of good practice
Legislative	Entities have some limited legislative powers and collaborate in lawmaking, although they do not necessarily have specialized departments for this purpose.	National Secretariat for Science, Technology and Innovation (SENACYT) of Panama: although it cannot directly initiate legislation, it is currently setting up a science policy office to promote important legal reforms.
Relationship-building	There are mechanisms for coordination with public and private entities, but in some cases their results are not binding, they have little influence on decision-making and they are very vulnerable to circumstances.	Costa Rican Innovation and Research Promotion Agency (PCII): its executive board grants voting rights to external stakeholders, who are actually in a majority, helping ensure that policies are aligned with real demands in the ecosystem.
Social dialogue	Although mechanisms for dialogue with external stakeholders have been identified, these may be subject to management discretion and tend to be consultative rather than binding.	Ministry of Science, Technology, Knowledge and Innovation of Chile: its Civil Society Councils (COSOC) have a diverse membership, with open participation. In particular, a children's COSOC was created in the interests of early involvement with STI.

Source: Economic Commission for Latin America and the Caribbean, on the basis of interviews.

(d) Prospective capabilities

Prospective capabilities are still a work in progress, and isolated or outsourced exercises remain the norm, with a lack of institutionalization or capabilities to systematically incorporate findings into strategic decision-making. Furthermore, regulatory rigidity limits the scope for responding swiftly to disruptive situations or emergencies (see table II.11).

Table II.11

Latin America and the Caribbean (6 countries): main findings on the prospective capabilities of the science, technology and innovation (STI) entities interviewed, 2025

Capability	Finding	Example of good practice
Anticipation	Prospective analyses are sporadic and it is unclear whether, having produced them, entities have the capacity to use them in decision-making.	Ministry of Science, Technology and Innovation (MCTI) of Brazil: is supported by the Centre for Strategic Studies and Management (CGEE), an institution specializing in foresight to advise on national policy planning.
Flexibility	There are limitations on the extent to which instruments can be adapted to unexpected situations, owing either to the rigidity of administrative procedures or to a lack of protocols, which reduces institutional responsiveness to technological disruptions or emergencies.	Costa Rican Innovation and Research Promotion Agency (PCII): has flexibility to adjust programmes to external conditions, with swifter decision-making by the executive board.

Source: Economic Commission for Latin America and the Caribbean, on the basis of interviews.

C. Science, technology and innovation (STI) policy instruments

STI policy instruments are mechanisms designed and used to achieve policy objectives through interventions targeting actors in the STI system. This section examines the main characteristics of these instruments as used in Latin America and the Caribbean with regard to their goals, areas of intervention and beneficiaries; forms of support and management; scale indicators and coordination; and encouragement of business innovation.

Although the information analysed is based on a combination of sources, including surveys and interviews with the entities governing and administering instruments, particular use is made of international databases of policy instruments, such as STIP Compass (Organisation for Economic Co-operation and Development (OECD)), the Global Observatory of Science, Technology and Innovation Policy Instruments (GO-SPIN) (United Nations Educational, Scientific and Cultural Organization (UNESCO)) and Políticas CTI (Organization of Ibero-American States for Education, Science and Culture (OEI)).¹⁷

1. Main characteristics

(a) Goals, areas of intervention and beneficiaries

The different information sources available all show STI policy instruments being used to target the main areas of intervention described in section II.B.3: support for research and development activities, advanced human capital formation, promotion of innovation and other STI themes.

Table II.12 presents the categories of STI policy objectives in these areas that the countries of the region seek to achieve with their instruments, according to the UNESCO database. It confirms that the most commonly pursued objectives are the production of scientific knowledge, the formation of human capital and the promotion of productive innovation and technological entrepreneurship.

There is also marked heterogeneity between countries, both in the number of instruments and in the diversity of the objectives pursued. While Argentina and Brazil have more than 100 instruments in the field of STI, 12 countries have fewer than 10. Again, Brazil and Chile have instruments that address most policy objectives, unlike more than half the countries of the region, whose instruments are designed for no more than five objectives.

Figure II.11 shows the distribution of instruments by beneficiary, using data from the OECD database. The results are consistent with the classification by policy objective, and three main groups of beneficiaries are identified: (i) research and education organizations, (ii) companies (by size or age) and (iii) researchers, students and teachers. When this distribution is compared between Latin America and the Caribbean, Europe and Asia, a relatively similar structure is observed, although with some interesting differences. While in Asia the proportion of instruments aimed at government entities is higher than in other regions, in Latin America and the Caribbean there is a greater presence of instruments aimed at social groups, reflecting particular priorities in terms of inclusion and territorial development.

¹⁷ STI policy instrument databases have limitations. Being generally self-administered, they are difficult to update and present both conceptual and practical challenges, especially regarding what constitutes a policy instrument and what the appropriate level of disaggregation is, which can vary between countries and from one entity to another. Furthermore, their usefulness for comparison purposes is limited, as all that can be compared between countries is the number of instruments registered, which does not necessarily reflect the actual scale of the public effort being made. The GO-SPIN (UNESCO) and Políticas CTI (OEI) databases contain budgetary information for some instruments, but this is not complete, as it depends on the availability of data. The STIP Compass database (OECD) incorporates funding ranges, although not exact amounts for each instrument. Despite their limitations, these tools do fill in some major gaps in the comparative analysis of science, technology and innovation policies.

Table II.12

Latin America and the Caribbean (27 countries): science, technology and innovation (STI) instruments, by country and policy objective

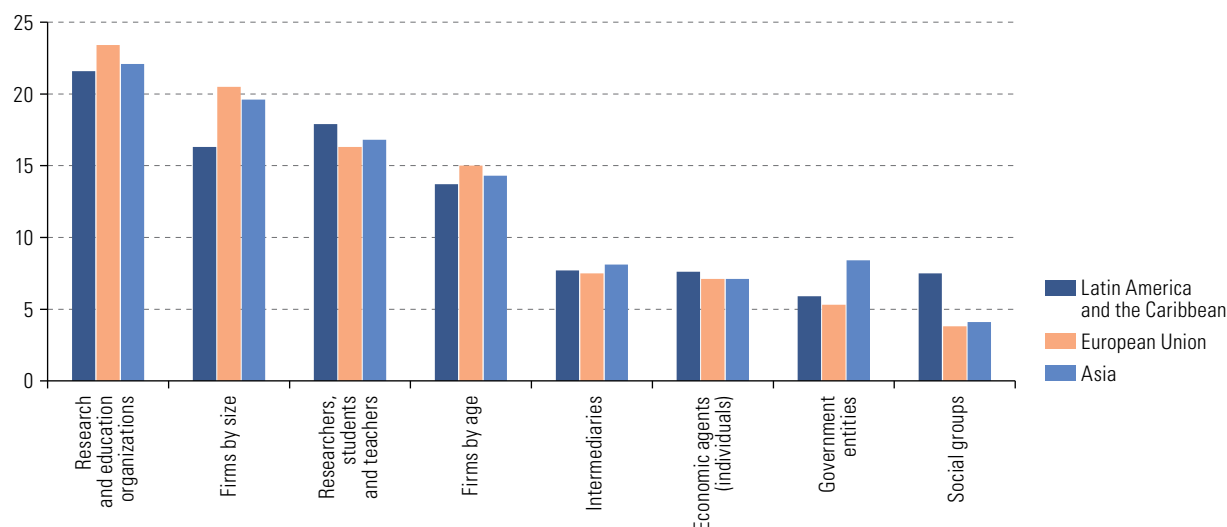
Country	Research and development		Training		Innovation		Other objectives							Total instruments
	Production of scientific knowledge	Research infrastructure	Human capital formation in STI	Scientific education	Productive innovation and technological enterprises	Green and inclusive technologies	Gender equality in STI	Social appropriation of knowledge	Indigenous knowledge	Coordination of the STI ecosystem	Technology foresight and strategic consulting	Scientific diplomacy and international cooperation m. STI awards	STI awards	
Total countries	22	10	22	12	23	4	9	10	4	8	5	4	10	
Argentina	✓	✓	✓	✓	✓		✓	✓			✓		✓	136
Bahamas (Las)			✓											5
Belize			✓											2
Bolivia (Plurinational State of)	✓				✓		✓		✓					7
Brazil	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	109
Chile	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓		87
Colombia	✓	✓	✓	✓	✓			✓		✓				42
Costa Rica	✓		✓	✓	✓		✓	✓		✓			✓	35
Cuba	✓				✓									2
Dominican Republic	✓		✓		✓									8
Ecuador	✓		✓		✓		✓		✓					22
El Salvador	✓		✓	✓	✓					✓				15
Grenada					✓									2
Guatemala	✓	✓	✓	✓	✓			✓		✓	✓		✓	25
Guyana					✓	✓							✓	2
Honduras	✓				✓						✓			6
Jamaica	✓		✓		✓		✓			✓			✓	13
Mexico	✓	✓	✓	✓	✓		✓	✓	✓				✓	51
Nicaragua	✓		✓		✓		✓						✓	9
Panama	✓	✓	✓	✓	✓					✓			✓	38
Paraguay	✓	✓	✓	✓	✓			✓					✓	20
Peru	✓	✓	✓	✓	✓		✓							47
Saint Lucia			✓											2
Suriname	✓		✓		✓									2
Trinidad and Tobago	✓		✓		✓	✓		✓	✓			✓		13
Uruguay	✓	✓	✓	✓	✓			✓		✓				65
Venezuela (Bolivarian Republic of)	✓		✓									✓		6

Source: Economic Commission for Latin America and the Caribbean, on the basis of United Nations Educational, Scientific and Cultural Organization. (2025). *Global Observatory of Science, Technology and Innovation Policy Instruments*. <https://gospin.unesco.org/frontend/home/index.php>.

Note: The names of the objectives have been simplified, but without altering their original meaning. Only categories of policy objectives that are present in more than two countries of the region have been included.

Figure II.11

Selected regions: regional distribution of science, technology and innovation (STI) initiatives, by beneficiary, 2023
(Percentages of initiatives)



Source: Economic Commission for Latin America and the Caribbean, on the basis of Organisation for Economic Co-operation and Development and European Commission.

Note: Governance-related initiatives were not included in the analysis. Latin America and the Caribbean includes Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico and Peru. The European Union includes Austria, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, the Kingdom of the Netherlands, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden. Asia includes China, Japan, Malaysia, the Republic of Korea, Thailand and Viet Nam.

(b) Forms of support and management of instruments

According to the OEI database, as shown in table II.13, instruments based on non-reimbursable grants predominate in Latin America and the Caribbean. These are mainly used to finance research, development and innovation activities and to award fellowships for advanced human capital formation.

Table II.13
Latin America
and the Caribbean
(21 countries):
instruments used
to promote science,
technology and
innovation (STI)

Instrument	Number of countries with instruments in the area	
	2021 ^a	2025 ^a
Research and development financing		
Science and technology research funding	17	18
Teacher incentives for science and technology research	6	5
Funding for equipment and infrastructure improvements	6	7
Space research and development	...	9
Programmes with a gender perspective	...	10
Training		
Fellowships for undergraduate, postgraduate and postdoctoral studies	16	17
Postgraduate support and creation programmes	8	8
Support for business innovation		
Funding to promote innovation and competitiveness in firms	19	19
Funding to create clusters, technology hubs and business incubators	5	5
Tax credit for research and development	9	...
Credits for scaling up innovation projects	2	...
Technical training programmes	11	12
Enterprise support programmes	9	11

Instrument	Number of countries with instruments in the area	
	2021 ^a	2025 ^a
Promotion of priority areas		
Priority area programmes	12	12
Sectoral funds	6	6
Scientific culture		
Scientific outreach programmes	...	19

Source: Economic Commission for Latin America and the Caribbean, on the basis of Organization of Ibero-American States for Education, Science and Culture. (2025). *Políticas CTI*. <http://www.politicascsti.net/>.

^a Year the database was consulted.

A predominance of direct grants over other types of support¹⁸ can also be observed when the budgetary allocations of various core STI entities are broken down. Figure II.12 shows that a group of agencies allocate between 80% and 100% of their institutional STI budget to this type of support,¹⁹ demonstrating a preference for such traditional mechanisms. This is the situation with entities such as CONICET in Argentina, CNPq in Brazil, ANID in Chile, SENESCYT in Ecuador and SENACYT in Panama.

Figure II.12

Latin America and the Caribbean (12 countries): distribution of institutional budget allocated to science, technology and innovation (STI), by type of support, 2024

(Percentages)



Source: Economic Commission for Latin America and the Caribbean, on the basis of official information and national studies.

^a These entities also carry out non-STI activities, but for the purposes of this analysis only the budget allocated to STI areas is considered.

¹⁸ Policy instruments can take various forms. For further details, see ECLAC (2024a).

¹⁹ Some entities also carry out non-STI activities, but for the purposes of this analysis only the budget allocated to STI areas is considered. Tax incentives for research, development and innovation activities are not included, as they do not represent direct expenditures or appear in the budgets of the administering entities. These instruments are detailed in section II.C.2.

Some exceptions evince more diversified institutional strategies, however. In Brazil, for example, the Studies and Projects Financing Entity (FINEP) combines grants with financial instruments; in Colombia, iNNpulsa and SENA allocate a substantial proportion of their budgets to business support services aimed at strengthening the innovation and entrepreneurship ecosystem. Nevertheless, designs of this kind are still rare.

Resources tend to be allocated via competitive funds, with regular or special calls for proposals. These mechanisms generally follow a model whereby projects are proposed by researchers, universities or companies in the case of research, development and innovation, and by students in the case of academic study grants. In these cases, the role of public bodies tends to be limited to administering projects and then carrying out mainly financial monitoring of them (ECLAC, 2022b).

The great majority of countries in the region have competitive research funds to finance research and development projects carried out mainly at universities and public research centres, with the primary focus being on basic and applied research. Funding allocation is guided by criteria of research excellence, which means that the portfolio of selected projects is not necessarily aligned with any kind of productive priority identified as part of a productive development policy or with social or economic impact criteria. Some countries, such as Argentina and Mexico, complement these programmes with financing lines and funds that support their researchers careers (ECLAC, 2022b).

As regards talent development, fellowship programmes for study abroad and the provision of local postgraduate courses have been expanded. In the area of business innovation, almost all the countries have instruments that co-finance research, development and innovation projects and, in some cases, apply tax incentives (see section II.C.3). Lastly, support for innovative entrepreneurship via seed capital, incubators, accelerators and training has grown, with significant progress made in several countries of the region.

Although detailed analysis of each of these instruments is beyond the scope of this chapter, interviews with the selected entities confirmed some of the limitations discussed in ECLAC (2022b). First, there is a bias towards funding basic research, mainly at universities and research institutes; this accounts for a substantial portion of public spending on research and development and relegates applied research and business innovation to a secondary role.

Second, the set of innovation policy instruments is insufficient to generate significant change. A lack of key tools, such as innovation credits and innovative public procurement, restricts the development of innovative business projects.

Furthermore, competitive funds oriented by beneficiary demand predominate; efforts are dispersed across multiple projects with low levels of financial support, which prevents critical capabilities from being consolidated; short-term initiatives are prioritized because of restrictions on funding periods; and, although positive progress has been observed, outcomes tend to be disconnected from strategic national challenges and productive development priorities.

Taken together, these conditions limit the impact of STI policies on the region's productive and social development.

2. Indicators of scale and coordination of instruments

As already pointed out, knowing the number of instruments that a country or institution administers is not enough to gauge the scope of its STI efforts. For one thing, the available budget is an important factor affecting both the number of beneficiaries that can be reached and the individual amounts of support that can be provided, and this is particularly true in areas such as frontier technology research, where the scale of investment is critical. Again, the systemic impact of a set of instruments can be maximized when they operate in a coordinated and synergistic way. This section presents two indicators that give a picture of both dimensions, namely the scale of instruments and the coordination between them.

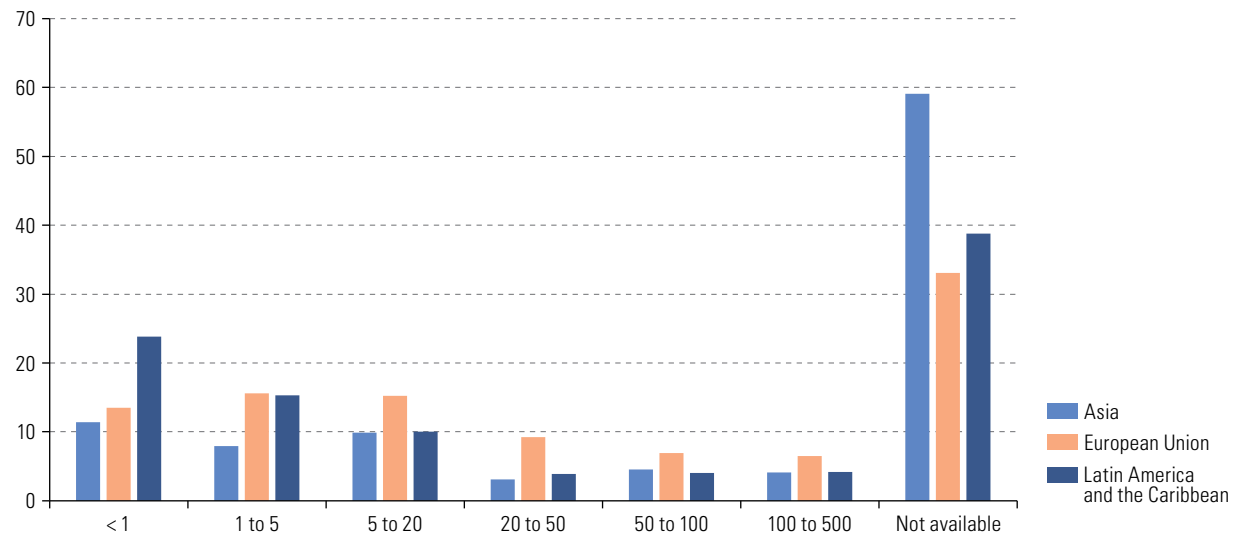
(a) The scale of instruments

Figure II.13 shows, for instruments with budget ranges included in the OECD STIP Compass database, that in Latin America and the Caribbean, unlike other regions, most instruments are in the lower allocation brackets. This finding indicates a relatively limited financial capacity to support STI initiatives, which could translate into a smaller impact on knowledge generation, technological development and productive innovation. Among the initiatives with the largest budget allocations (50 to 500 million euros), however, there is a marked orientation towards public research, particularly in larger countries with more consolidated institutional capabilities.²⁰

Figure II.13

Regional distribution of science, technology and innovation (STI) initiatives, by budget range, 2023

(Millions of euros)



Source: Economic Commission for Latin America and the Caribbean, on the basis of Organisation for Economic Co-operation and Development and European Commission. Accessed on 15 April, 2025.

Besides the structural fiscal constraints mentioned above, another possible explanation for the concentration of instruments in the lower budget allocation brackets may be the fragmentation and atomization of policy instruments. Although nothing conclusive can be said on this point, it is a hypothesis well worth exploring, since excessive dispersion of instruments with small budgets and overlapping objectives may limit the effectiveness and consistency of STI policy.

(b) Linkages between instruments

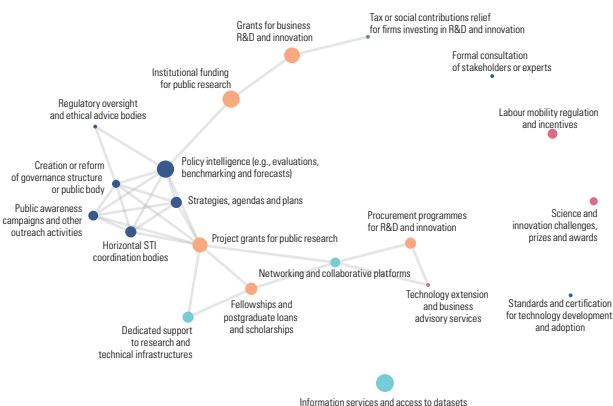
Diagram II.1 shows network charts that visually represent the interconnections between STI policy instruments in different countries. In the Latin American and Caribbean cases analysed, networks are fragmented and connections between instruments lacking in density by comparison with countries such as Germany and the Republic of Korea, taken as benchmarks, whose networks are denser and more integrated.

²⁰ Noteworthy examples include the National Fund for Scientific and Technological Development (FNDCT) and the Sectoral Infrastructure Fund (CT-Infra) in Brazil, CONICET in Argentina and the F003 Budget Programme "National Strategic Programmes for Science, Technology and Linkages with the Social, Public and Private Sectors" in Mexico. These initiatives are complemented by advanced training programmes, such as Becas Chile, and to a lesser extent by business innovation support instruments.

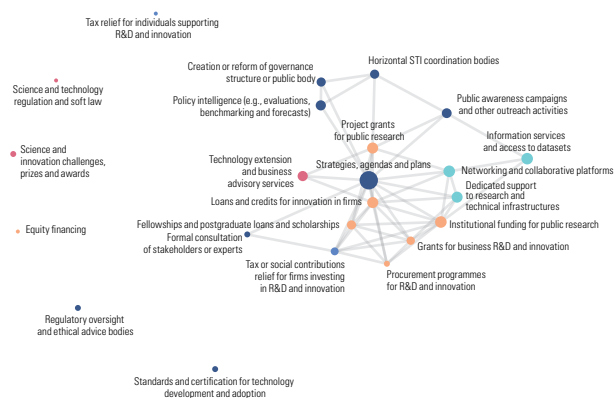
Diagram II.1

Selected countries: network representation of science, technology and innovation (STI) policy instrument categories, 2025

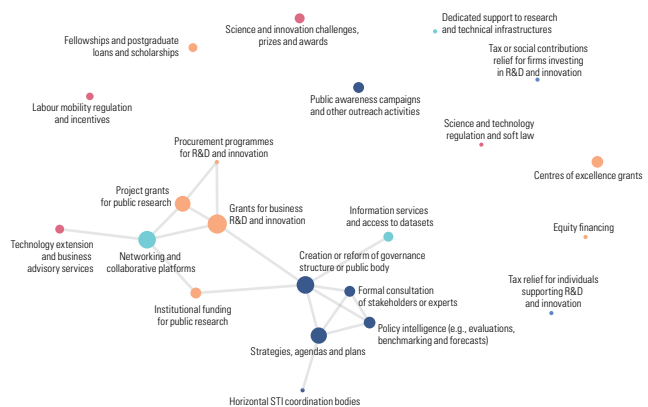
A. Argentina



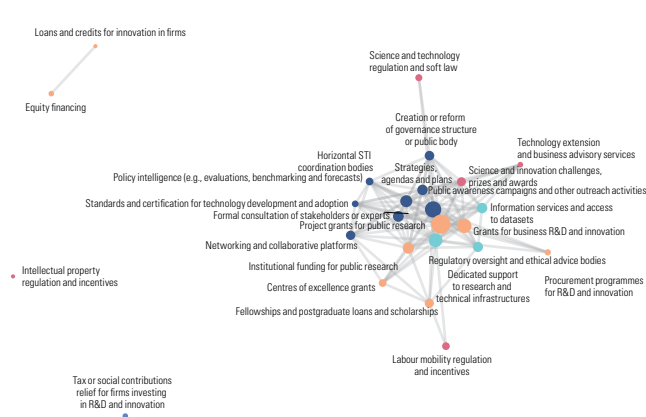
B. Brazil



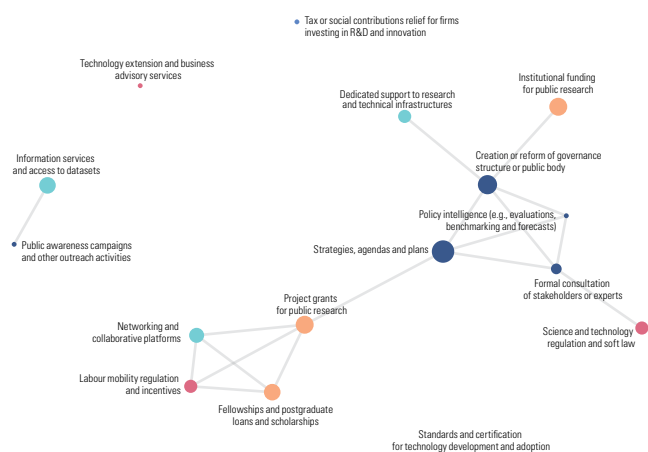
C. Chile



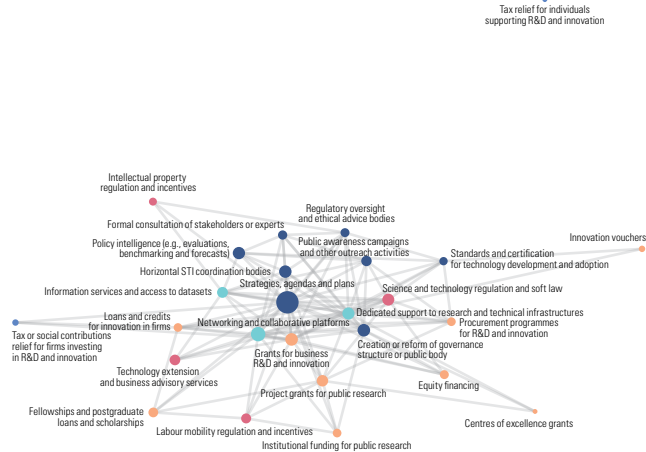
D. Germany



E. Mexico



F. Republic of Korea



● Collaborative infrastructure (soft and hard) ● Direct financial support ● Governance ● Guidelines, regulations and incentives ● Indirect financial support

Source: Economic Commission for Latin America and the Caribbean, on the basis of Organisation for Economic Co-operation and Development and European Commission.

Note: Each node represents a category of STI policy instrument, with the colour indicating the category (according to the Organisation for Economic Co-operation and Development (OECD)). Two nodes are linked when a single instrument is classified in both categories simultaneously. The thickness of the line represents the number of instruments sharing that combination, allowing patterns of linkage and complementarity between instrument types to be observed.

Although the charts in diagram II.1 are no substitute for a detailed assessment of institutional and operational coordination, they do serve to illustrate the fragmentation of instruments. This observation matches the perception expressed by stakeholders in interviews that instruments are often designed according to very specific rationales with limited objectives, without any consideration of how they might be integrated with other instruments.

3. Business innovation instruments

An analysis focusing exclusively on instruments designed to promote business innovation shows that the most common mechanisms in the region's countries are competitive funds that provide non-reimbursable co-financing for research, development and innovation projects submitted by companies. Technical assistance programmes designed to strengthen firms internal innovation capabilities are another common mechanism (see table II.14).

The interviews conducted with institutions responsible for administering these instruments confirm what has already been stated by ECLAC (2022b): innovation policy support is generally channelled through horizontal funds without explicit sectoral or thematic guidelines, allocated on the basis of criteria such as the innovativeness of the project and its financial viability or sustainability.

Some countries, such as Argentina, Chile and Uruguay, have begun to implement funds or calls for proposals with a sectoral or thematic orientation focused on priority areas or specific topics more directly related to productive or technological development. However, general funds or broad thematic calls for proposals are still the rule, and this may limit the capacity of STI policies to contribute strategically to the productive transformation of economies.

With this type of mechanism, the role of implementing agencies tends to be confined to operational management and financial monitoring of projects, with no involvement in setting strategic priorities or identifying areas of opportunity for systemic innovation. This poses a major challenge for efforts to strengthen the link between STI and productive development.

Supplementing what has been said, table II.15 shows that at least nine countries in the region have established specific tax incentive instruments for research and development, in different forms. These represent one of the horizontal instruments par excellence for promoting innovation at the enterprise level. However, their use in Latin America and the Caribbean is still incipient, in terms of both coverage and impact, compared to other more advanced regions.

Table II.14

Latin America and the Caribbean (23 countries): selected innovation support instruments, by country

Country	Competitive research grants	Infrastructure grants	Fiscal credits and loans	Science parks and innovation centres	Fiscal and tax incentives	Technical assistance	Fellowships	Seed and venture capital	Sectoral and trust funds	Information services	Other	Total instruments
Total countries	16	2	6	8	5	13	8	5	6	7	8	
Argentina	✓		✓	✓	✓	✓	✓	✓	✓	✓		59
Bolivia (Plurinational State of)											✓	1
Brazil	✓	✓	✓			✓	✓	✓	✓	✓	✓	29
Chile	✓	✓		✓	✓	✓	✓				✓	29
Colombia	✓				✓	✓		✓			✓	19
Costa Rica	✓					✓	✓			✓		14
Cuba	✓											1
Dominican Republic	✓					✓		✓		✓		29
Ecuador	✓		✓	✓			✓					5
El Salvador	✓			✓					✓			3
Grenada			✓									5
Guatemala	✓										✓	2
Guyana						✓				✓		5
Honduras						✓						2
Jamaica					✓	✓		✓			✓	1
Mexico	✓				✓	✓			✓	✓		8
Nicaragua	✓					✓						36
Panama	✓											3
Paraguay	✓			✓			✓					7
Peru	✓			✓			✓	✓	✓			3
Suriname											✓	1
Trinidad and Tobago			✓	✓		✓						4
Uruguay	✓		✓	✓		✓	✓		✓	✓	✓	28

Source: Economic Commission for Latin America and the Caribbean, on the basis of United Nations Educational, Scientific and Cultural Organization. (2025). *Global Observatory of Science, Technology and Innovation Policy Instruments*. <https://gospin.unesco.org/frontend/home/index.php>. Consulted on 28 May 2025.

Note: An instrument may provide more than one type of support. The names of the support types have been simplified, but without altering their original meaning.

Table II.15

Latin America and the Caribbean (9 countries): tax incentives for selected research, development and innovation activities, 2024

Country	Description
Argentina	Law No. 23877 of 1990, amended by Law No. 27430 of 2017. Tax credit of up to 10% of eligible research and development expenses, with an annual cap per company. Implemented through a certificate of tax credit to be set against domestic taxes.
Barbados	Income Tax (Amendment and Validation) Act 2024. Tax credit of 25% of the costs of successfully introduced innovations and 50% of eligible research and development expenses. This is refundable and can be set against taxes, payroll expenses and value added tax (VAT). It is approved by the National Productivity Council.
Brazil	Law No. 11196 of 2005 (<i>Lei do Bem</i>) and decree No. 5798 of 2006. "Super deduction" of 60% of research, development and innovation expenditure from the taxable base for income tax and social security contributions on net income. Up to 100% if there are patents or an increase in the number of researchers.
Chile	Law No. 20241 of 2008 establishing a tax incentive for private sector investment in research and development and Law No. 20570 of 2012. Tax credit for companies investing in research and development via contracts or in-house projects certified by the Production Development Corporation (CORFO). Up to 35% of total payments on certified research and development contracts or projects.
Colombia	Tax Statute, Law No. 1450 of 2011, Law No. 1955 of 2019 and Law No. 2277 of 2022. Tax discount of 30% for investments in research, development and innovation, and tax credit of 50% of the amount invested, applicable mainly to micro-, small and medium-sized enterprises (MSMEs) and granted via a call for applications by the Ministry of Science, Technology and Innovation and following a decision by the National Council for Tax Benefits in Science, Technology and Innovation.
Jamaica	R&D Tax Incentive Scheme, 2005. System of total exemption from general consumption tax (GCT) and customs duties on imported goods for research and development projects, prototype development or applied studies, with no minimum investment.
Mexico	Fiscal Incentive for Technology Research and Development (EFIDT), article 202 of the Income Tax Act (ISR). Tax credit of 30% for incremental expenditure on certified research and development activities, calculated from the average of the previous three fiscal years. It can be credited against income tax and taken up within a period of 10 years until depleted, with an annual national cap.
Peru	Law No. 30309 of 2015 and Law No. 31659 of 2022. Deduction of up to 240% of expenditure on research, development and innovation, depending on revenue and type. The National Council for Science, Technology and Technological Innovation (CONCYTEC) must pre-approve the project, and there is an annual cap.
Uruguay	Law No. 19739 of 2019, decrees No. 407 of 2019 and No. 335 of 2020. The Tax Administration Department (DGI) issues tax credit certificates for research and development projects. The credit amounts to 35% of eligible expenditure, 45% if carried out with technology centres or universities, and 100% for recruitment of staff with master's degrees and doctorates.

Source: Economic Commission for Latin America and the Caribbean, on the basis of official information from the countries.

By way of comparison, tax expenditure associated with these research and development incentives averages 0.13% of GDP in the OECD countries, exceeding even direct public funding (0.09% of GDP). In the region, the highest figure is in Brazil, where benefits provided under the innovation tax incentive law (*Lei do Bem*) represented a fiscal effort equivalent to 0.05% of GDP in 2020.

This gap reveals ample scope for strengthening the strategic use of tax incentives as a mechanism to supplement direct grants. However, their effectiveness depends on there being a dynamic business sector with taxable profits, as these instruments benefit companies that have an effective tax burden. Although they are useful for reaching a wide range of companies, with less direct intervention by the State in project selection, they tend to benefit larger and financially sound companies.

Direct grants (such as competitive funds), on the other hand, are more suitable when the aim is to channel research and development efforts into priority sectors or areas or to support companies that do not yet generate enough profits to benefit from tax incentives. They also permit greater selectivity and control over the expected results, although they require more hands-on management and a budget commensurate with the goals aimed at.

In contexts such as those of many countries in Latin America and the Caribbean, where the base of businesses with research and development capabilities is still limited and heterogeneous, the ideal solution would be a balanced combination of the two instruments.

D. Reflections and proposals

In Latin America and the Caribbean, STI policy recommendations tend to become mired in a repetitive narrative about the need to increase spending on research and development, strengthen links between universities and businesses and encourage business innovation. While these aspirations are technically valid, they come up against budgetary constraints, a lack of institutional capabilities and a production fabric with low levels of innovation.

The region thus requires a different perspective. It is not a question of abandoning traditional objectives, but rather of rethinking how to achieve them in the light of a more realistic understanding of each country's context. The region needs to move away from the logic that STI activities will only generate results in the long term, and begin to position them as a strategic tool within the framework of broader policies to solve the urgent problems of the present, particularly that of stagnant productivity. Overcoming this dynamic, whereby there is no investment in STI because there are no immediate results, and there are no results because there is no investment, is the first step towards building a more effective and sustainable policy.

Furthermore, a prerequisite for moving towards more relevant STI policies is to recognize the different levels of maturity of each country in this area. When that is done, three broad groups of countries with common characteristics in respect of capabilities, structures and governance can be identified.

- (i) The first group has a high level of maturity. These are contexts with stable structures, specialized organizations and relatively consistent and active STI strategies. Their main challenges are to enhance linkages with productive transformation processes, review their strategic priorities and consolidate sustainable financing systems.
- (ii) A second group has an intermediate level of maturity. Although they have certain institutional capabilities and, in many cases, national STI strategies, the countries concerned experience difficulties with inter-agency coordination, the continuity of efforts and public-private linkages. The fragmentation of initiatives and a lack of specialized entities with clear functions limit the impact of policies.
- (iii) The third group is at an incipient stage of maturity. These are countries that have not developed specific national STI strategies and do not have governing or coordinating bodies dedicated exclusively to this area. Institutional governance arrangements are limited or inactive, and there is no recent history of coordinated management. Governance, financing and capabilities are generally weak.

Setting out from this classification and the various diagnostic points in the present chapter, a renewed vision for strengthening STI policies in the region on the basis of achievable, application-oriented recommendations is proposed. This vision is organized into six interdependent proposals on the following topics: (i) *strategies*, to align STI policies with specific challenges; (ii) *coordination*, to link actors and efforts and enhance their potential effects; (iii) *institutions*, where TOPP capabilities should be strengthened; (iv) *instruments*, moving beyond the focus on grants by adopting other types of support; (v) *financing*, so that STI efforts can be increased and their quality and directionality improved even in contexts of fiscal restraint; and (vi) *international cooperation*, as a strategic opportunity for the region.

For the first five proposals, we offer recommendations differentiated by countries level of STI policy maturity, which are not mutually exclusive but cumulative. A phased approach is proposed: countries at an incipient stage of maturity should focus on the basic recommendations for their level; those at an intermediate stage of maturity should adopt the recommendations of the previous level and also implement those for their own stage; and countries with an advanced level of maturity should fully adopt the recommendations for all three levels, in a continuous process of institutional strengthening. The recommendations become more numerous and complex up the maturity levels, reflecting the more capable and demanding approach taken to the design and implementation of STI policies in the countries concerned. The sixth proposal, relating to international cooperation, is approached from a regional perspective.

Proposal 1. Align science, technology and innovation (STI) policy with productive development policies, strategies with specific challenges and effective implementation

STI policies must play a central role not only in enhancing research and development capabilities but also in generating solutions to the structural problems facing the countries, especially the low growth capacity trap the region is caught in. This means that a large portion of the resources allocated to supporting STI initiatives need to be directed towards areas of knowledge and interventions that contribute to the productive transformation of economies, so that the challenge of stagnant productivity can be addressed (ECLAC, 2024b). In this context, STI policies must be aligned and linked with the productive development policies of countries and their territories, and in particular with the group of driving sectors prioritized by virtue of these policies.

It will be crucial to give greater priority, both strategic and budgetary, to activities associated with STI for productive development. Decision-makers, especially finance and planning ministers, will be unimpressed by general narratives about the benefits of increasing STI investment. Thus, it is essential for requests for increased funding to be framed within strategic productive development agendas designed to generate higher economic growth and thence a larger future tax take and greater capacity to meet other public investment needs.

This involves setting ambitious but achievable goals where scientific and technological knowledge can make a tangible contribution. Such an approach allows instruments to be reorganized and adjusted around common objectives, overcoming the dissociation between STI policies and productive development agendas.

Experience shows that inter-agency coordination improves when there is a national innovation strategy, framed as part of the relevant productive development policy and led at the highest level, with a long-term vision, broad stakeholder participation and effective communication mechanisms. This type of strategy is crucial for aligning resources, actions and incentives across the whole STI ecosystem. Current strategies need to be strengthened with an effective implementation road map involving management and impact targets and indicators, multi-year budgets, monitoring systems and clearly identified responsibilities.

Table II.16 compiles a set of specific recommendations for strengthening STI strategies and, in particular, for aligning them with productive development policies.

Table II.16

Recommendations for aligning science, technology and innovation (STI) policy with productive development policies, by countries level of STI policy maturity

Maturity	Specific recommendations
Incipient	– Establish production priorities to focus STI efforts on, in particular by identifying strategic sectors. – Prepare a participatory institutional diagnosis that identifies capabilities, gaps and stakeholders in the STI system, including the establishment of baselines for investment, talent, infrastructure, etc. – Collectively formulate a national STI strategy with a time frame, general and specific objectives, actions and an implementation timetable, even if only indicative, and formally adopt it.
Intermediate	– Introduce an indicative budget provision for the national STI strategy, with estimates of the funding required for implementation that provide a technical basis for aligning expectations and planning resources. – Draw up a detailed road map for the strategy, with lines of action, intermediate goals, management indicators, institutional responsibilities and a regular reporting mechanism. – Strengthen public participation in the STI strategy through open consultations, digital platforms and inclusion mechanisms with a focus on sustainability, gender and territorial diversity.
Advanced	– Integrate STI policy into the national budget cycle, with explicit funding lines in public investment plans, earmarked multi-year budgets and independent evaluation. – Incorporate prospective and technology foresight analyses into STI policy diagnostics, using data on global trends and emerging disruptions to guide strategic priorities and resource allocation. – Adopt result and impact frameworks with baselines, annual targets, indicators, verification methods and assigned responsibilities to guide implementation and accountability. Create digital platforms for real-time monitoring of the STI strategy, using open data and co-creation tools to allow targets, progress and reports to be visualized by mission, sector or population. – Establish a national system for evaluating STI policies, with regular cycles, standardized methodologies, comparable metrics and publication of results.

Source: Economic Commission for Latin America and the Caribbean.

Proposal 2. Strengthen coordination and multi-stakeholder governance

Not all improvements in STI policy require great resources. In fact, as this chapter has shown, one of the main weaknesses in the region lies in the governance of the system. There are multiple actors with disparate visions and agendas and coordination mechanisms that suffer from weaknesses in management and impact.

Actions are needed to strengthen governance for STI linkage purposes, such as creating or strengthening interministerial coordination bodies that can integrate STI into national development strategies, and into productive development policies in particular; institutionalizing sectoral dialogue mechanisms with pluralistic participation (the private sector, academia and civil society), such as cluster and other productive coordination initiatives (see chapter III), so that innovation priorities can be set; adapting regulatory frameworks and incentives to encourage collaboration between different actors; and developing mechanisms for continuous evaluation of and learning from the policies implemented. Rather than requiring large budgets, these actions call for political will, technical leadership and the ability to align efforts and build consensus.

One requirement for progress towards more robust governance is to strengthen coordination bodies as a core mechanism for linking stakeholders, influencing planning and budgeting processes and ensuring participation and sustainability in the countries. Crucially, these bodies must be provided with the material conditions, technical capabilities and procedural frameworks they need to operate autonomously, professionally and to high standards of public integrity. The goal is that they should cease to be merely formal institutions and become consolidated as strategic agents with real capacity for influence.

Coordination between universities and the production sector is particularly important, especially given the former's role as generators of knowledge (basic and applied research), trainers of both advanced and technical talent and providers of technological

extension services. Although the importance of this coordination is recognized in the region, there is great scope for improving it. Thus, it is essential to create permanent mechanisms for coordination between the academic and production sectors. It is also vital to review the incentives of the different actors, including researchers, so that efforts are channelled towards priorities and challenges identified in productive development policies. To this end, consideration should be given to aspects such as salary bonus schemes for researchers, the impact of scientific publications, models for procurement contracts between public and private actors as they relate to STI activities, and rules for registering and exploiting intellectual property and benefits from research results, among others.

Table II.17 provides a set of specific recommendations to strengthen the coordination mechanisms and governance of STI policies, depending on countries level of maturity in this area.

Table II.17

Recommendations for strengthening governance for coordination, by countries level of maturity in science, technology and innovation (STI) policy

Maturity	Specific recommendations
Incipient	– Create or reactivate an intersectoral public STI committee, with the participation of at least three strategic ministries in addition to the governing body for the issue (e.g., the ministries of economy or production, education, and the environment), with a technical secretariat to convene meetings and record minutes. – Formally establish the functions and composition of the intersectoral public committee, with basic operating regulations and an annual road map containing specific institutional goals. – Incorporate a mechanism (e.g., workshops or multi-stakeholder diagnoses) to address coordination gaps and urgent needs in the STI system. – Promote the use of cluster and other productive coordination initiatives to identify public investment priorities in the area of STI. – Strengthen linkages between universities and businesses by means of permanent coordination mechanisms and a review of incentives to align efforts with productive development policy priorities.
Intermediate	– Establish STI coordination mechanisms that formally incorporate non-governmental actors (businesses, academia, civil society) with clear criteria for representation and transparency, codes of conduct and policies for resolving conflicts of interest. – Establish thematic technical subcommittees (e.g., innovation, financing, talent, clusters), with regular meetings, rotation of members and territorial and gender balance. – Integrate progress indicators and institutional responsibilities into a basic system for monitoring the work plans of committees or coordination mechanisms in the area of STI, with annual feedback. – Publish online minutes, key agreements and institutional road maps derived from coordination mechanisms, including historical archives accessible to citizens and ecosystem actors.
Advanced	– Have the STI joint coordination committee report to the office of the president or council of ministers and give it an explicit mandate to coordinate multisectoral strategic agendas for STI issues. – Link STI coordination mechanisms with national planning and budget systems, including the allocation of decision-making functions in respect of instruments, investment approval and coordination between different levels of government. – Allocate a multi-year operating budget within the national fiscal framework to secure the financial sustainability, technical autonomy and ongoing management capacity of STI coordination mechanisms. – Implement digital open governance platforms to encourage external participation and feedback from citizens, with traceability for the decisions made by the coordination mechanisms.

Source: Economic Commission for Latin America and the Caribbean.

Proposal 3. Strengthen the technical, operational, political and prospective (TOPP) capabilities of core science, technology and innovation (STI) entities

The entities that govern and administer STI policies must engage in institutional reflection to identify opportunities for improving their TOPP capabilities. A central focus of this capacity-building effort should be the development of skills for systematizing learning and managing knowledge in institutional environments characterized by high staff turnover, shifting priorities and vulnerability to political cycles.

Public entities need to incorporate good organizational practices which, although common in the business world, are less well developed in public management. These include a culture of evaluation and continuous improvement based on empirical evidence, the strategic use of data and the establishment of processes and standards to avoid reliance on discretionary decision-making alone. Also necessary is the ability to engage effectively with different stakeholders and, above all, to value human talent as the primary resource of any organization.

Core STI entities must be able to identify their main gaps and to design improvement paths suited to their level of institutional maturity. Diagnosing, measuring, setting goals and deciding on courses of action are key steps in the consolidation of a system of continuous improvement and effective knowledge and learning management in institutions responsible for STI policy.

Table II.18 indicates the specific area of TOPP capabilities that each recommendation applies to. It should be noted that all the recommendations presented in this chapter contribute transversally to the development of these capabilities.

Table II.18

Recommendations for strengthening the technical, operational, political and prospective (TOPP) capabilities of core entities, by countries level of maturity in science, technology and innovation (STI) policy

Maturity	Specific recommendations
Incipient	– Technical capabilities - Implement a basic monitoring structure in core STI policy entities, enabling key information on projects and initiatives to be obtained with a view to detecting opportunities for institutional improvement. – Operational capabilities - Allocate a minimum level of funding to the entity responsible for STI policy, enabling it to carry out core activities, raise awareness of its role and begin to implement essential functions (from the other proposals put forward here). – Operational capabilities - Appropriate digital technologies, especially artificial intelligence, to redesign processes, structures and services in entities responsible for STI policy, fostering more efficient, modern and results-oriented public management. – Political capabilities - Establish basic agreements that delineate the scope of each institution (e.g., through STI activities) and create simple coordination mechanisms to organize the STI system and help make it operational in the early stages.
Intermediate	– Technical capabilities - Establish monitoring and evaluation systems in core STI entities, with full coverage of beneficiaries and outcome evaluations for programmes that are strategic because of their scale or importance. – Technical capabilities - Apply explicit targeting criteria in STI policy instruments (by sector, mission, territory, etc.) that are aligned with strategic priorities and arrived at by consensus between the entities responsible. – Operational capabilities - Establish at least one implementing entity specializing in STI policy instruments that separates policymaking and delivery functions, thereby strengthening the operational capabilities of the system. – Operational capabilities - Establish a stable and predictable funding system for core STI entities, allocating a set proportion of the national budget, to ensure operational continuity and multi-year planning. – Operational capabilities - Implement continuous improvement processes in the operation of policy instruments, incorporating aspects such as simplified application, reduced response times and optimized execution of activities. – Political capabilities - Establish departments specializing in public affairs and political dialogue within the core STI policy bodies, with the capacity to influence legislative and regulatory decisions and coordinate with key stakeholders within the country and internationally. – Prospective capabilities - Maintain an up-to-date inventory of prospective studies and use them in the design and implementation of STI policies.
Advanced	– Technical capabilities - Consolidate a robust monitoring and evaluation system that is shared by core STI policy institutions, integrated into a knowledge management framework and suitable for cross-analysis of instruments and beneficiaries and systematic evaluation of instruments. – Operational capabilities - Consolidate specialized implementing entities by STI activity (training, innovation, research and development), with autonomous technical structures and budgets to increase the effectiveness of the system. – Operational capabilities - Seek a sustained increase in public funding for core STI entities, ensuring this grows progressively as a proportion of public expenditure and in line with strategic productive development goals. – Operational capabilities - Design career plans for staff in core STI policy entities that provide stability, professionalization and salary- and non-salary-based incentive systems linked to performance and the achievement of institutional goals. – Prospective capabilities - Institutionalize the development of prospective capabilities by forming specialized teams to support core STI policy entities and integrating their results into strategic decision-making processes.

Source: Economic Commission for Latin America and the Caribbean.

Proposal 4. Diversify and scale up evidence-based instruments

The region needs to move towards more diverse support and incentive systems to complement traditional competitive grants, which are generally geared towards research or talent development projects, with instruments that encompass multiple forms of support for agents generating innovation. To this end, the countries should employ and scale up less developed instruments such as loans and guarantees, technology extension services and public procurement of innovation.

A broader mix of policy instruments should be designed to respond both to the different levels of technological maturity of projects, from exploratory research to the testing of solutions in real-world conditions, and to the diversity of STI actors (established companies, start-ups, research centres, academia, entrepreneurs, etc). Having different instruments does not imply dispersion of effort, but rather a greater variety of tools to work towards common goals.

It is also essential to systematically evaluate existing policy instruments so that those which perform well can be scaled up and those which are inefficient or ineffective can be adjusted or discarded. This allows public resources to be used strategically and directed towards better support for the development of innovative, knowledge-based solutions. The scale of instruments must be appropriate: they should neither be so small as to be irrelevant nor so large as to compromise their fiscal viability.

Recommendations to improve public portfolios of policy instruments for promoting STI, according to countries policy maturity levels, are given below (see table II.19).

Table II.19

Recommendations for diversifying and scaling up instruments, by countries level of maturity in science, technology and innovation (STI) policy

Maturity	Specific recommendations
Incipient	– Conduct a functional analysis of the national STI system, identifying the entities responsible, areas of action and budget allocations by type of activity (research and development, innovation, entrepreneurship, training) to detect duplication or gaps. – Review the rationale behind existing instruments to ensure that they have clear objectives, a minimum intervention logic and expected results that are aligned with STI policy priorities. – Design and implement policy instruments of low complexity and relative cost, such as information or technical assistance services, accompanied by training and documentation of good practices. – Use pilot interventions to test more complex and higher-budget policy instruments. – Create an accessible and up-to-date portal with consolidated information on public instruments supporting STI activities.
Intermediate	– Establish performance indicators differentiated by type of institution and STI activities to orient budget allocation on the basis of verifiable results and specific targets. – Adopt a standardized internal protocol for the design of policy instruments that identifies clear methodologies for their rationale, scope, operation and outcomes and that facilitates more professionalized management across areas. – Target instruments on strategic priorities or areas of opportunity in the interests of scaling up and to increase the likelihood of their impacting productive development. – Develop a comprehensive set of public STI promotion instruments combining grants, services, equity and reimbursable financing with efficiency, coverage and complementarity criteria. – Develop basic public-private cooperation systems for shared management of the financial instruments used to support STI, such as innovation funds, credit lines or guarantees, co-financing agreements, etc. – Develop systems for characterizing users (e.g., established companies, start-ups, technology centres, etc.) to support the segmented design of policy instruments. – Develop a digital transaction platform that allows users to apply directly for STI instruments from various entities, thereby facilitating access to public provision.
Advanced	– Design and implement a robust portfolio of instruments combining public and private instruments with intervention routes differentiated by user profile and incorporating advanced financial mechanisms such as co-investment funds, public venture capital or performance-based contracts. – Implement an STI policy instrument design protocol that is shared among entities and incorporates cross-validation procedures, inter-agency feedback, focus group testing and mechanisms for measuring user experience. – Create a transaction portal shared among the different entities responsible for deploying public STI promotion instruments in the interests of interoperability and the provision of coordinated services tailored to different types of users. – Implement integrated digital traceability platforms providing real-time information on budget use and outcomes by STI activity, institution and beneficiary in the interests of transparency and accountability. – Establish ex ante and ex post evaluation systems, adjusting the portfolio of evidence-based STI policy instruments in the light of their impact and institutional learning.

Source: Economic Commission for Latin America and the Caribbean.

Proposal 5. Increase funding for STI initiatives and improve their targeting and quality

It remains essential to increase public investment in STI policies, both to improve the performance of the public sector itself and to mobilize efforts by the private sector and others in the innovation ecosystem. However, this effort must be matched by accurate and systematic information on the outcomes and effects achieved by the use of public resources. The budget increase should not only be gradual and progressive, but needs to be sustained over time, yield economic and social returns, and be aligned with national priorities, particularly those related to productive development policies.

Similarly, it is important to improve the quality of public STI spending. Resources must be directed towards well-designed initiatives with the potential for system-wide impact in a way that avoids reproducing institutional inertia or fragmentation of efforts. Making better use of resources means strategic prioritization, which in turn requires decision-making and trade-offs: there can be no effective strategy without prioritization, and no prioritization without sacrifice.

Thus, governments need to bring an end to budgetary dispersion and make informed, evidence-based decisions suited to their contexts. The crux is prioritizing actions that are aligned with their development pathways and, in particular, with the sectors prioritized within the framework of productive development policies, without losing sight of how much ground the region has to make up in the global knowledge race.

Table II.20 presents a set of recommendations for increasing the quantity, quality and targeting of funding for STI policies, by countries maturity levels.

Table II.20

Recommendations for increasing funding and improving its targeting and quality, by countries level of maturity in science, technology and innovation (STI) policy

Maturity	Specific recommendations
Incipient	– Implement a basic diagnosis of public STI expenditure, broken down by activity (research and development, innovation, training, entrepreneurship), to identify gaps, establish a baseline and guide initial decision-making. – Create a specific STI line item in the national budget to make the allocation to this area visible and facilitate basic accountability. – Designate an entity in charge of coordinating the budget allocated to STI and setting minimum multi-year allocation targets, in order to align expectations and plan for needs. – Direct public STI spending to strategic production sectors and priorities identified by virtue of productive development policies with a view to addressing needs that arise from strategic sectoral agendas, such as those derived from cluster or other productive coordination initiatives.
Intermediate	– Strengthen STI budgetary information systems by incorporating mechanisms for regular monitoring and evaluation of the use, distribution and effectiveness of expenditure by activity type and territory. – Establish minimum commitments on research and development expenditure in development plans or production strategies, with multi-year targets for sustained budget growth. – Create specific national STI funds with multi-year allocations, growth rules and links to strategic priorities. – Conduct technical studies on the economic and social return on ITS investment to justify budgetary decisions to the fiscal authorities.
Advanced	– Set minimum public STI investment amounts for different ministerial portfolios, linked to targets per function (e.g., research and development, training, innovation), with protection against budget cuts. – Integrate STI policy funding into national fiscal strategies, with allocation rules tied to impact indicators and development objectives. – Establish legal or fiscal budgetary protection clauses for STI, including stabilization funds or countercyclical mechanisms. – Regularly evaluate the economic and social return on STI expenditure, feeding the results into future allocation decisions. – Mobilize private resources through incentives and regulatory and budgetary mechanisms that promote public-private co-investment in STI, in line with the productive development agenda.

Source: Economic Commission for Latin America and the Caribbean.

Proposal 6. Take advantage of regional and extraregional cooperation opportunities

Unlike other areas of regional integration, STI offers fertile ground for cooperation between the countries of the region. There have traditionally been fewer tensions in this area than in others, such as external trade, and the countries have a significant history of building up scientific networks and technical collaboration and generating regional public goods.

Some successful examples of regional cooperation are the Ibero-American Network of Science and Technology Indicators (RICYT), coordinated by OEI, which harmonizes statistical metrics and methodologies; the Latin American Network of Innovation Agencies (RELA), sponsored by the Inter-American Development Bank (IDB), which supports the modernization of these agencies; and the Open Science Forum for Latin America and the Caribbean (CILAC), led by UNESCO, which promotes scientific development actions.

However, given that a number of other regional STI initiatives besides these are being pursued in Latin America and the Caribbean, in a context where challenges are great and institutional resources and capabilities limited, it will be essential to exploit synergies between the different initiatives. Regional coordination can provide scale, cut costs, spread risk and generate capabilities that no one country or actor could achieve alone.

At the same time, as discussed in the 2024 edition of the *Panorama of Productive Development Policies in Latin America and the Caribbean* (ECLAC, 2024a), the region will also need to strengthen its ties in this field with more advanced countries. This means, first, connecting Latin America and the Caribbean to sources of technology and knowledge available in the rest of the world. To this end, it will be essential to link the production sector, universities and research centres in the region with these sources, through networks of universities, researchers and entrepreneurs and through strategic use of the Latin American and Caribbean diaspora in the rest of the world.²¹

Second, an internationalizing approach to these policies also means seeking out opportunities for the countries of the region to take advantage of industrial policies being implemented in other parts of the world, such as the United States (Inflation Reduction Act and CHIPS and Science Act), the European Union (European Green Deal, European Chips Act, European Critical Raw Materials Act, Horizon Europe) and China (Made in China 2025, public-private investment or guide funds, dual circulation policy).

In adopting this approach, account will have to be taken of the evolution of a geopolitical context in which fierce battles are being fought for technological supremacy, the most recent chapter being the exacerbation of trade tensions following changes in United States trade policy. This situation will undoubtedly result in increased barriers to cooperation and connection with the scientific and educational networks of the most developed countries. Under the circumstances, it will be essential for Latin America and the Caribbean to act prudently and seek to maintain cooperation ties in these areas with the rest of the world, and STI diplomacy will accordingly be an essential function that the region must strengthen in these new times.

In view of these challenges, the agenda of the ECLAC Conference on Science, Innovation and Information and Communications Technologies aims precisely to generate synergies at the regional level and navigate geopolitical realities, in particular

²¹ Colombia's Internationalization Mission between 2020 and 2021 is highly illustrative for the purposes of analysis and research in this regard (https://www.dnp.gov.co/LaEntidad/_misiones/mision-internacionalizacion).

by seeking to connect the STI efforts of the countries and their territories with their productive development policies. The Conference is a subsidiary body of ECLAC and a permanent forum for political and technical dialogue which brings together senior officials responsible for STI policies to coordinate actions and share knowledge with a view to improving the quality and effectiveness of policies in these areas.

With Colombia as Chair, the Conference has established a 2024–2025 work programme that includes five areas: (i) STI instruments; (ii) STI governance; (iii) STI with a territorial approach; (iv) sectoral and technological strategic agendas; and (v) STI for the Caribbean. The development of this work programme has included the preparation of studies and lines of research, training and capacity-building activities, information platforms, technical assistance, events, webinars and working meetings. ECLAC is thus supporting the countries of the region in their efforts to scale up and improve their policies on STI for productive development and to connect with extraregional networks and opportunities.

To this end, it will be essential for ECLAC, working with the countries of the region, to further develop the Conference on Science, Innovation and Information and Communications Technologies as a forum for aligning efforts, cooperation and productive development, thereby ensuring that STI becomes a driver of productive transformation for Latin America and the Caribbean.

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CHAPTER



Cluster and other productive coordination initiatives for productive development in Latin America and the Caribbean

Introduction

- A. Why cluster and other PCIs are relevant to productive development
- B. What are PCIs?
- C. Strengthening PCIs in the region: the ECLAC strategy
- D. Productive coordination initiatives in Latin America and the Caribbean
- E. Policies and programmes that promote cluster and other PCIs
- F. Evaluation and results of PCI policies
- G. Conclusions and guidelines

Bibliography

Introduction

This chapter analyses cluster and other productive coordination initiatives (PCIs) in the context of productive development policies in Latin America and the Caribbean.

The first section explains the relevance of the collaborative approach to productive development in the region. The second defines the general term “productive coordination initiative” and distinguishes between the different types of initiative that it encompasses, including cluster initiatives, value chains, enterprise networks, supply networks and local production networks. The third section presents the main lines of action promoted by the Economic Commission for Latin America and the Caribbean (ECLAC) since the launch of the Platform for Cluster and Other Productive Coordination Initiatives to support these collaborative efforts. The fourth section presents an initial characterization of PCIs in Latin America and the Caribbean based on data compiled by ECLAC. The fifth section distinguishes between two modalities of PCI policies, according to the type of support, direct or indirect, and describes the main efforts made by public and private, national and subnational institutions that promote PCIs in the region. The sixth section reports regional and international data on the results of these initiatives and reviews the main conceptual and methodological challenges in evaluating them. Lastly, a set of recommendations is presented for strengthening PCIs in the context of efforts to expand and improve productive development policies in the region.

A. Why cluster and other PCIs are relevant to productive development

The importance that ECLAC attaches to cluster and other PCIs is based on its new vision of productive development policies, which it understands primarily as collaboration between multiple stakeholders from the public, private, academic and civil society sectors, pursuing forward-looking strategic agendas that promote a productive transformation of economies to foster sustainable and inclusive development. Hence, the issue of governance for productive development takes on a central role.

Effective implementation of productive development policies requires the following elements, among others: (i) the capacity to generate strategic agendas around priority sectors; (ii) a territorial approach that recognizes and enhances the specific characteristics of a given area; and (iii) an experimentalist governance approach that is consistent with a continuous process of reviewing results, learning and adjusting the strategies adopted (Economic Commission for Latin America and the Caribbean [ECLAC], 2024a; 2024b).

From this perspective, cluster and other PCI initiatives are a concrete way of fostering different forms of multi-stakeholder and multilevel collaborative governance that help to legitimize decisions on sectoral and territorial prioritization; mobilizing human and material resources from different territories; and applying experimentalist governance principles.¹

PCI initiatives’ strategic action helps to improve a territory’s economic performance by enhancing the competitiveness of local firms, thereby improving the economic system to which they belong and contributing to the design and implementation of more relevant productive development policies.

¹ On the subject of cluster initiatives as a manifestation of the experimentalist governance approach, see Salazar-Xirinachs (2020a).

In concrete terms, these strategies make it possible to address scale factors that hinder the development of firms, especially micro-, small and medium-sized enterprises, and accelerate their capacity to innovate and assimilate new knowledge. They are also imitated and propagated in the productive system, and they generate positive externalities.

Once they have defined their strategic objectives, PCIs are also an effective mechanism for identifying and addressing bottlenecks related to externalities, coordination failures, regulatory inconsistencies or weaknesses in the performance of support institutions or the government, among other factors.

At the same time, the complementarity established between firms participating in PCIs stimulates division of labour among them, thereby reducing entry barriers and facilitating entrepreneurship and productive specialization.

Lastly, the collective entities established to carry out PCIs often become important interlocutors for those responsible for formulating productive development policies for the territory,² and even for the country in multilevel contexts. This makes it possible to develop more relevant programmes that include resources and knowledge generated by the business sector.

B. What are PCIs?

As used by ECLAC, the PCI concept refers to different modalities of strategic collaboration between firms and institutions to foster productive development.

The first notable element of this term is the word “initiative,” which expresses the explicit willingness of participants to develop, implement and manage collective strategies. This is the key feature that sets PCIs apart from the simple geographical concentration of firms or the market relationships established between them.³

Moreover, PCIs: (i) are oriented towards objectives and targets for enhancing competitiveness and productivity, and productive transformation in general; (ii) follow a strategic approach, which involves pooling efforts to achieve key objectives, together with medium- and long-term commitment from participants; and (iii) are based on the creation and functioning of participatory governance mechanisms.

The broad definition of this concept encompasses different modalities of productive coordination that differ in aspects including strategic complexity and number of members (see table III.1). ECLAC has classified five types:⁴

- (i) Cluster initiatives: these refer to joint action by a group of firms and support institutions in the same territory that belong to different links in the value chain (or to several related chains), which prepare a common strategic agenda to develop projects and actions aimed at improving the productivity and competitiveness of firms in the economic agglomerations and underlying value chains.

² See Landabaso and Rosenfeld (2016) on this subject.

³ The literature initially focused on the phenomenon of economic agglomeration, concentrating on the study of its effects on firms' operating costs, without neglecting the effects on their learning dynamics and reciprocal relationships. Among other authors, see: Marshall (1920), Bagnasco (1977), Brusco (1982), Becattini (1990), and Schmitz (1990). Gradually, with the introduction of the concept of collective efficiency, attention has shifted to joint action to develop strategic productive development agendas: Porter (1991; 1998), Humphrey and Schmitz (1995; 1998) and Di Tommaso (1999) and the *Cluster Initiative Greenbooks* of 2003 and 2013 (Lindqvist et al., 2003; 2013). For the reality of Latin America and the Caribbean, see Ceglie and Dini (1999), Pietrobelli and Rabello (2004), Maffioli, Pietrobelli and Stucchi (2016), Salazar-Xirinachs (2020b) and Llinás (2021).

⁴ See ECLAC (2024c, pp. 219 and 220).

- (ii) Value-chain initiatives: collective action is geared towards more cross-cutting projects and measures that are of interest to all participants in a given value chain in a country, without territorial distinction, such as the development of quality standards for the sector or the opening up of international markets. Given the issues involved, it is business associations, rather than individual firms, that represent the private sector in coordination mechanisms.
- (iii) Local productive initiatives: these are collective plans implemented by stakeholders in specific communities, aimed at developing local businesses and institutions (without sectoral distinction), in order to enhance and promote their specific territorial characteristics.
- (iv) Business network initiatives: these are collaborative plans that bring together groups of firms to do business jointly. In this case, benefits tend to be more concentrated in the hands of network members, although they also generate positive externalities in local systems.
- (v) Supply chain initiatives: these are aimed at establishing or strengthening strategic linkages between a client firm, usually a large one, and its supplier firms, usually small and medium-sized enterprises.

Table III.1
Key characteristics of PCIs, by type^a

Type	Number of stakeholders	Main purpose	Main leadership	Sectoral scope	Territorial scope
Cluster initiatives	Several dozen or hundreds of firms and numerous related institutions	Development of firms in a specific territorial economic agglomeration	Private leadership and public sector participation	Links in the same or related chains	Subnational territory of varying geographical size
Value chain initiatives	Representatives of business groups and institutions who promote their productive development at the national level	Generation of sectoral public goods related to the value chain in question	Public leadership with private sector participation	A value chain or related chains	Country
Local productive initiatives	All firms and institutions in a given area	Generation of localized public goods related to the productive development of the territory in question	Varies from case to case	All sectors in the territory in question	A specific territory
Business network initiatives	A small number of firms (generally fewer than 10)	Improvement in the performance of participating firms	Private	Same or complementary sectors	Normally formed in smaller territorial areas ^b
Supply chain initiatives	A large firm (usually a client) and small groups of small firms (usually suppliers, generally a few in the manufacturing sector and a few dozen in the agriculture sector)	Improvement in the productivity of the large firm and related small firms	Private, with public sector participation	The key sectoral dimension is the large firm's value chain; suppliers may belong to different sectors, depending on the input they provide	The territorial dimension is generally relevant in public programmes that promote these initiatives to foster local economic development

Source: Economic Commission for Latin America and the Caribbean.

^a The table refers to abstract canonical models. In reality, as shown in the following sections, these typologies are not found in their pure form but rather in hybrid solutions that combine characteristics of the different types.

^b In digital business networks, the territorial dimension is often not included.

C. Strengthening PCIs in the region: the ECLAC strategy

Given the potential contribution of PCIs to productive development in Latin America and the Caribbean, one of the priorities of the new ECLAC vision for productive development policies is to deepen and consolidate them. To this end, a support strategy has been developed that focuses on the Platform for Cluster and Other Productive Coordination Initiatives,⁵ which uses an interactive map to georeference and highlight existing PCIs

⁵ For further information, see <https://www.cepal.org/es/proyectos/plataforma-iniciativas-cluster-otras-iniciativas-articulacion-productiva-territorial>.

in the region. At the time of writing, the platform has registered some 400 initiatives from 16 of the region's countries, involving approximately 50,000 firms, supported by more than 35 promoting entities.

The Platform also operates as a support tool that fosters the systematic dissemination of information and knowledge, the implementation of training activities, the promotion of joint projects and interaction between PCIs, and the provision of technical assistance (see table III.2).

Table III.2
Main activities of the
Platform for Cluster
and Other Productive
Coordination Initiatives

Activities	Description	Main results
Dissemination of information	Regular newsletter with information on PCI activities, events and experiences	6 newsletters published 230,070 mailings 75,886 opens
Training activities	Community of practice: 10 virtual workshops for coordinators, managers, administrators and specialists to discuss collaborative project management issues	6 communities of practice established 1,362 participants in total
Joint projects (inter-clusters)	Knowledge economy inter-clusters: call for proposals to identify and support the formulation of joint projects between PCIs from different countries in the region, with a view to generating new products, technologies or markets	104 applicant PCIs 29 selected 5 groups formed
Technical assistance	Specialized consulting provided to a group of PCIs that wish to incorporate circular economy principles into their collective business strategy	75 PCI applicants

Source: Economic Commission for Latin America and the Caribbean.

D. Productive coordination initiatives in Latin America and the Caribbean

The region has no databases that systematically collect information on the PCIs operating in different countries. National databases are scarce and generally outdated.⁶ Furthermore, they have been constructed using different methodologies, which makes comparison difficult, and they are restricted to the information collected by the promoting entities on the PCIs they support, which means that the records are incomplete.

Accordingly, the information presented below is based mainly on data recorded in the Platform for Cluster and Other Productive Coordination Initiatives,⁷ except in the cases of Brazil, Mexico and the Caribbean, for which records were integrated and adjusted according to the results of ad hoc ECLAC research.

The database compiled by ECLAC, which consists of 712 PCIs (just over 400 initiatives mapped on the platform and more than 310 identified in ad hoc research in Brazil, Mexico and the Caribbean countries), is one of the largest and most comprehensive sources of information on PCIs available for 20 countries in Latin America and the Caribbean (see figure III.1).

In sectoral terms, agriculture, forestry, hunting and fishing predominates, with 248 initiatives identified (34.8% of the total), followed by manufacturing, with 188; tourism, with 70; and information and communications technology (ICT), with 51 (see figure III.2). In the area of healthcare, which encompasses the pharmaceutical and medical services and devices sectors, 32 PCIs have been identified in the region.

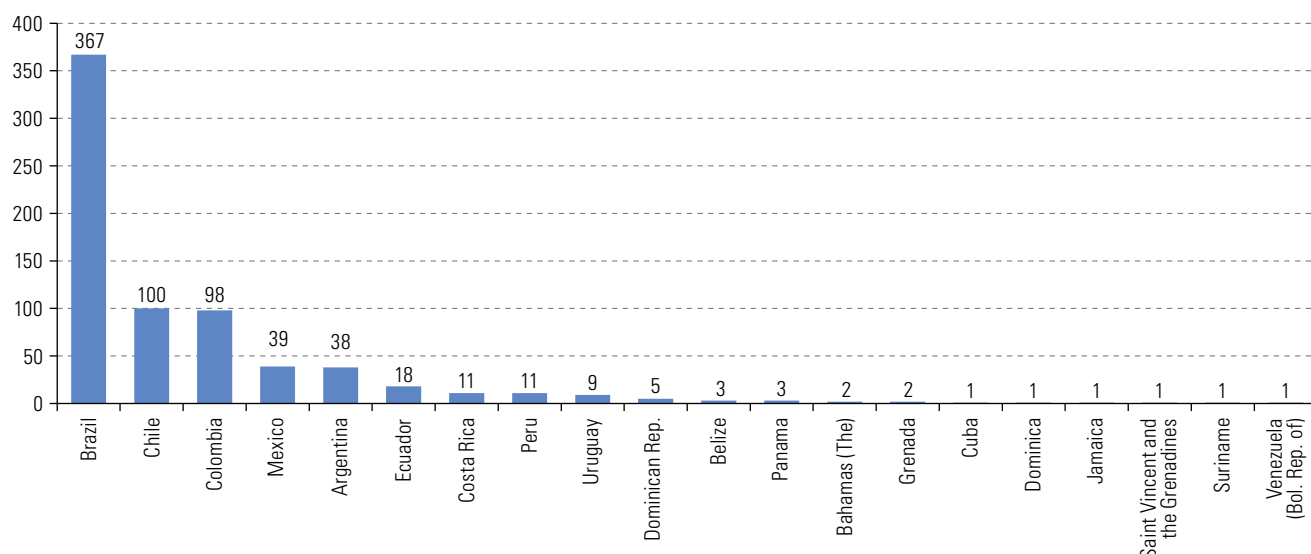
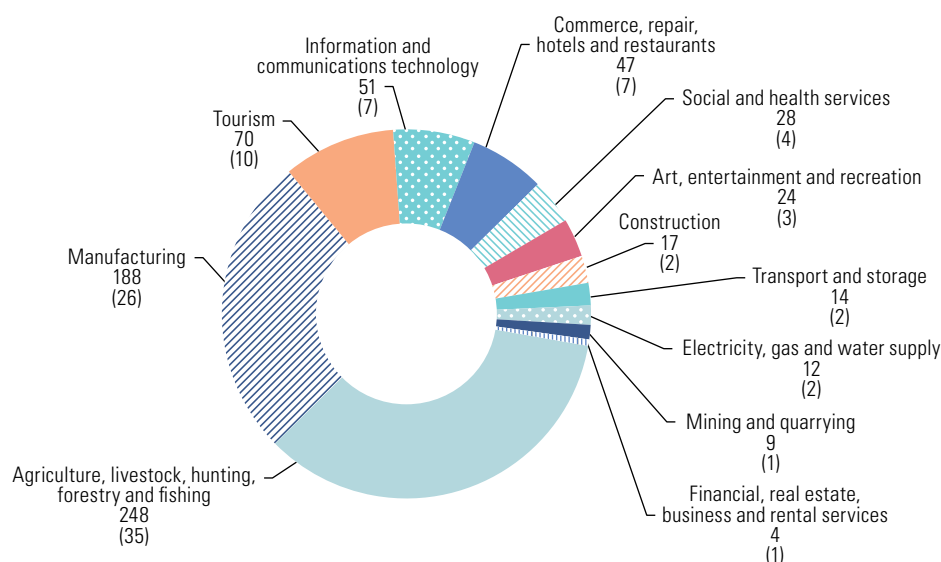
⁶ For example, in Brazil, data on local productive clusters were recorded in an ad hoc observatory for almost a decade, but they have not been updated since 2022.

⁷ Registration of the data collected was introduced to raise awareness of the initiatives, georeference them and implement the PCI promotion strategy, rather than for statistical purposes. The information collected is not exhaustive and is the product of voluntary declarations by the coordinators, managers or administrators of the initiatives or the promoting entities. Accordingly, validation work is limited to cases that display obvious contradictions or lack of information.

Figure III.1

Latin America and the Caribbean (20 countries): PCIs, by country, 2023–2025

(Number)

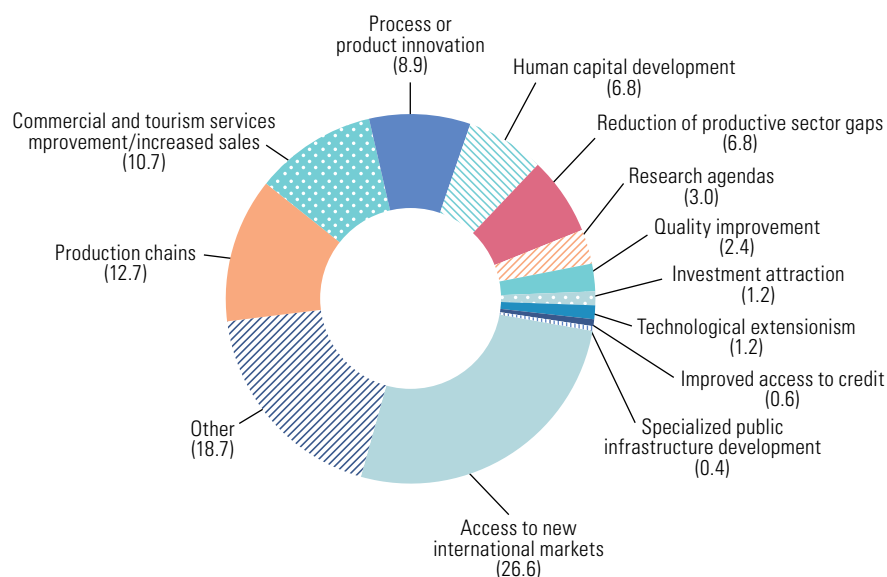
**Source:** Economic Commission for Latin America and the Caribbean.**Figure III.2**Latin America and the Caribbean (20 countries):^a distribution of PCIs, by sector, 2023–2025
(Numbers and percentages)**Source:** Economic Commission for Latin America and the Caribbean.^a Argentina, Bahamas (The), Belize, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, Grenada, Jamaica, Mexico, Panama, Peru, Saint Vincent and the Grenadines, Suriname, Uruguay, Venezuela (Bolivarian Republic of).

The most frequent areas of strategic focus are new market or international markets (26.6%), productive linkages (12.7%), improvement of commercial and tourism offerings and sales growth (10.7%) and innovation in products or processes (8.9%) (see figure III.3).

Nearly all of these initiatives are managed by a decision-making body consisting of 11 people on average,⁸ drawn mainly from the private sector in 72.7% of PCIs, civil society in 15.0%, the public sector in 10.2% and the academic sector in 1%.⁹

⁸ Based on 317 PCIs for which information is available.⁹ Based on 521 PCIs for which information is available.

Figure III.3
Latin America
and the Caribbean
(20 countries):^a
distribution of PCIs,
by strategic focus,
2023–2025
(Percentages)



Source: Economic Commission for Latin America and the Caribbean.

Note: Based on 497 PCIs for which information is available.

^a Argentina, Bahamas (The), Belize, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, Grenada, Jamaica, Mexico, Panama, Peru, Saint Vincent and the Grenadines, Suriname, Uruguay and Venezuela (Bolivarian Republic of).

In terms of the financing of PCIs, Llinás (2021) notes that this is a complex challenge that goes beyond securing resources; it involves defining what is to be financed, by whom, from which sources and through what means. Furthermore, the task of managing financing is not merely a question of obtaining monetary resources but also takes into account the conditions of institutional legitimacy and relational capital that enable those resources to be managed effectively and make PCIs sustainable.

Financing can adopt various modalities. For example, it can come entirely from contributions from participating firms, as in the case of the Cybersec Cluster in Costa Rica; it can combine public and private resources under cofinancing plans, as is the case with *Construye2025* in Chile; or it can be coordinated through contributions from business support entities and specialized technical assistance, as in the cases of the Cartagena Maritime Cluster in Colombia and the Compete Caribbean programmes.¹⁰

Data from the Platform for Cluster and Other Productive Coordination Initiatives reveal that over half of the initiatives are financed with public funds, either at the national level (57.9%, 398 initiatives) or at the subnational level (51.1%, 351 initiatives), while 39.3% (270 initiatives) receive financial support from the private sector (see figure III.4).

These experiences show that there is no unique financing model, but that strategies need to be adapted to the context, institutional capacities and type of value that each initiative seeks to generate.

¹⁰ A multi-donor private sector development programme with aims that include increasing productivity and fostering innovation throughout the Caribbean region.

Figure III.4

Latin America and the Caribbean (18 countries): PCIs financed, by source, 2023–2025

(Number)

**Source:** Economic Commission for Latin America and the Caribbean.**Note:** Based on 687 PCIs for which information is available.

E. Policies and programmes that promote cluster and other PCIs

In this chapter, PCI policies refer to all steps taken by public or private institutions to promote joint action and participatory governance among groups of firms and institutions operating in related sectors that share the objective of improving their productive performance.

A partial justification of these policies is that, with few exceptions, and despite the many potential benefits of collaborative action described above, PCIs do not necessarily develop spontaneously. This is due to obstacles in their development, which the economic literature identifies as: (i) transaction costs;¹¹ (ii) the impact of trust;¹² and (iii) the dynamic of learning.¹³

The efforts made by PCI promoting entities seek, either explicitly or implicitly, to reduce the impact of these obstacles on the decisions of individuals involved in collaborative initiatives, thereby hastening the implementation and consolidation of collective productive development programmes.

1. What are PCI policies?

These policies are of two types:

- (i) Policies providing direct support to PCIs: this refers to a set of measures that promote the creation or consolidation of PCIs.

¹¹ Transaction costs can be summarized as information costs incurred in getting to know the other party, organizational costs to agree on an efficient division of labour and supervision costs to ensure that agreements are fulfilled as planned. See Williamson (1989; 1991).

¹² Trust is conceived as intangible capital that particularly affects the capacity of a firm or individual to relate to its peers. It is the expectation that an actor forms about the behaviour of another (economic sphere). Good (1989) defines trust as the theory that an individual develops about how another person will act in the future.

¹³ Dynamic driven by the need for stakeholders to redefine their routines, organizational modalities, technologies and other processes, together with resistance to change, which could arise in the process of formulating and developing a joint strategy.

- (ii) Policies that provide indirect support to PCIs: this refers to the promotion or support given to PCIs indirectly, when they are used as a vehicle for implementing other productive development policies.

(a) Policies providing direct support to PCIs

This type of policy can be considered the policy par excellence for the development of PCIs and generally pursues the following five objectives: (i) strengthen the technical team that manages the PCI; (ii) support the formulation of strategic agendas and their action plans; (iii) support the development of projects and measures arising from the implementation of the PCI strategic agenda; (iv) stimulate the creation or strengthening of internal coordination mechanisms for PCIs; and (v) facilitate coordination with other productive development institutions that promote programmes or policies that can benefit firms in the sector or territory in question. The means used to achieve these objectives are described in table III.3.

Table III.3
Main objectives and means of policies that provide direct support to PCIs

Main objectives	Financing	Support services
Strengthen the PCI technical management team	– Financing of the salaries of professionals who work on development of the PCIs	– Training – Exchange of good practices with PCI managers – Preparation of methodologies
Support formulation of the strategic agenda and action plans	– Financing of studies needed for strategy formulation – Financing of specialists who support the design of strategies and action plans	– Information on markets and technologies, among other things – Contact and exchange with consolidated PCIs
Support the development of projects and measures arising from the implementation of the PCI strategic agenda	– Financing of projects and measures agreed upon by PCI members, in the framework of its strategic agenda	– Recommendations for project design and review of formulated projects
Encourage the formation or strengthening of internal coordination bodies within the PCI	– Financing of governance specialists	– Support for conflict resolution – Actions to raise awareness of the importance of collaborative actions
Facilitate coordination with other productive development institutions that promote programmes or policies that could benefit firms in the sector or territory in question		– Establishment of links between those responsible for the PCIs and the support institutions

Source: Economic Commission for Latin America and the Caribbean, on the basis of official information.

There is a wide spectrum of implementation experiences in terms of the resources invested and the instruments adopted: at one end of the spectrum, the promoting entity does not invest resources but merely raises awareness of the productive coordination approach and facilitates contact between the emerging initiatives and other support institutions operating in the territory; at the other end, the promoting entity devotes significant financial resources to developing such initiatives and establishes dialogue with other productive development policies in order to generate synergy.

Although these direct policies have cultivated numerous PCIs in several countries of the region, such as Argentina, Brazil, Chile and Colombia, the PCIs have not always developed into drivers of vertical efforts under national and territorial productive development policies (i.e. efforts to advance strategic agendas in line with those policies' productive targets). Often, they become just another programme in an endless array of productive development endeavours.

(b) Policies providing indirect support to PCIs

The second policy modality, as indicated above, uses PCIs as a vehicle for implementing other specific productive development policies, such as reducing human talent gaps, science, technology and innovation policies and digital transformation

policies. This generally entails defining preferential incentives for PCIs that implement the promotion programmes proposed by these other productive development policies or using the governance plans that support PCIs to coordinate efforts relating to them.

Aside from this distinction between direct and indirect policies, the ideal scenario would see PCIs adopted to spearhead the vertical development envisaged by the national or territorial productive development policy. If this condition were achieved, direct and indirect PCI policies would naturally occur simultaneously, and these efforts would converge towards the fulfilment of priority productive goals.

Although there are some experiences that come close to this ideal model, as shown in table III.4, in many cases PCI policies do not relate to the priorities defined by countries and territories in their productive development policies. For example, sectoral goals are defined at the national level, but territorial cluster initiatives based on these goals are not developed. Worse still, there are cases in which countries do not take advantage of existing PCIs in sectors prioritized for channelling resources and efforts towards improved productivity.¹⁴

Table III.4

Latin America (4 countries): examples of PCIs used to implement productive development policies

Country	PCI policy	Description
Argentina	Cluster Promotion Law of the Province of Córdoba	The Law provides that clusters identified as strategic by the new Córdoba 2030 Productive Matrix will be promoted, based on their job creation capacity and export potential.
Costa Rica	National Clusters Programme	The Programme was declared to be in the public interest as an instrument for implementing the Territorial Economic Strategy for an Inclusive and Decarbonized Economy 2020–2050 (Executive Decree 43425 of 2022).
Chile	<i>Transforma</i>	<i>Transforma</i> was an offshoot of the Smart Specialization Strategy programme, which identified the productive aptitudes of the territories and prioritized the most important productive areas at the regional, intermediate and national levels.
Colombia	Cartagena Chamber of Commerce Cluster Strategy	The choice of sectors made by the chambers of commerce of Cartagena, Manizales por Caldas and Cali was based on the commitments defined in the Departmental Competitiveness and Innovation Agendas and approved by the corresponding Regional Competitiveness and Innovation Commission, chaired by the governor of each department.
	Manizales and Caldas Cluster Community	
	Cluster Platform	
	Cluster Strategy of the Medellín Chamber of Commerce for Antioquia	
	Bogotá Chamber of Commerce Cluster Strategy	The Bogotá Chamber of Commerce has sought to align the action plan for the supported cluster initiatives with the strategic areas defined in national and territorial productive development policies. For example, between 2016 and 2020, it sought to implement the Bogotá-Cundinamarca Smart Specialization Strategy through the cluster initiatives it was leading, in the framework of the respective Regional Competitiveness Commission (Llinás, 2021).

Source: Economic Commission for Latin America and the Caribbean. Llinás, M. (2021). *Iniciativas clúster: una forma concreta y efectiva de mover la aguja de la productividad*. Puntoaparte.

However, the formulation and implementation of PCI policies, in their two modalities, require the entities to develop technical, operational, political and prospective (TOPP) capabilities, as defined by ECLAC (2024a), to foster collaboration with a view to generating productive development agendas. In this context, table III.5 presents some examples of the TOPP capabilities required.

¹⁴ For example, the existing PCIs were not considered in the design and implementation of the current productive development policies of Brazil, Colombia and Mexico (see chapter I).

Table III.5
Examples of the
TOPP capabilities
needed to create
and consolidate PCIs

Technical	Political
– Gather information for the preparation of assessments and projects (e.g. analysis of markets, demand, trends, macroeconomic variables, territorial characteristics). – Formulate, monitor and evaluate collaborative strategic agendas for productive development.	– Establish a multi-stakeholder and multilevel governance structure (coordination and decision-making mechanisms). – Incentivize PCI members' conviction, leadership and collaboration with respect to the project. – Attract members and coordinate with partner institutions.
Operational	Prospective
– Manage the initiative's financial and non-financial resources. – Define and implement internal processes for collective decision-making.	– Anticipate future market and technology trends. – Adopt strategies to adapt technologies, PCI governance and established relationship systems.

Source: Economic Commission for Latin America and the Caribbean, on the basis of ECLAC (2025a). *Foreign Direct Investment in Latin America and the Caribbean, 2025* (LC/PUB.2025/7-P).

2. Overview of direct support policies for the development of PCIs in Latin America and the Caribbean

Data were collected through interviews and review of the information available on the websites of PCI-promoting entities; and an in-depth analysis was conducted of 29 PCI policies in 10 countries (Argentina, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, Mexico, Peru and Uruguay) and a number of countries in the Caribbean subregion.¹⁵

Some programmes are managed by national institutions, as in Chile, Colombia (*Colombia Productiva*¹⁶ and *Confecámaras*), Costa Rica, Ecuador, Peru and Uruguay; while others are run by intermediate and local territorial entities, such as in Argentina, Brazil, Colombia and Mexico (through chambers of commerce); and in the Caribbean, there are ad hoc multinational programmes (see table III.6).

The start dates of PCI policies reveal a resurgence of interest in promoting these endeavours in the region.¹⁷ In Chile, Colombia and Peru, some have been in place for more than 10 years, but in the majority of the other countries they have been in force for a short time, mostly since 2020. In Argentina, Costa Rica, Ecuador and Uruguay, efforts to incubate or support PCIs have only taken shape in the last two or three years. In Brazil, efforts that were booming more than a decade ago and subsequently declined have regained momentum in recent years.

The geographical coverage and type of initiative supported by these efforts are determined by the territorial level of the promoting entity. National entities or supranational programmes tend to provide instruments that can be accessed by initiatives located anywhere in the country; in other words, it is uncommon to see resources required to be concentrated in particular geographical areas. Consequently, these PCI policies could support initiatives in value chains with linkages that may be located in different areas of the country, but they also support any other type of initiative.

In contrast, subnational public or private entities support PCIs that belong to their territory of influence and therefore focus on cluster, business network or local productive initiatives. For example, chambers of commerce in Colombia support cluster initiatives in their territory, which may be an entire department or a group of municipalities (see table III.6).

¹⁵ Antigua and Barbuda, Bahamas (The), Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago.

¹⁶ On 28 June 2025, the Ministry of Commerce, Industry and Tourism signed the contract to merge the autonomous funds *iNNpulsa Colombia* and *Colombia Productiva* to form a new autonomous fund, which will retain the name *iNNpulsa Colombia*.

¹⁷ As indicated in ECLAC 2024b, the development of cluster policies in the region experienced an initial boom in the late twentieth and early twenty-first centuries.

Table III.6
Latin America (10 countries) and the Caribbean: characterization of PCI policies analysed, 2025

Country	Programme	Promoter	Start year	Type of initiative supported	Geographical coverage of the programme
Argentina	Cluster Initiative	<i>Córdoba Acelera</i>	2022	CI	Local
	Córdoba Cluster Programme	Córdoba Competitiveness Agency	2023	CI	Intermediate
	Cluster Development and Strengthening Programme–Mendoza	National Research, Technological Development and Innovation Promotion Agency	2024	CI	Intermediate
Brazil	State local productive cluster programme	State Secretariat for Economic Development of Minas Gerais	2021 ^a	CI	Intermediate
	Programme for strengthening local productive arrangements in Rio Grande do Sul	Secretariat of Economic Development of Rio Grande do Sul	2024 ^a	CI, BNI, VCI	Intermediate
	<i>Impulsiona Ceará</i>	Secretariat of Labour of the State of Ceará	2021 ^a	CI	Intermediate
	<i>SP Produz-São Paulo</i>	São Paulo Economic Development Secretariat	2024 ^a	CI	Intermediate
	<i>PE Produz-Pernambuco</i>	Pernambuco Development Agency	2014	CI, BNI, LPI	Intermediate
Chile	Commercial districts	Technical Cooperation Service	2014	CI, PCI	National
	<i>Transforma</i>	Production Development Corporation	2015	LPI	National
	Integrated Territorial Programmes ^b		2016	CI	National
Colombia	Colombia Cluster Network ^c	<i>Confecámaras</i>	2020	CI	National
	<i>Territorios Clúster</i> ^d	Ministry of Commerce, Industry and Tourism and <i>Colombia Productiva</i>	2013	CI	National
	Cluster strategy	Cartagena Chamber of Commerce	2015	CI	Intermediate
	Cluster strategy	Bogotá Chamber of Commerce	2012	CI	Intermediate
	Manizales and Caldas Cluster Community	Manizales Chamber of Commerce for Caldas	2015	CI	Intermediate
	Cluster strategy	Medellín Chamber of Commerce for Antioquia	2016	CI	Intermediate
	Cluster platform	Cali Chamber of Commerce	2014	CI	Local
	Cluster strategy	Barranquilla Chamber of Commerce	2012	CI	Intermediate
Dominican Republic	Adozona Cluster Programme	Dominican Association of Free Trade Zones	2016	CI, VCI	National
Costa Rica	National Cluster Programme	Ministry of Economy, Industry and Trade	2022	CI, VCI	National
Ecuador	National Cluster Agenda	Ministry of Production, Foreign Trade and Investment	2021	CI, VCI	National
Mexico	Querétaro State Cluster Network	Querétaro Ministry of Sustainable Development	2023	CI	Intermediate
	Chihuahua Cluster City	Economic Development of the State of Chihuahua	2023	CI	Intermediate
	New León Cluster Programme	Secretariat of Economy of the State of Nuevo León	2022	CI	Intermediate
Peru	Cluster Support Programme	Ministry of Production and National Technological Development and Innovation Programme (<i>Proinnóvate</i>)	2016	CI	National
Uruguay	Business networks	National Development Agency	2021	BNI	National
The Caribbean	Compete Caribbean Partnership Facility ^e	Inter-American Development Bank, Foreign, Commonwealth and Development Office, Global Affairs Canada, and Caribbean Development Bank	2011	CI, BNI, VCI	Multinational
	Capacity-building of the Caribbean Tourism Organization ^f	Caribbean Tourism Organization	2021	CI	Multinational

Source: Economic Commission for Latin America and the Caribbean, on the basis of official information.

Note: CI: cluster initiative; IRE: business network initiative; ICP: value chain initiative; IPL: local production initiative.

^a These programmes were created at the start of the last decade, in 2006 in Minas Gerais, 2009 in São Paulo, 2011 in Ceará and 2012 in Rio Grande do Sul. They were subsequently suspended, then resumed after the coronavirus disease (COVID-19) pandemic.

^b The first stage of the Integrated Territorial Programmes dates back to 2000, but its evolution has not been linear. The programme was interrupted in 2011, and resumed in 2016 (Cáceres and Dini, 2022).

^c The programme was previously coordinated by the Private Council for Competitiveness.

^d The programme was previously called *Rutas Competitivas* and was administered by *Innpulsa*.

^e Includes Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, and Trinidad and Tobago.

^f Includes The Bahamas, Belize and Dominica.

Below, direct PCI policies are analysed according to how they select beneficiary initiatives, support the development of strategic plans, and provide subsidies and other services.

(a) Selection of beneficiaries

One of the key aspects for understanding the logic of PCI support programmes is who selects the initiatives and how.

In half of the cases analysed, PCI policies adopt a supply-side approach, whereby the respective promoting entities decide which sectors or value chains will receive support, based on criteria such as industry representativeness, critical mass, job creation capacity, innovation, sustainability and potential for sophistication. Once the priority chains have been defined, the promoting entity approaches business leaders in the prioritized sectors and proposes that they implement the initiatives (see diagram III.1).

In the other 50% of cases, a demand-driven approach predominates; in other words, PCI policies select beneficiaries based on applications submitted to the promoting entity. This modality requires the initiatives to have a certain level of maturity and may be more viable in more diversified productive structures,¹⁸ where numerous competing proposals can prevent capture by established business groups.

In approximately 30% of cases, these calls for proposals are ad hoc and limited in duration. In just over 20% of cases, PCI policies operate through an open window, where access to support measures is available without time limits. In both cases, initiatives submit their proposals adhering to the formats and guidelines defined by the promoting entity, which filters and evaluates them according to previously established and disclosed technical, budgetary and procedural criteria. These should reflect the strategic orientation and goals that the promoting entity hopes to achieve in terms of, for example, sectoral specialization, emerging technologies or environmental sustainability.

Diagram III.1

Productive coordination initiative policies, by beneficiary selection mechanism



Source: Economic Commission for Latin America and the Caribbean, on the basis of official information.

Note: Does not include the Colombia Cluster Network, because initiatives are not selected in that programme.

¹⁸ To ensure the quality of applications, the promoting entity often requires applicant PCIs to be accompanied by support entities that are responsible for receiving and administering resources and for executing and guaranteeing the results of the project.

(b) Development of the strategic agenda

The research shows that, in all cases, the PCI is responsible for developing its strategic agenda; and direct PCI policies vary slightly in how they support that development.

Most PCI policies (19 out of 29) provide technical support for the initiative during the formulation of the strategic agenda, sometimes directly, as in the case of the commercial districts in Chile, the National Cluster Agenda in Ecuador, the National Cluster Programme in Costa Rica, *Territorio Clúster* and the chambers of commerce in Colombia,¹⁹ or the Compete Caribbean Partnership Facility and the Caribbean Tourism Organization. In other cases, they do so by hiring expert consultants, as in the case of Chile's *Transforma* and Integrated Territorial Programmes, Peru's Cluster Support Programme and Argentina's Córdoba Cluster Programme.

The remaining 10 policies do not support PCIs in the design of their strategic agenda, an approach more commonly found in Brazil, the Dominican Republic and Mexico.

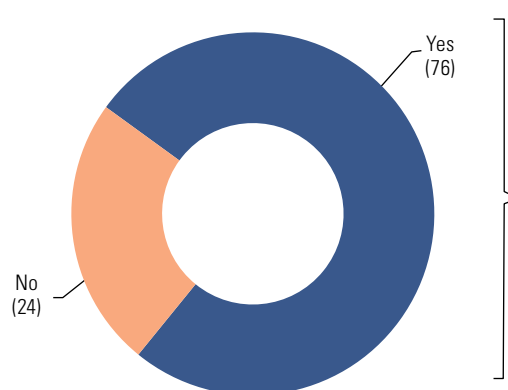
(c) Granting of non-reimbursable resources

As shown in figure III.5, PCI policies have granted non-reimbursable resources in 22 of the 29 cases analysed. The resources are mainly used to finance three items: (i) the salary of the coordinator, manager or administrator of the initiative or their team (14 PCI policies); (ii) the PCI formation stage, which includes determining governance, developing the strategic agenda and defining the initial activities (17 PCI policies); and (iii) the projects prioritized by the PCIs, which may include technology outreach, studies, trade missions or more substantial investments, such as laboratory equipment or even innovation centres (19 PCI policies). In nine cases, PCI policies subsidize all three elements.

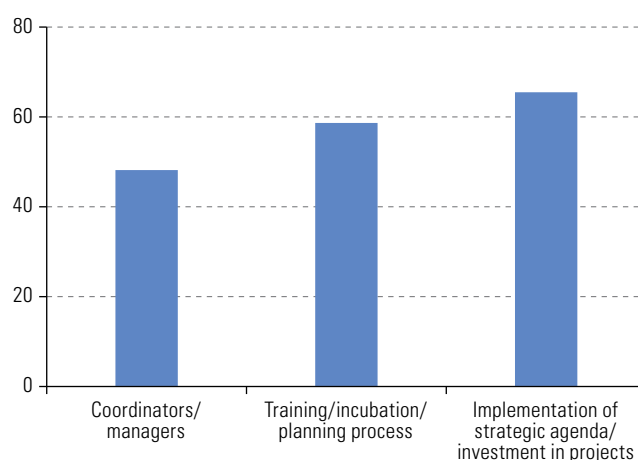
Figure III.5

Latin America (8 countries)^a and the Caribbean: distribution of PCI policies, according to the characteristics of the non-reimbursable resource that they provide
(Percentages)

A. Does it deliver non-reimbursable resources?^b

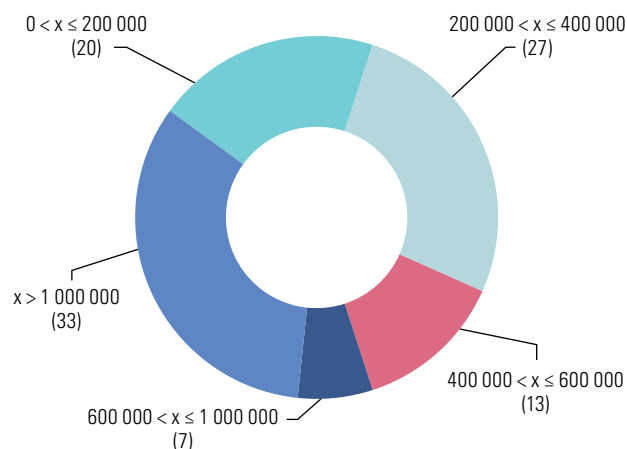


B. What is financed?^c

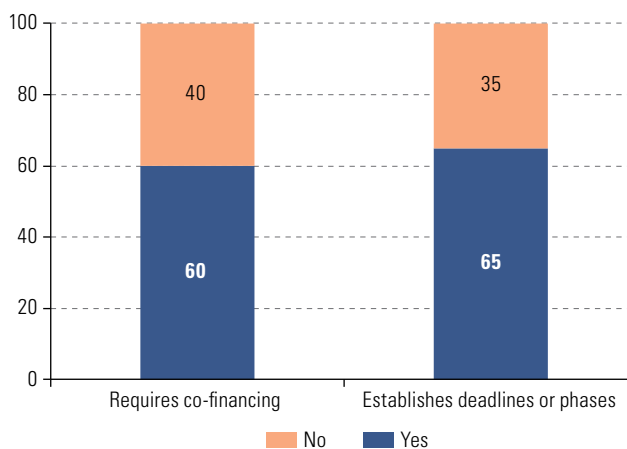


¹⁹ In the case of Colombia, it is harder to make a clear distinction, because chambers of commerce have a degree of autonomy in conducting their cluster initiatives. However, it was considered more appropriate to include them among the promoters directly involved in formulating the strategic agenda, because the coordinators, managers or administrators of cluster initiatives are often chamber of commerce officials.

C. Distribution of PCI policies according to average annual resources allocated to the initiatives^d
(Dollars)



D. Distribution of PCI policies according to co-financing requirement and deadlines and stages^e



Source: Economic Commission for Latin America and the Caribbean, on the basis of official information.

^a Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru and Uruguay.

^b Based on the 29 PCI policies analysed.

^c Based on 22 PCI policies for which information is available (Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, Uruguay and the Caribbean).

^d Based on 18 PCI policies for which information is available (Argentina, Brazil, Chile, Colombia, Ecuador, Peru, Uruguay and the Caribbean).

^e Based on 20 PCI policies for which information is available (Argentina, Brazil, Chile, Colombia, Ecuador, Peru, Uruguay and the Caribbean).

The amount of non-reimbursable resources allocated by PCI policies varies considerably. Two thirds of them allocate less than US\$ 1 million annually to support these initiatives, while the other third allocate larger amounts (mainly in the policies of Brazil, Chile and the Caribbean). The programmes of the Production Development Corporation (CORFO) have the largest annual allocations, which are also increasing considerably owing to the consistency of support over time and their broad scope in relation to the elements they cover.

Co-financing by the PCIs is often necessary, and the percentage needed generally varies between 10% and 30%. Some policies, such as those of the chambers of commerce in Colombia, do not require co-financing, although the promoting entities have indicated that private entities make contributions to finance specific projects.

Lastly, the subsidy is of limited duration in most of the programmes analysed, which requires PCIs to prepare to wean itself off promoter support over time.

Some policies establish stages with timelines for granting support, for example a first stage for the formation and formulation of the strategic agenda and a second stage for implementation of its priority projects. Other policies establish a deadline.²⁰

(d) Services provided

Although not all direct PCI policies provide a subsidy, they all support initiatives through services, which are often provided directly by staff from the promoting entity. The support provided by these policies can most often be grouped into the following categories:

²⁰ PCI policies that do not define stages or deadlines for granting non-reimbursable resources include that of the chambers of commerce in Colombia, where, for example, PCI managers are generally financed on a permanent basis by the respective chamber.

- Technical support (20 PCI policies): support and methodologies for PCIs to define their strategic agenda or design and implement specific projects, in areas such as internationalization, technological innovation and human capital gaps.
- Information and studies (20 PCI policies): on markets, technologies, trends in consumer tastes, economic and market analysis, support instruments or calls for proposals from the promoting entity itself or other development institutions, results of analysis and monitoring of the PCIs.
- Coordination (24 PCI policies): services aimed at facilitating links with relevant stakeholders, adjusting existing support instruments, promoting knowledge exchange and facilitating learning from successful experiences, such as:
 - The creation of communication channels by the promoter to enable PCIs to collaborate with other institutions related to productive development, for example sectoral ministries, such as the Ministry of Agriculture or the Ministry of Information and Communication Technologies, or with other public agencies, the academic sector or research centres.
 - Promotion and management of the adjustment of existing instruments (either their own or those of other productive development agencies), to take account of the particularities of PCIs so that they can be the object of calls for proposals. For example, the PCI policy in Minas Gerais has been coordinated with other state institutions to enable them to offer specific services for PCIs, such as the credit line for local productive clusters from the Minas Gerais Development Bank. Similarly, in Costa Rica, the development bank system was authorized to use its resources and instruments to support the consolidation, management and enhancement of cluster initiatives (Law No. 8634 of 2008).
 - The creation of meeting spaces to promote coordination among PCIs, stimulate the exchange of knowledge and experiences, and encourage the development of inter-clusters. To foster development of the latter, some promoting entities have provided methodological guidance or created arrangements for PCIs to meet and explore possibilities for collaboration. For example, CORFO organizes a monthly meeting between those responsible for collaborative programmes and the managers of their PCIs. Similarly, the Colombia Cluster Network holds an annual National Congress of Cluster Initiatives to establish linkages among these initiatives and with the national and international productive development and innovation ecosystem.
 - Missions are undertaken to learn about successful experiences and lessons learned from PCIs in other regions or countries, such as those organized by the Cluster Support Programme in Peru.
- Training (15 PCI policies): general training for coordinators, managers or administrators of initiatives and more specific training on topics related to projects in the strategic plan. These include the general training courses for cluster managers conducted by the Colombian Cluster Network, the Ministry of Production, Foreign Trade and Investment of Ecuador, the Uruguayan National Development Agency, and promoters operating at the subnational level, such as the Mendoza Innovation Agency in Argentina and Economic Development of the State of Chihuahua, Mexico.

Thus, the PCI policies analysed mainly provide coordination and information services and technical support, while training is less common (see table III.7).

Table III.7

Latin America (10 countries) and the Caribbean: services provided by PCI policies, 2025

Country	Programme	Technical support	Information	Coordination	Training
Argentina	Cluster Initiative				
	Córdoba Cluster Programme				
	Cluster Development and Strengthening Programme–Mendoza				
Brazil	State local productive clusters programme in Minas Gerais				
	Local productive cluster strengthening programme in Rio Grande do Sul				
	<i>Impulsa Ceará</i>				
	<i>SP Produz</i> Programme – São Paulo				
	<i>PE Produz</i> – Pernambuco				
Chile	<i>Transforma</i>				
	Commercial districts				
	Integrated Territorial Programmes				
Colombia	Colombia Cluster Network				
	Cali Chamber of Commerce Cluster Strategy				
	Bogotá Chamber of Commerce Cluster Strategy				
	Manizales and Caldas Cluster Community				
	Medellín Chamber of Commerce Cluster Strategy for Antioquia				
	Cluster platform				
	Cartagena Chamber of Commerce Cluster Strategy				
	Cluster territories				
Costa Rica	National Cluster Programme				
Dominican Republic	Adozona Cluster Programme				
Ecuador	National Cluster Agenda				
Mexico	Querétaro State Cluster Network				
	Chihuahua Cluster City				
	Nuevo León Cluster Programme				
Peru	Cluster support programme				
Uruguay	Business networks				
The Caribbean	Compete Caribbean Partnership Facility ^a				
	Capacity-building of the Caribbean Tourism Organization ^b				

Source: Economic Commission for Latin America and the Caribbean, on the basis of official information.

^a Includes Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, and Trinidad and Tobago.

^b Includes The Bahamas, Belize and Dominica.

In summary, a comparison of PCI policies in Latin America and the Caribbean reveals a wide variety of modalities and models that vary by country and even by level of government within the same country. The policies thus become a mechanism that can be adapted to the institutional capacities, productive structures and availability of promoting entities' human, technical and financial resources.

F. Evaluation and results of PCI policies

The results, both internationally and in Latin America and the Caribbean, suggest that PCIs, especially cluster initiatives, can be an effective tool for driving significant productive transformations in the economies of relevant territories, by funnelling the efforts of different economic stakeholders towards shared objectives and improving

productive development policies. As described below, there are numerous experiences in countries and territories where these initiatives have been fundamental in promoting such transformation.

In fact, the large and growing number of PCI policies in Latin America and the Caribbean at both the national and the subnational levels suggests an implicit recognition of the benefits generated by this approach which, thanks to its adaptability, can be applied to a wide variety of contexts and challenges.

That being said, there have been few attempts to evaluate PCI policies,²¹ in particular in the form of impact assessments.²² This is not because evaluation is considered unimportant; on the contrary, there is broad consensus in the literature, and also among professionals involved in the design and management of these initiatives, about the relevance of evaluations (ECLAC, 2024c), especially because the information that they provides (i) ensures accountability for the use of public and private resources invested in collective action; (ii) legitimizes the efforts made through the results achieved; (iii) boosts confidence in the capacity of PCIs to generate value; and (iv) facilitates the attraction of partners and new members and the securing of financial and non-financial support for the implementation of strategic agendas.

The scarcity of PCI impact assessments is more reflective of the inherent conceptual and methodological complexity of measuring the effects of these initiatives and the programmes that promote them. To address this problem, several authors have highlighted the need for further research, study and analysis related to the evaluation of these policies and initiatives (Aranguren et al., 2014; Figal Garone et al., 2016; Lehmann and Menter, 2018; Llinás, 2021; Smith et al., 2020; Uyarra and Ramlogan, 2012; Wilson et al., 2022; Wilson, 2019; Wise et al., 2016).

The following subsection summarizes the main methodological difficulties in conducting PCI impact assessments; identifies some of the most relevant evaluation experiences carried out in the region; and presents the effects of PCI policies according to these evaluations and references a number of relevant international cases.

1. Methodological challenges in evaluating PCI policies

The methodological difficulties involved in evaluating the effects of PCI policies can be summarized in the four key issues described below.

(a) Who conducts the evaluation and for what purpose?

To evaluate a PCI, the first element that needs to be defined is the object of the evaluation, since the different stakeholders involved may have different interests and points of view. For example, a promoting entity that invests in the development of a PCI may be interested in verifying the effectiveness of the incentives and support modalities it has established in its promotion policy. In contrast, a cluster manager, or the decision-making body that manages the initiative, will probably focus on analysing the degree of compliance with its objectives and goals and on recording the progress made, in order to document the benefits of collective action and motivate the participating firms and institutions.

²¹ The lack of systematic evaluation and monitoring is a weakness of productive development policies in general, and not only of productive coordination initiatives, as noted in ECLAC (2024c).

²² In this chapter, impact evaluations are understood as those that investigate the causal relationships that exist between the PCI policy and the effects experienced by its target population.

Although these two aspects overlap, they require different types of analysis. Obviously, a PCI support programme cannot be successful if the initiatives it supports do not achieve their targets; but even if most of the initiatives meet their expectations, the programme still may not be achieving the desired impact in cost-benefit terms. This could happen because the sum of the individual efforts is insufficient to bring about a visible transformation in the territory's economy.

(b) Which impacts should be evaluated and on the basis of which variables?

The difficulty in this case stems from the very nature of the collaborative pursuit of productive development, in three important aspects: (i) the primary objective of a PCI policy is not the implementation of the initiative itself, but rather the effects that the collaborative process has on the performance of the participating firms, such as changes in their levels of productivity, employment and exports; (ii) the impact on firms is not limited to the companies that make up the PCI, as it also produces externalities that could generate positive effects on the productive environment in which the initiative operates, such as the development of specific public goods, the dissemination of new knowledge, productive specialization and the attraction of investments (Schmiedeberg, 2010; Uyarra and Ramlogan, 2012); and (iii) creating a PCI involves intangible elements, such as leadership, organizational strengthening and, in particular, building relationships and trust among participating stakeholders (also known as social capital) (Putnam, 2001). The identification and measurement of these factors represent a methodological challenge that the literature on the subject has not yet fully resolved (Kiese, 2017).

The aforementioned difficulties are often exacerbated by weaknesses in the design of the PCI policies themselves, in particular the lack of definition of specific objectives that would make it possible to clearly establish measurement parameters and methodologies (Kiese, 2017).

(c) Causality

In any evaluation, scientifically proving that a result is unequivocally the product of a policy or measure is a major challenge, because it is generally difficult to find a counterfactual scenario that allows the causal link between the policy or programme and the impact to be isolated. The evaluation of productive development policies, in particular PCI policies, is no stranger to this challenge, especially when they are generally implemented at the same time as a set of different policies with similar productive development objectives and beneficiaries (Aranguren et al., 2017; Figal Garone et al., 2016; Maffioli et al., 2016; Uyarra and Ramlogan, 2012; Wilson et al., 2022). However, this should not be an obstacle to conducting a thorough data collection exercise prior to or during the implementation process, which would make it possible to evaluate these policies, if only approximately.

(d) Data availability

Once the variables to be analysed have been defined, obtaining the data to measure them, at the different stages required and for all necessary stakeholders, especially to establish the counterfactual scenario, is often complex because:

- Evaluations are often not designed at an early stage (when the policy is formulated and implementation begins), so there is no plan for baseline data collection and ongoing monitoring to provide data observed at different stages of the programme.

- In most countries, official statistics do not give access to the microdata level of information that would be needed to generate control groups.
- The expected benefits often mature over time, stretching beyond the duration of support programmes (Alfaro et al., 2016; Figal Garone et al., 2016; Schmiedeberg, 2010; Uyarra and Ramlogan, 2012). Following up with beneficiaries years after the programme has ended is costly and uncommon.
- Even more costly and complex is obtaining baseline and post-programme information for the control group, which in most cases is not defined at the start of the programme and is usually not observable or accessible from the PCI policy.

Owing to the numerous challenges mentioned, PCI policies have been evaluated in a variety of ways, including through case studies, econometric methods, systemic approaches and cost-benefit analyses (Aranguren et al., 2014; Schmiedeberg, 2010; Smith et al., 2020; Wise et al., 2016; and Wilson et al., 2022). Given the aforementioned methodological complexities, an approach that combines different quantitative and qualitative evaluation methods is considered appropriate, because it allows the impact to be captured in hard economic data and also in intangible terms.

2. The evaluation of PCI policies in Latin America

The relative paucity of policy and initiative evaluations, given the amount of policies and PCIs that exist, shows that these processes are still in their infancy in the region. In the research conducted for this chapter, 16 analyses of the effects of PCI policies implemented between 2011 and 2025 were mapped for six countries: Chile (5),²³ Argentina (4), Mexico (3), Colombia (2), Brazil (1) and Costa Rica (1). Table III.8 provides a non-exhaustive summary of the key results of a literature review, together with information provided by promoters registered on the Platform for Cluster and Other Productive Coordination Initiatives on their efforts to evaluate their PCI policies.

Five analyses focus on evaluating the impacts of the PCIs on participating firms and direct beneficiaries. In the remaining cases, no causality analyses are performed; but, instead, qualitative and quantitative methods are combined to analyse the results of the PCI policies and their initiatives or to evaluate their operational characteristics.

Measurement experiences in Latin America in recent years have focused mainly on monitoring, which facilitates repetition and comparison over time. For example, the monitoring, measurement and evaluation system for the cluster initiatives of the Colombia Cluster Network was designed in 2016 and has been applied every other year since then until 2024, generating a line of research on the evolution of PCIs and their strengths and weaknesses.²⁴ However, as noted above, evaluations that analyse causality are not very common.

²³ In the case of Chile, this inventory of studies does not consider the midterm evaluations conducted as part of the *Transforma* or the Integrated Territorial Programmes run by CORFO to decide on the continuity of subsidies based on the results achieved.

²⁴ For further information, see <https://redclustercolombia.gov.co/>.

Table III.8

Latin America (6 countries): selected experiences in evaluating cluster policies and initiatives in Latin America

Country	Promoter	Programme	Purpose	Year	Analytical focus
Argentina	Córdoba Competitiveness Agency	Córdoba Cluster	PCI	2024	Using a monitoring system, it measures the cluster's identity, the number of member and external firms, activities, member institutions and universities, projects, economic profile and characteristics by export activity.
	<i>Córdoba Acelera</i>	Córdoba Cluster		2025	Monitoring system containing a dashboard of data on projects in progress, the cluster and its self-assessment (under development).
	City of Córdoba	Support for the Córdoba ICT cluster	PCI policy	2016	Assessment of the policy's impact on the direct and indirect beneficiaries in terms of employment, wages and exports.
	Economic Development Agency of the City of Córdoba	Support for the Córdoba electronics cluster			Impact of the policy on the formation of new linkages with other electronics firms within the cluster, using the social network analysis method.
Brazil	Federal and state government	State policy on local productive clusters—São Paulo and Minas Gerais	PCI	2014	Direct and indirect causal effects of the local productive cluster policy on employment, exports and probability of exporting.
Chile	Production Development Corporation	Collaborative Development Programme Supplier Development Programme		2011	Causal relationship between the programme and the firms' economic performance, in terms of sales, productivity and employment.
	Technical Cooperation Service	Commercial districts		2020	Evaluated the programme's rationale, design, implementation, organization and management, gender perspective, effectiveness, economic quality and efficiency.
	Production Development Corporation	<i>Transforma</i>		2018	Case studies and social network analysis in terms of composition, cohesion, power distribution and sustainability.
		Strategic Programmes for Smart Specialization			Analyses the origin of the programme, industrial organization and institutional progress in the sector, the objectives and quality of the diagnostic assessment, as well as road map, initial results and unexpected results.
Colombia	<i>Colombia Productiva</i>	<i>Clúster Más Pro^a</i>		2023	Changes in the industry and in the networks of relationships between stakeholders through two case studies.
	<i>Confecámaras</i>	Colombia Cluster Network	PCI	2024	International analysis, evaluation of operations and results. Variables: income, employment, productivity and exports.
Costa Rica	CINDE, universities, government	Investment attraction strategy		2020	Monitoring system. Set of indicators in 11 dimensions: characterization, participating stakeholders, approach, strategy, governance, collaboration and partnerships, activities, financing, entrepreneurship and territorial impact, and projection.
Mexico	Competitiveness and Collaboration Institute	<i>Sintonía</i>		2024	Design, institutional track record, human capital, export diversification and sector consolidation.
	State of Jalisco	Jalisco Productive Development Strategy	PCI policy	2018	1. Minimum requirements include collaboration, legal status, financial sustainability and integration into the quadruple helix. 2. Degree of maturity applying a set of questions. Aspects include the design, current status and medium-term trajectories of the state's productive development policies.

Source: Economic Commission for Latin America and the Caribbean, on the basis of Maffioli, A., Pietrobelli, C. and Stucchi, R. (2016). *The Impact Evaluation of Cluster Development Programmes: Methods and Practices*. Inter-American Development Bank; Ferraro, C. and Rojo, S. (2018). *Políticas de desarrollo productivo en el Estado de Jalisco, México* (Informe Técnico 2018/14). International Labour Organization; Dutrénit, D., Moreno-Brid, J., Vera-Cruz, A. and Torres, A. (2018). *Políticas de desarrollo productivo en México: la visión de los actores*. En *Políticas de desarrollo productivo en México* (Informe Técnico 2018/12). International Labour Organization and Camacho, M. (2025). *Análisis de las metodologías de evaluación de impacto y resultado de los clústeres* [Unpublished manuscript]. Economic Commission for Latin America and the Caribbean.

^a Corresponds to the previous version of the Cluster Territories Programme.

3. Regional and international effects of PCI policies

This final subsection reviews the effects of the PCI policies described in the previous subsection, taking into account the constraints mentioned. This is supplemented by references to international experiences, such as those of Catalonia and the Basque Country in Spain, or those of Canada, France and Germany, which are of particular interest as benchmarks for many countries in the region.

An initial series of results are obtained from the findings of Ferraro and Rojo (2018) and DeTrani et al. (2018) on Mexico (Jalisco and Querétaro, respectively) and Cornick (2020) on Costa Rica. The study on Jalisco considers the profound transformation that this

state has undergone in the last 50 years, which has enabled it to move from a maquila production model to a sophisticated computer hardware manufacturing and software development sector. This process, which generated economic growth at rates above the national average, was largely due to the creation of the electronics cluster initiative, the attraction of foreign direct investment (FDI) and a high-tech development policy. In the case of Querétaro, the aerospace cluster initiative was led by the private sector, structured around a state productive development policy and coordinated with federal instruments, aimed at developing the aerospace industry. The productive development policy included the training of skilled workers for the industry, attracting investment and creating or coordinating research and development centres. This indirect PCI policy resulted in Querétaro's aerospace industry receiving 31 % of cumulative national total FDI between 1999 and 2017, generating nearly 8,500 jobs by 2017 and offering wages higher than those in the manufacturing industry at the national and federal levels. The vertical application of a horizontal instrument such as the investment attraction programme resulted in the provision of public goods and vertical inputs, for example specialized postgraduate courses. This, complemented by specific support programmes for domestic firms, such as support for compliance with international quality standards, enabled local enterprises to start integrating into high-tech value chains, especially in the medical device cluster (Cornick, 2020).

Other quantitative data on the results achieved by direct PCI policies appear in Maffioli et al. (2016), who found that Brazil's local productive clusters policy generated positive and sustained effects over time on employment and exports. They also concluded that the support received by the Córdoba ICT cluster in Argentina increased sales, employment levels and wages in the beneficiary firms, as well as sales in firms not participating in the programme, thus demonstrating positive externalities derived from geographical proximity. In addition, network analysis in the Córdoba electronics cluster showed that, although the programme did not generate new export-oriented linkages, it did strengthen technology transfer ties between firms in the electronics sector and various local, provincial and national institutions.

In an analysis of the impact of the tourism cluster policy in Colonia, Uruguay, Abogal et al. (2020) found that it had increased international tourist arrivals to the region by 30% between 2008 and 2015.

In the case of Chile, the work of the Latin American Center for Rural Development (RIMISP, 2012) detected increases in employment and sales for firms participating in the Supplier Development Programme, but it did not observe similar effects in the Collaborative Development Programme. Nonetheless, a subsequent review by Pietrobelli (2020) concluded that, since its implementation in 2001, this programme had generated positive effects for beneficiaries in terms of managerial skills, willingness to innovate and ability to enter international markets.

Lastly, in Colombia, the evaluation of the results of the *Clúster Más Pro* programme concluded that participating firms grew their income and labour productivity significantly, relative to a control group (Puyana et al., 2023).

As noted above, there are also studies of experiences in Europe and North America that suggest positive impacts of PCI policies, although the data are not uniform and some studies show mixed results.

Two emblematic cases are those of the autonomous communities of the Basque Country and Catalonia in Spain. In the first case, the PCI policy was central to the government's medium- and long-term strategy and was supported by other complementary productive development policies. According to Monge and Salazar-Xirinachs (2016), it

contributed significantly to achieving higher per capita GDP and lower unemployment.²⁵ In the second case, in which the cluster programme supported 27 initiatives in 2023, the 2021 impact assessment showed that firms belonging to the initiatives outperformed their non-participating peers on indicators such as income growth, job creation, exports and innovation (Ketels, 2023).

In addition, Uyarra and Ramlogan (2012) analysed 16 programmes in member countries of the Organisation for Economic Co-operation and Development and found positive effects, in terms of resource mobilization and collaboration among stakeholders, and limited impacts on innovation, productivity and employment. Wilson et al. (2022) reviewed multiple studies and concluded that those that analysed the productivity impacts found positive effects in the policies of France (competitiveness clusters) and the Basque Country (Spain) and zero or negative impacts in other cases (such as automotive initiatives in Germany or local production systems in France). In addition, marginal or statistically insignificant effects on employment or exports were observed in Canada, France and Germany.

In short, the analyses conducted to identify the outcomes and impacts of direct and indirect PCI policies show the transformational effects that collaborative work among firms and between firms and public institutions, the academic sector and civil society has on the productive development of the territories in which they operate, particularly in Latin American countries.

G. Conclusions and guidelines

This chapter has shown that PCIs can be key instruments for organizing productive development endeavours in the region. The data show that they are now being used in many countries and, in some cases, suggest an increase in the number of programmes promoting these initiatives in recent years.

Nonetheless, there is considerable room for improvement in the depth and quality with which these initiatives are implemented in the framework of productive development policies in the region. There is also a clear need to improve the policies and programmes that promote this type of initiative. Accordingly, in these final reflections, and in line with the analyses included in this chapter, a set of guidelines and recommendations is proposed that can help to scale up and improve PCI policies.

Guideline 1: use PCIs to work on strategic agendas around sectors prioritized in line with national and subnational productive development policies

Despite the possibilities highlighted throughout the chapter, many countries and territories are not using PCIs as vehicles for organizing strategic agendas around the priorities of productive development policies.

To address this weakness, productive development policies should:

- As part of their formulation process, identify existing or potential PCIs that could contribute to the construction and implementation of the policy. The use of foresight tools could be crucial for this purpose.
- Include among their instruments incentives that promote the alignment of efforts and resources to address the needs arising from the PCIs.²⁶

²⁵ Per capita GDP, measured at constant prices, grew from € 13,000 in 1980 to € 30,000 in 2008, while unemployment of 25% in 1980 became full employment in 2008.

²⁶ An example of this is provided by the structural funds for science, technology and innovation of the European Union, which target the smart specialization strategies of the regions. See Llinás (2021) for further details.

- Use PCI governance as a mechanism to channel and implement programmes and other initiatives within the framework of productive development policies, including the possibility of using these initiatives as multilevel governance vehicles.
- To be feasible, all of the above requires strong political support from the highest authorities at the international, national and subnational levels.²⁷

Guideline 2: increase funding

As documented in section E, PCI policies vary greatly in terms of the resources invested. To make a clear contribution to productive transformation, collaborative processes need a significant increase in the funds allocated to these initiatives (for example, to hire and train coordinators, managers or administrators and to finance projects and actions promoted by the PCIs) and in those assigned to the management of PCI policies (in particular to finance actions aimed at systemizing and disseminating knowledge, promoting exchanges of experiences or conducting visits to learn about success stories on other continents).

While the public sector has a direct responsibility for providing funds to promote the PCIs, the co-financing of these endeavours should be an imperative for all stakeholders in the “quadruple helix” (public, private, academic and civil society sectors), whereby everyone contributes to the financing and everyone feels responsible for its success. This includes private foundations, the academic sector and leading firms in specific sectors, as well as national, regional and international development banks.

It is also crucial to use resources as efficiently as possible, in particular reducing the fragmentation and dispersion of funds in microinterventions that have very little impact.

Guideline 3: guarantee the continuity of PCI policies

Productive transformation is generally the result of slow and cumulative processes that extend beyond the time frame of a single government term of office. For this reason, PCI policies should be understood as medium- and long-term endeavours.

The participatory approach is one of the most important factors that contribute to their continuity.²⁸ In addition to participating in PCIs, representatives of the public, private, academic and civil society sectors need to contribute to the design of the policies that promote them. This requires the following:

- Raise awareness among stakeholders, especially in the private sector, of the advantages of the productive coordination approach and its role in the design of PCI policies.
- Explicitly include mechanisms and methods of dialogue between stakeholders of the quadruple helix in the policy formulation process.
- Define monitoring and review mechanisms that include the private sector, the academic sector and civil society.
- Arrange contributions not only from the public sector but also from other stakeholders to finance PCI policies.

²⁷ At the international level, mechanisms that are emerging to position PCI policies as the spearhead for productive development policies include the meeting and coordination mechanisms of national and subnational authorities involved in productive development policies. These include ministerial meetings on science and technology, digital policies, and the Subnational Governments Productive Development Network.

²⁸ Another highly relevant factor is the strength of the PCI-promoting institutions, which will be elaborated on in another guideline.

Guideline 4: emphasize incentives for innovation, promoting convergence between PCI and science, technology and innovation policies

Convergence between PCI and science, technology and innovation policies, in the framework of productive development policies, can help to improve the effectiveness of both. Firstly, these policies can enhance their relevance and focus by using PCIs as a vehicle for prioritizing investments and efforts. Secondly, they can help to stimulate the capacity for innovation and, especially, the diversification of the PCIs (see chapter II). In particular, it is recommended to:

- Review existing or potential PCIs to identify the challenges that they face and thus consider incentives to align PCI policies with science, technology and innovation policies and the prioritized productive investments.
- Consider additional incentives for collective science, technology and innovation projects, including groups of firms, research centres, universities and even between different PCIs.

Guideline 5: enhance collaboration between PCIs

The systematic pursuit of mechanisms for collaboration between PCIs can make it possible to address problems or opportunities that require economies of scale beyond the capacity of PCIs operating individually, and to promote actions in areas or fields that exceed the scope of individual initiatives, which can foster productive diversification.

The action taken by ECLAC in this area reveals the interest of PCIs in investing in the development of joint projects that open up new possibilities for improving markets, technologies and products. However, it also shows that these joint efforts do not develop spontaneously but rather require external leadership, professional collaboration and appropriate methodologies. This requires combined efforts by the different stakeholders, as follows:

- National and subnational governments, and PCI-promoting entities in general, need to complement their support activities by regularly organizing contacts and business round tables between the initiatives that they have launched.
- One of the objectives of the ECLAC Platform for Cluster and Other Productive Coordination Initiatives is to develop methodological guidelines on how to promote inter-cluster dialogue and actions.
- Regional development banks and international organizations should consider investing in the financing of joint projects between PCIs from different countries.

Guideline 6: strengthen professional capacities

The availability of motivated and adequately trained professionals to promote and manage PCIs is a key factor in their success.

A study of the programmes shows that most PCI promoting entities have adopted measures, either on their own or through third parties, to provide training or exchange experiences; facilitate the dissemination of good practices; and accelerate the learning curve of those responsible for PCIs. To improve the quality of these measures, it would be useful for the various PCI-promoting entities to jointly and systematically assess how these initiatives have addressed the critical aspects of their implementation and consolidation process, in order to provide an empirical basis and a comprehensive record of testimonials and experiences.

One area in which there are shortcomings is the training of the professional teams of the promoting entities themselves. Systematically exposing these teams to dialogue

with peers from other countries, in particular those that have made greater progress in consolidating PCI policies, could contribute significantly to the development of their capacities.

The key professional capacities needed for greater momentum and success of the PCIs include: (i) in-depth knowledge of sectoral dynamics in PCI areas of specialization; (ii) TOPP capabilities (see table III.5); (iii) leadership and management capacities for collaborative governance processes; (iv) knowledge of evaluation and monitoring methodologies; and (v) communication skills.

Guideline 7: strengthen institutions and their TOPP capabilities

The strength of the PCI promoting institutions key to ensuring that their work is effective and sustainable over time. Unfortunately, promoting institutions that can document an uninterrupted history of PCI policy implementation in the region are few and far between. Establishing a PCI support strategy requires changing this situation and investing in the formation and consolidation of strong institutions, for which it is necessary to:

- Train skilled teams, with a particular focus on strengthening their TOPP capabilities (see table III.5).
- Study financing mechanisms that combine different sources, such as government contributions and ad hoc taxes related to specific economic activities, ultimately managed in trust funds that guarantee transparency and operational efficiency.
- Develop and disseminate methodologies for the promotion and management of PCI and support programmes.
- Study models for evaluating and generating strategic indicators.

Guideline 8: strengthen evaluation capacity and promote the adoption of an experimentalist governance approach

Given the complexity of PCIs and their medium- and long-term outlook, it is vital to strengthen the teams' technical and methodological capacity to continuously monitor progress and adjust PCI policies, as recommended by the experimentalist governance approach. It is also important to complement this with more in-depth and rigorous impact assessments on a regular basis.

Although some of the institutions considered have demonstrated capacity to adjust their PCI policies, based on an analysis of outcomes and impacts, these are generally sporadic experiences.

The first step in changing this situation involves developing and implementing systems to monitor and evaluate PCIs and their support programmes. Four key factors for moving in this direction are to:

- (i) Achieve strong political support for developing a culture of evaluation, investing in methods and technical capacities in this area and ensuring that the findings of the evaluation are translated into policy adjustments.
- (ii) Include three elements in policy design: (i) clear strategies for collecting baseline data prior to implementation; (ii) medium- and long-term objectives and indicators to measure them; and (iii) methodologies for monitoring outcomes and impacts.
- (iii) Invest in the training of professionals responsible for designing and implementing these evaluation systems.
- (iv) Use the Platform for Cluster and Other Productive Articulation Initiatives to exchange experiences and good practices in the evaluation and monitoring of PCI policies at the international level.

Guideline 9: invest in internal and external communication

One area that tends to be overlooked yet crucial to the success of PCI policies and the initiatives themselves is communication strategy. This is not just a matter of creating channels of information on PCI progress targeting a more or less broad or select audience, but of making an effort to generate dialogue instruments— both internal (among the members of the initiatives) and external (between them and the rest of their institutional environment). The former helps to consolidate trust-based relationships among the stakeholders involved in the initiatives, while the latter contributes to the recognition and legitimacy of the efforts by stakeholders in the economic environment, thereby facilitating access to funds and support measures.

Guideline 10: explore the possibility of working on regional sectoral and thematic productive development agendas for the leading sectors, based on PCIs

Although much of the region's progress in productive development, and in particular in PCIs, will depend on what the respective countries and their territories do or do not do, the possibility of working on regional productive development agendas that catalyse national and subnational efforts should be explored. PCIs, in particular, can promote these regional agendas and thus accelerate the technological modernization of the productive fabric, steer the transition towards sustainable productive models and, consequently, strengthen the legitimacy and sustainability of the initiatives. In this context, it may be important to deepen the initiatives promoted by ECLAC in the following three areas:²⁹

- (i) Gender agenda: incorporate a gender perspective by setting specific targets for the equitable participation of women in decision-making bodies, prioritizing projects that generate opportunities for traditionally excluded population groups and developing differentiated indicators that capture specific impacts by social group.
- (ii) Digital agenda: prepare systematic diagnostic assessments of digital divides and develop collective projects for digital solutions (e.g. e-commerce platforms, traceability systems and shared data centres) and digital skills training programmes.
- (iii) Circular economy agenda: systematically assess the environmental footprint, promote circular economy projects and develop collective environmental standards.

Guideline 11: strengthen the Platform for Cluster and Other Productive Coordination Initiatives

The Platform for Cluster and Other Productive Coordination Initiatives developed by ECLAC has untapped potential to support the development of most of these guidelines. Its regional scope and contacts with international organizations make it a natural instrument for facilitating multilevel coordination among international, regional, national and local stakeholders and experiences.

To strengthen and consolidate the Platform beyond the ECLAC commitment to continuing to support it requires moving towards an open community that more actively integrates the entities promoting PCI policies, the international organizations promoting productive development in the region and the key public and private stakeholders participating in these initiatives in the management of this mechanism and in the design of the various joint activities.

²⁹ Other opportunities to expand and deepen PCIs involve the development of strategies that are currently in the roll-out phase, such as the health and bioeconomy sector agenda.

In conclusion, these guidelines can be addressed through subnational, national or regional agendas and adapted to the capacities of different countries and territories. The ideal scenario should include actions on all three levels. If in-depth agendas of this type are pursued on different levels, productivity will rise across the region, thereby improving the well-being of its entire population.

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CHAPTER

IV

Green and inclusive productive development in Latin America and the Caribbean

Introduction

- A. Conceptual and methodological framework
- B. Green and inclusive productive development policies in Latin America and the Caribbean
- C. Challenges and opportunities for green and inclusive productive development policies
- D. Final remarks and recommendations

Bibliography

Annex IV.A1

Annex IV.A2

Introduction

This chapter explores green and inclusive productive development policies as a subset of the productive development policies ECLAC has been advancing (Economic Commission for Latin America and the Caribbean [ECLAC], 2024b) and as one of the vital transformations required for progress towards more productive, inclusive and sustainable development in Latin America and the Caribbean.

The climate emergency is one of the defining challenges of our era. The economic consequences of climate inaction are extremely high. According to the World Economic Forum (2025), the top-ranked risks for the next 10 years are, in descending order, extreme weather events, biodiversity loss and ecosystem collapse, critical change to Earth systems and natural resource shortages. The climate emergency is aggravating the three development traps that characterize Latin America and the Caribbean (ECLAC, 2024a). The low growth capacity trap will be further exacerbated by climate inaction, with potential output growth in the Latin America and Caribbean region having already been reduced by nearly 1 percentage point owing to the average temperature rise experienced in the region between 1970 and 2020 (ECLAC, 2023). Ultimately, unmanaged climate change could lead to the destructuring of productive systems and economic collapse. It is estimated that the loss of per capita GDP due to temperature increases in Latin America and the Caribbean could amount to 6.3% by 2030 (ECLAC, 2023). Furthermore, labour productivity could shrink by between 4% and 5% by 2050 in relation to the productivity levels of the period from 1986 to 2006 (Alatorre et al., 2024). With 70% of the Caribbean population living and working in coastal areas, where most infrastructure is located, climate change poses an existential threat to communities, economic sectors and natural ecosystems (Caribbean Climate Justice Alliance, 2022).

Climate inaction will also worsen the trap of high inequality and low social mobility and cohesion, since the most vulnerable people and systems are disproportionately affected by the impacts of climate change. In the Latin America and Caribbean region, 29% of the population were below the poverty line in 2022, while some 25% of the population were above the poverty line but with low incomes (Salazar-Xirinachs, 2023). Therefore, more than 50% of the population is either below the poverty line or at high risk of falling into poverty as a result of economic or climate shocks.

Climate change impacts are further intensifying the trap of weak institutional capacities and governance. In a context of inadequate institutional capacities, which include administrative inefficiency, poor bureaucratic quality, poor public administration quality and other shortcomings (ECLAC, 2024a), the ability of States to implement effective policies and respond efficiently to climate disasters and extreme weather events becomes severely constrained.

The self-reinforcing nature of the three development traps is further intensifying the vicious circles that limit the region's ability to achieve its development goals. Alarming though these assertions may sound, they are grounded in science, and they highlight the urgency of taking ambitious, timely action to avoid the worst impacts of climate change.

Besides the issues of risk management and prevention of further harmful consequences from climate change, the subject of development opportunities arising from climate action has been gaining traction. Many conceptual proposals seeking to reconcile economic growth and environmental sustainability were conceived within the context of the global economic and financial crisis of 2008–2009, including green growth (Organisation for Economic Co-operation and Development [OECD], 2011), the green economy (United Nations Environment Programme [UNEP], 2011), the green

new deal (Green New Deal Group, 2008; Barbier, 2009a), green recovery (Barbier, 2009b, Pollin et al., 2008; International Monetary Fund [IMF], 2019), green stimulus (Bowen et al., 2009) and green investments (Robins et al., 2009). The numerous new concepts and terms that emerged then were symbolic of a reinvigorated global debate and vision for how economies could be redesigned to achieve the overarching goal of sustainable development (Barbier and Markandya, 2013).

It was in the late 2000s that proposals for simultaneously confronting the economic and climate crises first translated into policy packages to contain the global economic crisis that explicitly included green fiscal components, comprising investments in renewable energy, energy efficiency, public transport, railways, water infrastructure, environmental protection and other areas. By 2009, governments, almost all of them members of the Group of 20 (G20), had allocated an additional US\$ 520 billion in spending for the green recovery, which represented 15.7% of the total fiscal stimulus and 0.7% of global GDP (Barbier and Markandya, 2013). However, most countries around the world were cautious about adopting a national green economic development plan at this time (Barbier and Markandya, 2013).

With the outbreak of the economic crisis caused by the coronavirus disease (COVID-19) pandemic, national economic recovery or development proposals with a “green” emphasis gained new momentum, and the first green policies and stimulus measures, designed to address the impacts of the 2008–2009 global economic and financial crisis, provided a learning base from which these proposals and policies have matured. According to the *Greenness of Stimulus Index* report (Vivid Economics, 2021), based on a case study of 30 economies, including G20, “green” stimuli of some US\$ 1.8 trillion had been announced directly by 2021 for sectors that would have a large and lasting impact on nature. The report also found that, although these green stimuli represented an important step in the right direction, stimuli considered harmful to the environment outweighed green stimuli in 20 of the 30 economies analysed.

Overall, recent years have seen a paradigm shift whereby the climate agenda is no longer perceived primarily as an obstacle but rather as a lever for economic and social development (Gramkow, 2020). Further new concepts and proposals have emerged, including green industrial policy (Rodrik, 2014), the blue economy and industrial policy for competitiveness in the energy transition (Ahuja and Hausmann, 2025). In effect, the Paris Agreement goals of holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels require economies worldwide to achieve a net zero emissions path in the present century (Intergovernmental Panel on Climate Change [IPCC], 2023). A net zero world will only materialize with the mobilization of vast sums of investment in a portfolio of resilient low-carbon solutions across all sectors. According to the report of the Independent High Level Expert Group (IHLEG) on Climate Finance, the projected global investment requirement for climate action is about US\$ 6.3 trillion to US\$ 6.7 trillion per year by 2030 (Bhattacharya et al., 2024). In the Latin America and Caribbean region, meeting climate action commitments requires a cumulative investment ranging between US\$ 2.1 trillion and US\$ 2.8 trillion by 2030, which is equivalent to an average annual investment of 3.7% to 4.9% of regional GDP, respectively (ECLAC, 2023). Such massive green investments can stimulate economic growth in the short run but also, and more importantly, can be a driver of productive transformation capable of spurring productivity and long-term growth.

In the Latin America and Caribbean region, these long-term development benefits of decarbonization can only be realized through productive development policies (ECLAC, 2024b) that ensure that at least some of the sustainable low-carbon solutions involved are generated in the region. Moreover, Latin American and Caribbean countries are well placed to become major players in the provision of low-carbon technologies,

products and services (Lebdioui, 2022), not just for their own use (domestically), but to one another (regionally) and worldwide (globally). These favourable conditions in the region are heterogenous, but range from a vast natural resource base (e.g. bioinputs, abundant water, critical minerals, large ocean States, wind and solar radiation) to sizeable internal markets, productive capacities and competitive advantages in green fields, notably biofuels (ethanol, biodiesel, sustainable aviation fuels), bioenergy and biofertilizers produced from waste (e.g. capture of methane from livestock production) and hydrogen. In relation to the rest of the world, Latin America and the Caribbean enjoys a privileged position from which it could benefit from green productive development policies. According to data from the World Bank (2023), the Latin American and Caribbean economy emits half the world average per unit of GDP. Should Latin America and the Caribbean further expand its non-conventional renewable energy supply, the region could consolidate its position as a supplier of low-carbon goods and services to economies worldwide.

At present, the production of green technologies is heavily concentrated in a few countries, none of them in the region. Indeed, considering data from the patent offices of the United States, the European Union, China, Argentina, Brazil, Chile, Colombia and Mexico, 82.5% of green patents in 2018 were filed in China (Economic Commission for Latin America and the Caribbean and National Confederation of Industry [ECLAC and CNI], 2023). This concentration has occurred quite quickly: whereas 2,430 green patents were filed with the Chinese office in 1990, as against 1,486 in Latin America (Argentina, Brazil, Chile, Colombia and Mexico), Latin America had 5,724 filings in 2018, while China had 492,909 (ECLAC and CNI, 2023). Less than a third of green patents in the selected Latin American countries were filed by residents, whereas in China over two thirds were. These figures highlight the fact that a vigorous technology race is under way, and that Latin America is currently not a leading player in the field.

In this context, productive development policies are crucial for the Latin American countries to maximize the economic and social benefits from the massive green investments that are required to address climate change. Put differently, mitigation and adaptation investments can be a driver of long-term development if and when productive development policies, among other conditions (including cooperation, climate finance and technology transfer; see ECLAC, 2022), are in place to ensure that Latin America and the Caribbean becomes a competitive supplier and a major player in national, regional and global markets for green, resilient and sustainable technologies and solutions. Building and strengthening local green production chains can help not only to reduce the cost of the transition but also to generate solutions appropriate to the specificities of the local context and to realize the social, environmental and economic gains associated with productive diversification, technological upgrading, productive inclusion, job and income creation and the reduction of inequalities, whilst fostering competitiveness and strengthening the region's position in global value chains.

The case of electric buses in Brazil illustrates this argument (Barassa et al., 2022). Currently, some 40% of the components of an electric bus produced in Brazil are imported,¹ and under a business-as-usual scenario in which there was no specific policy to foster the productive development of the electric bus value chain in the country, the import index might fall to 30% at best by 2050. In contrast, under a scenario in which a productive development policy for the electric bus value chain was put in place, domestic production of components would lead to a reduction in the import index from 40% to 20% by 2030. In the business-as-usual scenario, replacing internal combustion engine buses by electric ones would lead to a net reduction in jobs, with 813 jobs created in electric bus manufacturing and 876 lost in internal combustion engine bus manufacturing. Conversely, in a scenario with demand stimulus and productive

¹ Most of the imports are of powertrains and components such as battery cells.

development policies for electric buses, there would be a net positive impact on jobs, with those created in the production of electric buses (21,056) far outnumbering those lost in the manufacturing of internal combustion engine buses (13,537). Other socioeconomic variables, including income, value added and tax revenue, present better performance in the scenario with green productive development policies (Barassa et al., 2022). This case study illustrates that green productive development policies are the strategic link for green investments (in this case, in electric buses) to generate socioeconomic gains alongside environmental benefits.

In effect, the resurgence of industrial policies worldwide over the last few years has been characterized, among other elements, by an explicit consideration of climate change and environmental sustainability (ECLAC, 2024b). Beyond the national policymaking arena, the topic has become prominent in international forums, including the G20 Rio de Janeiro Leaders' Declaration (2024), in which consensus was reached on green productive development policies for the first time ever, with the declaration expressing the need to scale up public and private climate finance and investment for developing countries while accelerating broadly accessible technological innovation, enhancing resilience and low greenhouse gas emissions pathways and supporting ambitious green industrial plans and strategies.

Various Latin American countries have set out to formulate "green" or "sustainable" productive development policies. Section A of the present chapter presents a conceptual and methodological framework for analysing green and inclusive productive development policies. Section B reviews national productive development policies in selected Latin American and Caribbean countries in the light of climate goals and commitments. Findings related to challenges and opportunities for green and inclusive productive development policies are presented in Section C. Section D concludes and provides policy recommendations.

A. Conceptual and methodological framework

ECLAC (2024a) emphasizes that escaping the three development traps and avoiding the worst impacts of climate change require the Latin American and Caribbean countries to change their development style, for which 11 vital transformations are proposed, including a great productive transformation for higher, sustained, inclusive and sustainable growth based on scaling up and improving productive development policies, and a great transformation to boost sustainability and combat climate change. Considering that mobilizing transformative investments is a necessary condition for productive transformation, ECLAC developed a renewed approach termed the big push for sustainability (Gramkow, 2019) to support the countries of the region in unlocking and mobilizing strategic investments as they seek to build new development styles that can deliver a more productive, inclusive and sustainable future. The big push for sustainability is an approach focused on investments, owing both to their short-term role in boosting the economy, income and jobs and their potential for long-term transformation. Ultimately, today's investments shape tomorrow's production structure, with the quantity and quality of investments determining how capable the economy is of generating quality jobs, competitiveness and productivity and whether economic activity will be polluting or environmentally friendly.

Put simply, the big push for sustainability approach posits a need to coordinate the public and corporate, national and subnational, sectoral, fiscal, regulatory, financial, planning and other policies required to unlock the scale and mix of investments

necessary to transform development styles. Investments ranging from 3.7% to 4.9% of regional GDP are required for the climate transition alone (ECLAC, 2023), which illustrates the magnitude of the investments that need to be mobilized. This approach also holds that a carefully composed investment mix is necessary, given that individual investment projects are only viable if they are coordinated simultaneously with parallel and complementary investments in other sectors. For instance, investments in electric vehicles only become economically viable if there are also investments in recharging infrastructure, and vice versa.

ECLAC (2024a) identifies a portfolio of 14 strategic or transformative driving sectors.² These sectors are strategic areas for productive development because of their alignment with the countries' potential competitive advantages, their potential to boost growth and productivity by spurring innovation, fostering economic diversification and technological upgrading, and promoting decent job creation, and their favourable impact on decarbonization and environmentally friendly production. The growth- and productivity-enhancing characteristics of these sectors mean that they have the potential to contribute decisively to a productive transformation in the desired direction, including an orientation towards greater inclusiveness and environmental sustainability. ECLAC (2022) estimates that a coordinated combination of policies, including economic incentives and regulation, can drive investments to accelerate share of non-conventional renewables in the energy matrix, sustainable mobility (with emphasis on electromobility), the bioeconomy (sustainability based on biological resources and natural ecosystems), the digital transformation, the healthcare manufacturing industry, the circular economy (focused on recycling) and the care economy. The projected impacts of the big push for sustainability scenario include an acceleration of regional GDP (5.2% higher in 2030) driving increases in employment (up 3.4% by 2030, representing 10.4 million additional jobs) and total annual wages paid to workers (up 6.9% by 2030), and a substantial reduction in greenhouse gas emissions (down 34.2% by 2030, which is greater than the climate commitments made by the Latin American and Caribbean countries in their nationally determined contributions (NDCs)).

The formulation and implementation of green and inclusive productive development policies stand out as a major cross-cutting area across the portfolio of strategic sectors and related investments that can help Latin America and the Caribbean escape the three development traps and address the climate emergency. Economic complexity, meaning the amount of knowledge that is embedded in the productive structure of a given economy (Hausmann et al., 2011), can be understood as the productive, innovative and technological capabilities that an economy possesses. The greater an economy's complexity, the greater its array of capabilities. In addition to its widely documented long-term economic growth impact, economic complexity has been increasingly associated with social and environmental benefits. Hidalgo and Hausmann (2009) and Felipe et al. (2012) connected high economic complexity with high per capita income growth, while Hartmann et al. (2017) showed that economic complexity was negatively correlated with income inequality. Put differently, increasing economic complexity can help Latin America and the Caribbean escape both the low growth capacity trap and the trap of highly unequal development. In addition, recent evidence points to the production of complex goods being associated with lower emissions, in terms both of greenhouse gas emission intensity and per capita greenhouse gas emissions (Romero and Gramkow, 2021). This evidence suggests that complex economies

² These are: (i) the energy transition (renewable energy, green hydrogen, lithium); (ii) electromobility; (iii) the circular economy; (iv) the bioeconomy, genetic resources and bioindustrialization; (v) sustainable agriculture and food security; (vi) sustainable water management; (vii) sustainable tourism; (viii) the pharmaceutical and life sciences industry; (ix) the medical devices industry; (x) advanced manufacturing; (xi) exports of modern services or services based on information and communication technologies (ICTs); (xii) the care society; (xiii) labour-intensive services; and (xiv) digital government. In addition, the opportunities arising from the geographical rearrangement of production and value chains worldwide are to be taken into account.

present productive, technological and innovative capabilities that not only result in the kind of economic diversification and upgrading needed to escape from the low growth and high inequality development traps, but that can also help reduce pollution and increase the efficiency of goods production, not least via the development and adoption of green technologies. These findings show that cross-cutting investments in such capabilities across the portfolio of strategic transformation sectors are critical to promote sustainable development in its three dimensions (economic, social and environmental) and underscore the importance of green and inclusive productive development policies in driving a more productive, inclusive and sustainable future in the Latin America and Caribbean region.

There is no consensus definition of what an industrial or productive development policy is (for an overview, see Warwick, 2013 and OECD, 2024). Rodrik (2014) frames green industrial policy as the use of industrial policy to facilitate green growth, i.e. to promote the development and adoption of green technologies. For Altenburg and Assman (2017), green industrial policy is about providing incentives to adapt the structure of a national economy in such a way that it can take advantage of likely changes related to climate change mitigation and other ecological challenges as long-term technology and market development trends. According to the independent report of the Group of Experts that advised the G20 Taskforce on Global Mobilization against Climate Change (Mazzucato et al., 2024), green industrial strategy is a strategic effort by the State to encourage the structural transformation of the economy with a view to enhancing productivity and competitiveness while delivering on social and environmental objectives.

This chapter employs the ECLAC (2024b) definition of productive development policies as horizontal and vertical efforts aimed directly at upgrading, diversifying and driving positive structural change in the economy as a vehicle for increasing productivity and thereby achieving more productive, sustainable and inclusive development. Green and inclusive productive development policies constitute a subset of such policies that promote the development or adoption of green technologies whilst fostering productive inclusion. In this context, the development or adoption of “green technologies” can be understood, following the *Oslo Manual 2018* (OECD and Eurostat, 2018), as a new or improved product or process (or combination thereof) that differs significantly from previous products or processes, that has been made available to potential users (product) or brought into use (process), and that reduces negative environmental impacts or delivers environmental benefits.

There is now a new productive development policy landscape characterized not only by a resurgence of these policies, but also by the diversity of their rationales, framing and instruments compared to previous generations of industrial policies (Salazar-Xirinachs and Llinás, 2023; ECLAC, 2024a and 2024b). In particular, a growing number of countries have announced a new generation of productive development policies that explicitly seek to combat climate change and promote environmental sustainability. Latin America and the Caribbean is no exception to this trend.

B. Green and inclusive productive development policies in Latin America and the Caribbean

This section reviews national productive development policies in selected Latin American and Caribbean countries to analyse the extent to which they are aligned with climate policies in promoting green and inclusive productive development and in achieving climate goals. It does so by analysing whether selected elements of climate commitments under

the Paris Agreement, notably NDCs, are addressed in these policies. The analysis will contribute to a better understanding of the degree to which productive development policies are fostering decarbonization and helping achieve climate goals as well as the degree to which NDCs incorporate productive development elements. In-depth study is important to analyse whether the design and implementation of green and inclusive productive development policies match best practices, whether they are supported by adequate institutional capacities and whether they are yielding effective results. Accordingly, the analysis in this chapter can be seen as a primer for what should be a more in-depth research agenda dealing with green and inclusive productive development policies in the region.

1. Methodological approach

The method employed is based on the report produced by ECLAC for G20 (Lorenzo et al., 2025). It consists in reviewing selected national productive development policies in the light of predetermined elements of climate commitments under the Paris Agreement, particularly NDCs. This method makes it possible to objectively analyse the elements of the Paris Agreement and NDCs that are included (or not) in the selected policies, thereby establishing whether there are material links between them.

Four countries, namely Brazil, Chile, Colombia and Mexico, were included in the analysis because they presented both an up-to-date NDC (i.e. an NDC submitted since 2020) and recent and overarching national productive development policies.³ Notably, in all four cases the policies are at an early stage, with their specific instruments and other details under development.

In the case of Brazil, the New Industry Brazil – Neoliberalization Action Plan 2024–2026 was considered. New Industry Brazil is the overarching productive development policy in Brazil that seeks to stimulate technical progress and, consequently, national productivity and competitiveness, generating quality jobs; make better use of the country's competitive advantages; and reposition Brazil in international trade. It is structured around six missions: (i) sustainable and digital agro-industry chains for food, nutritional and energy security; (ii) a resilient health industrial-economic complex to reduce public health system vulnerabilities and expand access to health; (iii) sustainable infrastructure, sanitation, housing and mobility for productive integration and well-being in cities; (iv) digital transformation of industry to increase productivity; (v) bioeconomy, decarbonization and the energy transition and security to guarantee resources for future generations; and (vi) technologies relevant to national sovereignty and defence. Each of these contains specific objectives, aspirational goals, priority areas and instruments grouped into three categories: financing, public procurement and the business environment.

In the case of Chile, the Sustainable Productive Development Programme, launched in 2023, was considered. This productive development policy seeks to advance sustainability, improve the competitiveness of various sectors and promote production activities that are more intensive in knowledge, technology and innovation. Additionally, the Sustainable Productive Development Programme aims to promote sustainable and inclusive productive development by incorporating higher levels of knowledge, innovation and technology into productive activities. It includes, among other elements, the National Lithium Strategy and the Green Hydrogen Action Plan 2023–2030.

³ Although the four countries included in this analysis are not a representative sample of the 33 countries in Latin America and the Caribbean, they accounted for over 70% of the region's GDP in 2023, according to the CEPALSTAT database.

In the case of Colombia, the National Reindustrialization Policy was considered. This covers the period from 2024 to 2034 and seeks to increase the generation of value added in the production of goods and services in the economic sectors that make up the productive base of the Colombian economy, with a view to moving from an economy dependent on extractive activities to one that is based on knowledge, that is productive, sustainable and inclusive, that contributes to territorial development and that helps to close productivity gaps. It focuses on five strategic priorities, one of them cross-cutting and relating to the productive priorities of the country's territories, and four intersectoral and national in scope: (i) a just energy transition; (ii) agro-industry and food sovereignty, including the development of the bioeconomy; (iii) reindustrialization based on the health sector; and (iv) reindustrialization based on the defence for life sector.

In the case of Mexico, the policy considered was the Strategy of Equitable and Sustainable Economic Development for Shared Prosperity (Plan Mexico), whose first draft was released in January 2025. This new policy represents Mexico's long-term regional development plan and is aimed at positioning the country as one of the world's top 10 economies by promoting nearshoring, increasing local and regional content, relaunching the "Hecho en México" ("Made in Mexico") programme, creating well-paid jobs in the manufacturing and services sectors, increasing higher value added supply, promoting development and well-being hubs based on regional specializations, expanding access to education in areas related to the development plan, strengthening the development of science, technology and innovation, and driving the continent's integration.

The four productive development policies present marked differences in their rationales, formats and stages of formulation, stemming from heterogeneous institutional settings, diverse economic structures and plural policymaking processes. To allow of comparison, the analysis was based on common elements and features of climate commitments under the Paris Agreement that could be present in the selected productive development policies, with a focus on NDCs. The following groups were included:

- **Mitigation.** This group of elements involves measures to reduce emissions or enhance sinks for greenhouse gases. The following features of mitigation targets were considered: target type (absolute or relative), mitigation time frame, net zero target, coal phase-down and carbon removal and storage.
- **Adaptation.** This group encompasses processes of adjustment to actual or expected climate conditions and their effects, aimed at moderating harm or exploiting beneficial opportunities. The adaptation features considered include adaptation plan or measures, climate-related vulnerabilities and risks, adaptation options, needs or priorities, and sectoral targets or measures.
- **Mitigation co-benefits and fairness considerations.** This group addresses mitigation co-benefits from adaptation or mitigation (the positive effects that a policy or measure aimed at one objective has on another objective, thereby increasing the total benefit to society or the environment), productive development co-benefits related to mitigation or adaptation, and just transition and equity concerns.
- **Means of implementation, mechanisms and instruments.** This group encompasses means of implementation, mechanisms and instruments established in the climate commitments under the Paris Agreement, notably NDCs. Elements included in the conceptual basis for productive development set out by ECLAC were also analysed. The following features were considered: long-term low-emission development strategies (LT-LEDS), productive development

policy instruments and mechanisms identified by ECLAC (2024b)⁴ in relation to climate mitigation or adaptation, and sectoral policies related to a subset of the aforementioned driving sectors that are closely associated with mitigation or adaptation.⁵

- **Governance.** This group of elements is related to governance aspects identified in NDCs, which include institutional arrangements, citizen participation, the enhanced transparency mechanism (ETM) and monitoring, reporting and verification (MRV).

For the purposes of objective analysis of the relationship between the selected productive development policies and climate policy (NDC) elements, the link could be explicit and direct, implicit and indirect, or non-existent (neither explicit nor implicit). It could also be the case that a given country's NDC does not address the selected elements and features, in which case the element in question could either not be part of the NDC and not be mentioned in the policy, or not be part of the NDC but be mentioned in the policy. More details can be found in annex IV.A1.

This analysis resulted in an objective matrix mapping the extent to which each element analysed is considered in each plan, thereby facilitating comparative analysis. An illustrative results matrix is shown in annex IV.A2.

2. Findings and analysis

This subsection presents and analyses the findings on the extent to which productive development policies in the four countries are aligned with their respective NDCs.

The results show that all the policies considered in the analysis present explicit or implicit links with NDCs, or both, with most being implicit and indirect. Mitigation-related links are dominant, whereas there are far fewer links in the area of adaptation. While most of the productive development policies analysed consider productive development co-benefits related to mitigation, adaptation or both, these are not reflected in NDCs.

(a) Mitigation

The findings show that one of the policies analysed makes explicit mention of an economy-wide mitigation target (Colombia's National Reindustrialization Policy), whereas in those of the three remaining countries (New Industry Brazil, Chile's Sustainable Productive Development Programme and Plan Mexico), this target is left implicit (see table IV.1). The three countries (Brazil, Chile and Colombia) that included an economy-wide net zero target in their NDCs present it implicitly in their productive development policies. This means that two of the most important climate policy elements related to the Paris Agreement goal of keeping global warming well below 2 °C, namely economy-wide greenhouse gas emission mitigation targets and the ultimate attainment of a net zero economy, are implicit or absent, respectively, in most of the productive development policies analysed. This finding is indicative of fragility in the alignment of productive development policies with climate goals. The lack of explicit

⁴ Science, technology and innovation; technology extension; entrepreneurship; digital transformation; closure of human resource gaps; financing; investment; specific infrastructure and other specific public goods; regulatory agendas and specific regulations; internationalization; and carbon pricing.

⁵ Advanced manufacturing; modern or ICT-enabled services exports; the care society; the energy transition; sustainable mobility; the circular economy; the bioeconomy; agriculture; sustainable water management; and sustainable tourism.

consideration of mitigation objectives implies that efforts to promote green productive development may not be great enough or rapid enough to contribute to national climate goals.

Table IV.1
Latin America
(4 countries): mitigation

	Brazil	Chile	Colombia	Mexico
Target type: absolute (compared to historical base year)				
Target type: relative (compared to business-as-usual emissions or greenhouse gas intensity)				
Economy-wide 2030 target				
Economy-wide 2050 target				
Economy-wide net zero target				
Sectoral targets or measures: energy				
Sectoral targets or measures: transport				
Sectoral targets or measures: industry				
Sectoral targets or measures: agriculture				
Sectoral targets or measures: waste				
Sectoral targets or measures: LULUCF				
Coal phase-down				
Carbon capture and storage				

- Explicit and direct link to the NDC in the productive development policy
- Implicit and indirect link to the NDC in the productive development policy
- No reference to the NDC in the productive development policy
- Not part of the NDC and not mentioned in the productive development policy
- Not part of the NDC but mentioned in the productive development policy

Source: Economic Commission for Latin America and the Caribbean.

Meanwhile, most sectoral targets or measures are explicitly considered in productive development policies. In the energy, transport and waste sectors, all sectoral targets or measures are explicitly mentioned in these policies. In the case of Brazil, both the NDC and the productive development policy deal directly with new energy sources, such as sustainable aviation fuels, green diesel and hydrogen, wind turbines and photovoltaic solar panels, electric and hybrid vehicles and the circular economy. In Chile's case, hydrogen, electric vehicles and the circular economy are likewise mentioned explicitly in both the NDC and the productive development policy. Both Colombia's NDC and its productive development policy refer directly to the electric vehicle target (of 600,000 units), the use of non-conventional renewable energy sources and the circular economy. In the case of Mexico, the clean energy, electromobility and solid waste management targets and measures of the NDC are explicitly mentioned in the productive development policy.

Less alignment between productive development policies and NDCs was found for targets or measures in the other sectors (industry, agriculture, and land use, land-use change and forestry (LULUCF)), although there is an explicit link for these sectors in 75% of the countries. With regard to the industrial sector, Brazil's productive development policy explicitly mentions the industrial sector mitigation plan, Chile's productive development policy presents implicit links, Colombia's productive development policy explicitly presents sectoral mitigation measures in the iron and steel, minerals, vehicles, mobility, metalworking, biotechnology and agrifood sectors, and Mexico's productive development policy explicitly states that strategic sectors were selected in part on the basis of their potential to promote clean energy or emission reduction. Regarding agriculture, there are explicit links in the case of Brazil (reference to the Sectoral Plan for Adaptation to Climate Change and Low Carbon Emissions in Agriculture), Colombia (reference to regenerative agriculture and livestock and use of biomass) and Mexico (reference to export permits being subject to compliance with

environmental law), while in the case of Chile there is a mention of fertilizers based on green hydrogen in the productive development policy which is not reflected as a target or measure in the country's NDC. In relation to LULUCF, Brazil's NDC explicitly refers to recovery of degraded land and Colombia's productive development policy to the reduction of deforestation, while Chile's and Mexico's productive development policies do not refer to their NDC targets or measures in the LULUCF sector. This finding shows that, although alignment between productive development policies and NDCs is greater at the sectoral level than at the aggregate (national) level, there is significant room to improve the explicit incorporation of sectoral mitigation targets or measures to which countries have committed in their NDCs into their productive development policies.

As regards coal phase-down, an outcome of the twenty-eighth session of the Conference of the Parties to the United Nations Framework Convention on Climate Change, in most of the countries (75%), neither NDCs nor productive development policies refer to it. This result might have to do with the political economy of climate change, whereby it is politically acceptable to foster the productive development of new sectors and areas but can be politically sensitive to induce the necessary reduction in the scale of production and use of coal and fossil fuels to achieve climate mitigation goals.

With respect to carbon capture and storage (CCS), although most NDCs do not contemplate specific targets or measures, most productive development policies make explicit reference to this group of technologies and practices. This finding may suggest that CCS is perceived as an economic opportunity for the region that has not yet materialized as a formal climate commitment under NDCs.

Taken all together, these findings highlight how much potential there is to improve the consistency of productive development policies with climate mitigation targets and goals.

(b) Adaptation

The findings show that most adaptation elements present in the NDCs of the countries analysed are not reflected in their productive development policies, be it explicitly or implicitly (see table IV.2). Only one productive development policy (Brazil's) makes explicit mention of an adaptation plan or measure, while one (Colombia's) contains an implicit reference and half the countries' productive development policies (i.e. Chile's and Mexico's) make no such reference at all. None of the productive development policies includes sectoral adaptation targets or measures. Furthermore, no productive development policy makes any mention, direct or indirect, of adaptation options, needs or priorities.

The weak connection between adaptation and productive development policies represents a missed opportunity for green productive development, since adaptation-related technologies and solutions (e.g. early warning systems, advanced weather forecasting systems, drought-resistant crops, forest fire combating techniques, flood management systems) are a fruitful field for development that remains outside the scope of current productive development policies. The fragile incorporation of climate-related vulnerabilities and risks into productive development policies may also represent risks for long-term productive development, since climate change impacts, including extreme events that may damage or destroy production capacity (such as severe storms, flooding and landslides), are not taken into account.

Table IV.2
Latin America
(4 countries): adaptation

	Brazil	Chile	Colombia	Mexico
Adaptation plan or measure				
Climate-related vulnerabilities and risks				
Adaptation options, needs and priorities				
Sectoral targets or measures: ecosystem and biodiversity				
Sectoral targets or measures: water, coastal zones and sanitation				
Sectoral targets or measures: agriculture and forestry				
Sectoral targets or measures: cities and housing				
Sectoral targets or measures: energy				
Sectoral targets or measures: tourism and commerce				
Sectoral targets or measures: mining				
Sectoral targets or measures: health				

- Explicit and direct link to the NDC in the productive development policy
- Implicit and indirect link to the NDC in the productive development policy
- No reference to the NDC in the productive development policy
- Not part of the NDC and not mentioned in the productive development policy
- Not part of the NDC but mentioned in the productive development policy

Source: Economic Commission for Latin America and the Caribbean.

(c) Co-benefits and fairness considerations

The findings show that the productive development policies do not consider links to co-benefits from adaptation or mitigation as per the NDCs, either explicitly or implicitly (see table IV.3). However, all four productive development policies mention productive development co-benefits related to mitigation or adaptation, although this specific co-benefit is not addressed in most of the NDCs, the exception being Brazil's. This finding suggests that the NDCs could themselves benefit from incorporating productive development aspects, especially where co-benefits are concerned. Indeed, many of the socioeconomic benefits of green and inclusive productive development policies that relieve external constraints on long-run economic growth, from job creation to income generation, productivity gains, export diversification and technological upgrading, could be explicitly incorporated into NDCs as relevant co-benefits for non-annex 1 countries (i.e. middle- and low-income countries).

Regarding just transition and equity concerns, half the productive development policies (Chile's and Colombia's) present an explicit link with these elements of the NDCs, whereas in one productive development policy (Brazil's) the link is implicit and in another (Mexico's) there is no link. As this aspect is fundamental to efforts to promote productive inclusion and address the high inequality trap, these links should be made more explicit throughout NDCs and productive development policies. Green and inclusive productive development policies could contribute significantly to a just transition by fostering the development of production sectors capable of creating jobs that support the incorporation of individuals into formal, well-paid and decent work.

Table IV.3
Latin America
(4 countries):
co-benefits and fairness

	Brazil	Chile	Colombia	Mexico
Co-benefits from adaptation or mitigation				
Productive development co-benefits related to mitigation or adaptation				
Just transition and equity concerns				

- Explicit and direct link to the NDC in the productive development policy
- Implicit and indirect link to the NDC in the productive development policy
- No reference to the NDC in the productive development policy
- Not part of the NDC and not mentioned in the productive development policy
- Not part of the NDC but mentioned in the productive development policy

Source: Economic Commission for Latin America and the Caribbean.

(d) Means of implementation, mechanisms and instruments

Regarding the means of implementation, long-term low-emission development strategies (LT-LEDS) are not part of any productive development policy, either explicitly or implicitly, and are not referred to in half the NDCs analysed. This finding might reflect the increasing lack of a long-term perspective in policymaking in Latin America and the Caribbean, which could hinder decarbonization of the region's countries, given that the climate agenda presents a relatively long-time horizon extending until the end of the century.

With respect to mechanisms and instruments, it is noteworthy that all the productive development policies analysed refer to climate-related productive development policy mechanisms and instruments (see table IV.4). However, only one NDC (Brazil's) makes an explicit reference to mechanisms and instruments of this type that are also included in the country's productive development policy, which again points to the necessity of strengthening productive development policy elements in NDCs and vice-versa. To take more specific instances of productive development policy instruments related to mitigation or adaptation, all four productive development policies deal with investment related to climate change mitigation or adaptation, with Brazil's productive development policy referring to the attraction of investments into infant industries under Mission 5 (the bioeconomy, decarbonization, the energy transition and energy security to guarantee resources for future generations), while Chile's mentions incentives for investments in decarbonization, Colombia's cites a programme of incentives for renewable energy investment and Mexico's refers to the promotion of investment on environmental, social and governance (ESG) principles in water reuse, clean energy, solid waste management and community impact. Three productive development policies contain instruments relating to science, technology and innovation and to human talent gaps. In this context, Brazil's productive development policy makes mention of increasing academic, private and international financing partnerships for applied research, incentivizing technological innovation for decarbonization, stimulating occupational training with a focus on the bioeconomy and the energy transition and efficiency, and developing green technology pathways, among other things. Chile's productive development policy mentions strengthening and upgrading the country's production matrix while promoting R&D, regional development, the generation of new economic activities, and innovation and entrepreneurship, with a focus on making the country's productive development more socially and environmentally sustainable. Colombia's productive development policy refers to the application of instruments for strengthening and accelerating innovative science- and technology-based ventures in the priority areas identified by the reindustrialization policy, boosting human capabilities within the just energy transition priority and creating incentives for renewable energy investments targeted at manufacturing sectors, among others. Most of the productive development policies analysed are linked to climate mitigation or adaptation financing.

Technology extension services, digital transformation and infrastructure mechanisms and instruments are present in neither the NDCs nor the productive development policies of half the countries analysed. All four productive development policies contain climate-related regulatory and internationalization instruments, few of them reflected in the countries' NDCs, with Brazil's productive development policy providing for improvements in the regulation of reverse logistics and harmonization of legislation between federal levels, Chile's describing green hydrogen development standards, Colombia's citing regulatory mechanisms for bioinput business models and Mexico's mentioning government licensing when environmental and social impact assessment takes place.

Regarding carbon pricing, it is explicitly mentioned in Brazil's productive development policy (carbon market), implicitly mentioned in Colombia's productive development policy (carbon pricing), not mentioned in Mexico's productive development policy (emissions

trading system) and not considered in either the NDC or the productive development policy of Chile. This finding shows that carbon pricing mechanisms have not been fully incorporated as part of productive development policy frameworks in the Latin America and Caribbean region. There are opportunities for further synergies in this regard, in the way that in the European Union, for instance, the revenues raised from carbon trading (i.e. the European Union Emissions Trading System) are partly used to fund research, technology development and innovation (via the Innovation Fund).

Table IV.4
Latin America
(4 countries): means
of implementation,
mechanisms and
instruments

	Brazil	Chile	Colombia	Mexico
Long-term low-emission development strategies (LT-LEDS)				
Productive development policy instruments and mechanisms				
Science, technology and innovation related to climate mitigation or adaptation				
Technology extension services related to climate mitigation or adaptation				
Digital transformation related to climate mitigation or adaptation				
Entrepreneurship related to climate mitigation or adaptation				
Human talent gaps related to climate mitigation or adaptation				
Financing related to climate mitigation or adaptation				
Investment related to climate mitigation or adaptation				
Infrastructure and other specific public goods related to climate mitigation or adaptation				
Regulatory agendas related to climate mitigation or adaptation				
Internationalization related to climate mitigation or adaptation				
Carbon pricing mechanisms				

	Explicit and direct link to the NDC in the productive development policy
	Implicit and indirect link to the NDC in the productive development policy
	No reference to the NDC in the productive development policy
	Not part of the NDC and not mentioned in the productive development policy
	Not part of the NDC but mentioned in the productive development policy

Source: Economic Commission for Latin America and the Caribbean.

It is noteworthy that one of the key technology development and adoption instruments within the climate policy framework associated with productive development policies, namely technology needs assessments (TNAs),⁶ is neither implicitly nor explicitly mentioned in any of the productive development policies analysed. There is thus scope to improve coordination between climate policy and productive development policies in this field. TNAs not only identify and prioritize the technologies needed for climate change adaptation and mitigation in different sectors of developing countries, but also map bottlenecks and what is needed to address them in terms of the development, transfer and adoption of these technologies, via technology action plans or in some other way. Hence, enhancing coordination between TNAs and productive development policies is fundamental for green and inclusive productive development.

Regarding the portfolio proposed by ECLAC of driving sectors that contribute to mitigation or adaptation, all the productive development policies and NDCs contain explicit mention of the energy transition, sustainable mobility, the circular economy and the bioeconomy (see table IV.5). Most also include agriculture and sustainable water management. The fact that all the productive development policies cover the aforementioned “green” sectors (i.e. sectors that in one way or another contribute directly to environmental sustainability) is not surprising, given that the productive development policies examined are self-proclaimedly “green” or sustainable.

⁶ TNAs are based on approaches for identifying and prioritizing the technologies needed for climate change adaptation and mitigation in different sectors of developing countries.

However, none of the NDCs or productive development policies mentions the care sector, which is relevant in the context of adaptation and resilience, since demand for paid and unpaid care will rise with the increasing frequency of extreme weather events and the spread of vector-borne diseases associated with climate change. This result is consistent with the finding that productive development policies have not yet fully embraced the issue of adaptation and indicates that there are considerable opportunities to strengthen the explicit links between productive development policies and NDCs when it comes to sectors related to the care society.

No NDC refers to advanced manufacturing (which is important for circular economy production plants, for instance) or modern or ICT-enabled services (which are important for decarbonization, examples being services employed in precision agriculture, including advanced weather forecasting), but these are present in either one or two of the productive development policies analysed.

	Brazil	Chile	Colombia	Mexico
Advanced manufacturing related to climate mitigation, adaptation or sustainability				
Modern or ICT-enabled service exports related to climate mitigation, adaptation or sustainability				
Care services related to climate mitigation, adaptation or sustainability				
Energy transition				
Sustainable mobility				
Circular economy				
Bioeconomy				
Agriculture				
Sustainable water management				
Sustainable tourism				

- Explicit and direct link to the NDC in the productive development policy
- Implicit and indirect link to the NDC in the productive development policy
- No reference to the NDC in the productive development policy
- Not part of the NDC and not mentioned in the productive development policy
- Not part of the NDC but mentioned in the productive development policy

Source: Economic Commission for Latin America and the Caribbean.

Table IV.5
Latin America
(4 countries):
driving sectors for
a great productive
transformation

(e) Governance

The results reveal that the institutional arrangements described in most of the productive development policies do not relate to climate governance elements as per the NDCs, which means that there is an opportunity for coordination and creation of synergies between productive development and climate policies (see table IV.6). Citizen participation is limited, and most productive development policies do not have monitoring, reporting and verification (MRV) provisions.

	Brazil	Chile	Colombia	Mexico
Institutional arrangements				
Citizen participation				
Enhanced transparency mechanism (ETM)				
Monitoring, reporting and verification (MRV)				

- Explicit and direct link to the NDC in the productive development policy
- Implicit and indirect link to the NDC in the productive development policy
- No reference to the NDC in the productive development policy
- Not part of the NDC and not mentioned in the productive development policy
- Not part of the NDC but mentioned in the productive development policy

Source: Economic Commission for Latin America and the Caribbean.

Table IV.6
Latin America
(4 countries): governance

C. Challenges and opportunities for green and inclusive productive development policies

The fast-moving green technology race is increasingly shaping the new geopolitical and economic order of trade and energy security measures. The current situation is characterized by a paradigm shift in the role played by sustainable low-carbon technologies and practices in business models and in countries' competitiveness. As nations strive to reduce their carbon emissions and move towards a more sustainable economy, green goods and services are becoming more important, with repercussions for international trade dynamics. Green patent filings, for example, grew 26-fold from 1990 to 2018, and thus at a much higher rate than total patent filings (15-fold in the same period) (ECLAC and CNI, 2023). Meanwhile, the products that have been the primary focus of green patent filings already account for more than half of world goods exports, indicating an emerging "greening" of the global pattern of trade competitiveness (ECLAC and CNI, 2023).

Aligned NDCs and productive development policies can play a strategic role in fostering green and inclusive productive development in Latin America and the Caribbean. Strengthening the coordination of productive development and climate policy frameworks (including objectives, targets, instruments, mechanisms and governance) can put the Latin America and Caribbean region on course to become a green powerhouse and a leader in various sustainable low-carbon technologies and solutions. In other words, it is possible for the region to emerge in this field, but without public policy coordination, it will not be able to fulfil its potentially substantial role.

The findings of the present analysis reveal a myriad of opportunities to increase coordination and promote synergies between productive development policies and NDCs, thereby creating a more coherent and consistent policy framework, in line with the conditions needed to initiate a big push for sustainability in the Latin America and Caribbean region. The results reveal the absence of explicit and direct consideration of mitigation goals in productive development policies and very fragile (either indirect and implicit or non-existent) links to adaptation, both at the national (aggregate) level and at the sectoral level, which indicates that green productive development efforts are not necessarily in tune with climate commitments. These findings underscore the need for productive development policies to better incorporate the mitigation and adaptation elements of established national climate commitments, thereby generating more robust green and inclusive productive development policies that contribute more effectively to the achievement of national climate goals.

Although most mitigation-related driving sectors of the big push for sustainability (the energy transition, sustainable mobility, the circular economy and the bioeconomy) are present in productive development policies, there remains significant room to strengthen coordination between the sectoral targets and measures of NDCs and productive development policies. As regards adaptation, there are considerable opportunities to introduce green productive development technologies and solutions, such as early warning systems, advanced weather forecasting systems, drought-resistant crops, techniques for combating forest fires and flood management systems.

Likewise, there could be benefits to NDCs explicitly incorporating elements of green and inclusive productive development policies, i.e. the productive development co-benefits referred to throughout this chapter. As argued in sections A and B, by explicitly incorporating the productive development dimension, climate policies would be better framed and aligned with development policies, indeed acting as development

policies themselves, since productive development is the strategic factor that allows green, sustainable investments to translate into socioeconomic gains that can help obviate the low growth trap and the high inequality trap simultaneously, thereby also contributing to a just transition.

Taken all together, the findings of this chapter show that there is significant potential to make productive development policies more consistent with climate mitigation and adaptation targets and goals. In other words, productive development policies and NDCs could be strengthened and better aligned to position Latin America and the Caribbean as a strategic player and a key provider of sustainable, low-carbon solutions in a global economy that is increasingly defined by a new green competitiveness paradigm.

D. Final remarks and recommendations

The evidence for the magnitude of the economic and social consequences of climate inaction shows that failing to address the climate emergency would not be a wise strategy for Latin America and the Caribbean, since it would push the region further into the very development traps it is currently caught in. Moreover, not pursuing green and inclusive productive development policies could entail the risk of falling further behind in the global race for technological progress and competitiveness and in the “greening” patterns of global trade and competitiveness.

Conversely, the current moment presents the Latin America and Caribbean region with an opportunity for a big push for sustainability whereby the region could establish itself as a sustainable development powerhouse and a regional and global force for decarbonization and resilience. The State, industry, academia and civil society need to join forces to accelerate the transformation with the development and adoption of sustainable technological solutions.

Achieving a more productive, inclusive and sustainable future in Latin America and the Caribbean requires strengthened capacities to manage the economic transformation that is needed. As ECLAC (2024a) details, transformative management capabilities involve governance, the technical, operational, political and prospective (TOPP) capabilities of institutions, political economy and spaces for social dialogue.

At the national level, there is significant room for productive development policies to better align with NDCs and climate goals and vice versa (see section C for details). A bolder and more coherent and robust policy framework would help create more clarity and certainty for investors and development partners, which could be a major asset for Latin America and the Caribbean in the present context of increased conflict and uncertainty in other world regions. Established governance structures (including the Interministerial Committee on Climate Change in Brazil, the Council of Ministers for Sustainability and Climate Change in Chile, the Intersectoral Commission on Climate Change in Colombia and the Interministerial Commission on Climate Change in Mexico) are established institutional spaces that could perform the role of building broadly shared visions and coalitions, but they should be better integrated with productive development policies and long-term development planning efforts. At the subnational level, cluster and other productive articulation initiatives could be important spaces in this dimension, including the ECLAC-led Platform for Cluster and Other Territorial Productive Articulation Initiatives in Latin America and the Caribbean and Network of Subnational Governments for Productive Development in Latin America and the Caribbean.

At the regional level, the Latin American and Caribbean countries have a unique opportunity to advance green and inclusive productive development by strengthening regional integration and cooperation through more coordinated productive development

policies. A regional market at scale would contribute to the economic viability of sectors that require complementarities and a minimum scale to operate. Regional content requirements, acting as complements to national content requirements, could serve as a catalyst of regional productive integration. “Green” value chains present key complementarities in the Latin America and Caribbean region, with some countries having substantial strategic mineral reserves, for instance, whereas others have the manufacturing capabilities to produce electric vehicles. Developing common technical specifications and regulations for products like electric buses is essential to advance integration. Furthermore, strengthened regional integration could help attract more external investments by reducing uncertainty. Common taxonomies for green or sustainable investments are important in this effort. Countries worldwide are seeking to diversify their energy sources with the aim of reducing dependence on fossil fuels and achieving a stable and sustainable energy supply. From this point of view, Latin America and the Caribbean is particularly well placed to attract investments focused on clean energy and to seek a greater role in the energy transition. Lastly, energy integration could reduce not only the cost of the energy transition but also the risks of intermittency commonly attributed to non-conventional renewable energy sources.

The Latin American and Caribbean countries could benefit from established regional coordination arrangements, including the following initiatives led by ECLAC: the Regional Technical Forum of Energy Planners (FOREPLEN), the Permanent Technical Dialogue Forum on Lithium Innovation, Technological Development and Value Addition, the Parliamentary Observatory on Climate Change and Just Transition (OPCC), the Conference on Science, Innovation and Information and Communications Technologies, the Platform for Cluster and Other Territorial Productive Articulation Initiatives in Latin America and the Caribbean, and the Network of Subnational Governments for Productive Development in Latin America and the Caribbean. Furthermore, the dialogue space provided by ECLAC and the United Nations Conference on Trade and Development (UNCTAD) as part of the technical cooperation project “Regional integration and industrial policy for transformational change and resilience in Latin America” could support the development of common regional perspectives, coalitions and capacity-building for green productive integration. The possibility of establishing sectoral governance bodies to work on regional green productive development agendas linked to specific green sectors or value chains should not be ruled out.

Potential governance improvements include better articulation and coordination of governance frameworks for productive development policies and climate policies. Governance aspects work in tandem with social dialogue spaces, which are also important capabilities for managing the vital transformations required. These spaces can be used to seek a rapprochement between the governance structures of productive development policies and climate policies. As the findings illustrate, these structures tend to be separate, which can hinder synergies and the achievement of common goals. The governance schemes of productive development policies and NDCs, which are currently almost completely separate and independent, should be more closely linked by explicitly including climate policy governance structures in productive development policy governance and vice versa. In the case of Brazil, for instance, New Industry Brazil explicitly provides for integration with the Interministerial Committee on Climate Change, and this is a practice that could be replicated in other countries. In Chile, the Committee of Ministers for Sustainable Productive Development has set a good example of governance oriented towards strategic guidance of State efforts in the areas of science, technology, innovation and entrepreneurship. At a more sectoral level, cluster initiatives or other productive articulation initiatives represent strategic opportunities to establish governance mechanisms that allow the actions of the key

players and actors to be coordinated around strategic agendas for sectors that can potentially provide clean technologies, but also to act as platforms that facilitate the adoption of green technologies in more traditional sectors.

Strengthening TOPP capabilities is necessary for effective management of the vital transformations needed (ECLAC, 2024a). In this regard, the findings suggest that technical and operational capacities that improved transparency, monitoring and evaluation, such as modern public management tools, could contribute to more effective policymaking. For instance, Colombia's National Climate Change System (SISCLIMA), which is presented in the country's NDC, could be used to monitor and evaluate progress in sectors pertaining to its productive development policy, particularly with regard to the energy transition. Furthermore, strengthening prospective capacities to better assimilate climate change scenarios is essential for enhanced NDCs and green and inclusive productive development policies, as this would make it possible to plan for risk management (e.g. in relation to extreme weather events) and take advantage of opportunities.

Lastly, the political economy of a transformation on the scale of the big push for sustainability requires efforts to strengthen coalitions and political capacities, including leadership capacities. The upcoming thirtieth session of the Conference of the Parties to the United Nations Framework Convention on Climate Change, which will be held in Brazil, could be a major opportunity for the Latin American and Caribbean countries to express their common views on shared objectives and strategies, particularly regarding green and inclusive productive development policies and climate finance as critical instruments of green industrial strategies and the green transition, in this important international arena. Especially relevant in this context are at least two recommendations that stem from Brazil's successful presidency of the G20 summit of 2024, when it forged a consensus on the need for ambitious green industrial planning and strategies, with a concomitant need to scale up public and private climate finance and investment for developing countries and accelerate broadly accessible technological innovation, enhancing resilience and low greenhouse gas emission pathways. First, it is necessary to scale up and meet the commitments established regarding climate finance flows. Although the Latin American and Caribbean countries contribute relatively little to global greenhouse gas emissions (some 10% of the annual total, according to ECLAC, 2023), the region is particularly vulnerable to their impacts (Alatorre et al., 2024) and presents major emissions abatement opportunities. Considering the principle of common but differentiated responsibilities in the Paris Agreement, it is vital for annex 1 countries (i.e. advanced economies) to deliver at least US\$ 300 billion annually for developing countries' climate action by 2035, as specified in the new collective quantified goal (NCQG) on climate finance. In addition, it is crucial for all actors to work together to scale up finance to developing countries from public and private sources to the amount of US\$ 1.3 trillion per year by 2035. Second, considering that a net zero global economy should be achieved by the end of the century if the Paris Agreement climate goals are met and that a just transition at the global, regional, national and subnational levels requires green and inclusive productive development policies, it is vital to accelerate technology transfers from annex 1 to non-annex 1 countries.

For the reasons set out, the present moment represents a unique window of opportunity for the Latin America and Caribbean region to pursue a big push for transformative investments aimed at a more productive, inclusive and sustainable future. By prioritizing green and inclusive productive development, the Latin America and Caribbean region could position itself globally as a standard-bearer in the provision and adoption of green solutions, building on its assets in the form of water, biodiversity, renewable energies, food production, ecotourism and others. Green and inclusive productive development policies represent an opportunity for the region to attain

international recognition as a platform for sustainable production, one whose goods and services could bear a sustainability hallmark, with a production system grounded in a clean energy mix, traceability and compliance with international environmental standards. The challenges ahead are not insignificant, but the potential benefits to be expected from this process certainly outweigh the effort required.

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Annex IV.A1

Methodological details

Table IV.A1.1

Criteria and search terms for the elements analysed

Element analysed	Explicit and direct link to NDC	Implicit and indirect link to NDC	Not part of NDC but mentioned in the policy
Mitigation			
Target type: absolute (compared to historical base year)	Absolute target, tonnes, MtCO ₂ e, Gg, CO ₂ e, carbon dioxide equivalent	Mitigation, reduce/reduction, peak, plateau, decline of emissions, decarbonize, decarbonization	n/a
Target type: relative (compared to business-as-usual emissions or greenhouse gas intensity)	Relative target, BAU, business-as-usual, "tendencial", intensity	Mitigation, reduce/reduction, peak, plateau, decline of emissions, decarbonize, decarbonization	n/a
Greenhouse gas coverage (all gases)	GHG, CO ₂ e, carbon dioxide equivalent, greenhouse gases	Carbon, CO ₂	n/a
Economy-wide 2025 target	2025	n/a	n/a
Economy-wide 2030 target	2030	n/a	n/a
Economy-wide 2035 target	2035	n/a	n/a
Economy-wide 2050 target	2050	n/a	n/a
Economy-wide net zero target	Net zero	Decarbonization	n/a
Sectoral targets and measures: energy	Energy target/plan/measure: renewable(s), wind, solar, hydrogen, energy efficiency, biomass, bioenergy	Energy	Energy target/plan/measure: renewable(s), wind, solar, hydrogen, energy efficiency, biomass, bioenergy
Sectoral targets and measures: transport	Transport target/plan/measure: electric/sustainable mobility, vehicle and/or bus; biofuel	Transport, mobility	Transport target/plan/measure: electric/sustainable mobility, vehicle and/or bus; biofuel
Sectoral targets and measures: industry	Industry target/plan/measure: manufacturing sector, industrial sector, industries	Industry	Industry target/plan/measure: manufacturing sector, industrial sector, industries
Sectoral targets and measures: agriculture	Agriculture target/plan/measure: fertilizer(s), methane	Agriculture	Agriculture target/plan/measure: fertilizer(s), methane
Sectoral targets and measures: waste	Waste target/plan/measure, circular economy target/plan/measure	Waste	Waste target/plan/measure, circular economy target/plan/measure
Sectoral targets and measures: land use, land-use change and forestry (LULUCF)	Land target/plan/measure: deforestation, afforestation, reforestation, recovery of degraded land/area	Land	Land target/plan/measure: deforestation, afforestation, reforestation, recovery of degraded land/area
Coal phase-down	Coal target/plan/measure	Coal	Coal target/plan/measure
Carbon removal and storage	Removal, capture, storage, CCS, BECCS	n/a	Removal, capture, storage, CCS, BECCS
Adaptation			
Adaptation plan or measure	National adaptation plan (NAP)	Adaptation, resilience	n/a
Climate-related vulnerabilities and risks	Precipitation, temperature, drought, flood, hurricane, storm, sea level	Vulnerable, vulnerability, exposure, exposed, loss(es), extreme weather event(s), disaster, climate risks, climate vulnerabilities	n/a
Adaptation options, needs and priorities	Adaptation options, needs, priorities	n/a	n/a
Sectoral targets and measures: ecosystem and biodiversity	Sectoral adaptation plan: biodiversity, ecosystem, forestry	Sectoral adaptation measure: biodiversity, ecosystem, forestry	n/a
Sectoral targets and measures: water, coastal zones, sanitation	Sectoral adaptation plan: water, coast, coastal, fisheries and aquaculture	Sectoral adaptation measure: water, coast, coastal	n/a
Sectoral targets and measures: agriculture, forestry	Sectoral adaptation plan: agriculture, rural, forestry	Sectoral adaptation measure: agriculture, rural, forestry	n/a
Sectoral targets and measures: cities, housing	Sectoral adaptation plan: cities, housing	Sectoral adaptation measure: cities, housing	n/a
Sectoral targets and measures: energy	Sectoral adaptation plan: energy	Sectoral adaptation measure: energy	n/a
Sectoral targets and measures: tourism, commerce	Sectoral adaptation plan: tourism	Sectoral adaptation measure: tourism	n/a
Sectoral targets and measures: mining	Sectoral adaptation plan: mining	Sectoral adaptation measure: mining	n/a
Sectoral targets and measures: health	Sectoral adaptation plan: health	Sectoral adaptation measure: health	n/a

Element analysed	Explicit and direct link to NDC	Implicit and indirect link to NDC	Not part of NDC but mentioned in the policy
Co-benefits and fairness considerations			
Co-benefits from adaptation or mitigation	Co-benefits from adaptation and/or mitigation: “beneficios secundarios”, economic benefits (e.g. income and productivity), social benefits (e.g. poverty reduction and equality)	n/a	n/a
Productive development co-benefits related to mitigation or adaptation	Upgrade, diversification, production, productive, productivity, industry, industrial related to mitigation and/or adaptation	n/a	Upgrade, diversification, production, productive, productivity, industry, industrial related to mitigation and/or adaptation; green growth, low-carbon, sustainable, green and/or clean technologies/policies
Just transition and equity concerns	Climate justice, just transition, fair transition, just decarbonization, common but differentiated responsibilities	Cross-cutting objectives: social inclusion, equality	n/a
Means of implementation, mechanisms and instruments			
Long-term low-emission development strategies (LT-LEDS)	Long-Term Low Emission Development Strategies (LT-LEDS)	Long-term plan/measure	Long-term plan/measure
Productive development policy instruments and mechanisms	Productive development and/or industrial development policy(ies)/strategy(ies)/plan(s)	Economic development policy(ies)/strategy(ies)/plan(s)	Productive development and/or industrial development policy(ies)/strategy(ies)/plan(s); economic development policy(ies)/strategy(ies)/plan(s)
Science, technology and innovation related to climate mitigation or adaptation	Technology needs assessment (TNA), technology transfer and/or conditional and/or unconditional	Science, technology development, innovation, patent, research and development (R&D)	Science, technology development, innovation, patent, research and development (R&D)
Technology extension services related to climate mitigation or adaptation	Technology extension	n/a	Technology extension
Digital transformation related to climate mitigation or adaptation	Digital, digitalization, AI, twin transition, big data and/or robotics	n/a	Digital, digitalization, AI, twin transition, big data, robotics
Entrepreneurship related to climate mitigation or adaptation	Entrepreneurship	Business environment and/or model, startup(s)	Entrepreneurship; business environment and/or model, startup(s)
Human talent gaps related to climate mitigation or adaptation	Capacity(ies) development/building strategy	Capacity(ies) building, qualification, education, human capital/talent, green job(s)	Capacity(ies) building, qualification, education, human capital/talent, green job(s)
Financing related to climate mitigation or adaptation	Financial/funding/finance strategy, conditional, unconditional	Finance, financing, funding, financial assistance	Finance, financing, funding, financial assistance
Investment related to climate mitigation or adaptation	Country platform and/or investment plan	Investment	Country platform; Investment
Infrastructure and other specific public goods related to climate mitigation or adaptation	Infrastructure and/or public good	n/a	Infrastructure, public good
Regulatory agendas related to climate mitigation or adaptation	Regulation, standards and/or norms	n/a	Regulation, standards and/or norms
Internationalization related to climate mitigation or adaptation	Internationalization, exports and/or competitiveness	n/a	Internationalization, exports, competitiveness
Carbon pricing mechanisms	Carbon tax, carbon market and/or emissions trading system (ETS), clean development mechanism (CDM)	Carbon pricing	Carbon pricing, carbon tax, carbon market and/or emissions trading system (ETS), clean development mechanism (CDM)
Sectoral policies: the great productive transformation and sectors driving climate change mitigation or adaptation			
Advanced manufacturing related to climate mitigation, adaptation or sustainability	Advanced manufacturing, industry 4.0	n/a	Advanced manufacturing, industry 4.0
Modern or ICT-enabled services exports related to climate mitigation, adaptation or sustainability	Information and/or communication technologies, ICT	n/a	Information and/or communication technologies, ICT
Care services related to climate mitigation, adaptation or sustainability	Care	n/a	Care
Energy transition	Energy transition: renewable energies (wind, solar, bioenergy), green hydrogen and lithium	n/a	Energy transition: renewable energies (wind, solar, bioenergy), green hydrogen and lithium
Sustainable mobility	Sustainable mobility: electromobility, biofuels, electric vehicle, sustainable transport(ation) infrastructure	n/a	Sustainable mobility: electromobility, biofuels, electric vehicle, sustainable transport(ation) infrastructure
Circular economy	Circular economy: waste (e.g. zero-waste, waste valorization), recycling, upcycling, new materials	n/a	Circular economy: waste (e.g. zero-waste, waste valorization), recycling, upcycling, new materials

Element analysed	Explicit and direct link to NDC	Implicit and indirect link to NDC	Not part of NDC but mentioned in the policy
Bioeconomy	Bioeconomy: genetic resources and bioindustrialization (biofertilizers), biorefineries, biotechnology, nature-based solutions (NBS), biomass, bioenergy	n/a	Bioeconomy: genetic resources and bioindustrialization (biofertilizers), biorefineries, biotechnology, nature-based solutions (NBS)
Agriculture	Agriculture: food security, sustainable agriculture	n/a	Agriculture: food security, sustainable agriculture
Sustainable water management	Sustainable water management, water security, water resource	n/a	Sustainable water management, water security, water resource
Sustainable tourism	Tourism (including eco-tourism development, nature-based tourism)	n/a	Sustainable tourism (including eco-tourism development, nature-based tourism)
Governance			
Institutional arrangements	Climate policy governance/institutional arrangement	n/a	Other climate-related governance/institutional arrangement
Citizen participation	Climate policy mechanisms for citizen/stakeholder/civil society participation/consultation	n/a	Other climate-related mechanisms for citizen/stakeholder/civil society participation/consultation
Enhanced transparency mechanism (ETM)	Enhanced transparency mechanism (ETM)	n/a	Other climate-related transparency mechanism
Monitoring, reporting and verification (MRV)	Monitoring, reporting and verification, MRV	n/a	Other climate-related monitoring, reporting, verification and/or assessment

Source: Economic Commission for Latin America and the Caribbean.

Annex IV.A2

Illustrative results matrix

Table IV.A2.1

Sample illustrative results matrix for a given plan in a given country

Element analysed	Explicit and direct link to the NDC	Implicit and indirect link to the NDC	No reference to the NDC	Not part of the NDC and not mentioned in the policy	Not part of the NDC but mentioned in the policy
Mitigation					
Target type: absolute (compared to historical base year)		x			
Target type: relative (compared to business-as-usual emissions or greenhouse gas intensity)				x	
Greenhouse gas coverage (all gases)		x			
Economy-wide 2025 target			x		
Economy-wide 2030 target			x		
Economy-wide 2035 target			x		
Economy-wide 2050 target			x		
Economy-wide net zero target		x			
Sectoral targets and measures: energy		x			
Sectoral targets and measures: transport		x			
Sectoral targets and measures: industry	x				
Sectoral targets and measures: agriculture		x			
Sectoral targets and measures: waste		x			
Sectoral targets and measures: land use, land-use change and forestry (LULUCF)		x			
Coal phase-down				x	
Carbon removal and storage	x				
Adaptation					
Adaptation plan or measure		x			
Climate-related vulnerabilities and risks			x		
Adaptation options, needs and priorities			x		
Sectoral targets and measures: ecosystem or biodiversity				x	
Sectoral targets and measures: water, coastal zones, sanitation				x	
Sectoral targets and measures: agriculture, forestry				x	
Sectoral targets and measures: cities, housing				x	
Sectoral targets and measures: energy				x	
Sectoral targets and measures: tourism, commerce				x	
Sectoral targets and measures: mining				x	
Sectoral targets and measures: health				x	
Co-benefits and fairness considerations					
Co-benefits from adaptation or mitigation			x		
Productive development co-benefits related to mitigation or adaptation	x				
Just transition and equity concerns		x			
Means of implementation, mechanisms and instruments					
Long-term low-emission development strategies (LT-LEDS)				x	
Productive development policy instruments and mechanisms	x				
Science, technology and innovation related to climate mitigation or adaptation		x			
Technology extension services related to climate mitigation or adaptation					x
Digital transformation related to climate mitigation or adaptation	x				
Entrepreneurship related to climate mitigation or adaptation		x			

Element analysed	Explicit and direct link to the NDC	Implicit and indirect link to the NDC	No reference to the NDC	Not part of the NDC and not mentioned in the policy	Not part of the NDC but mentioned in the policy
Human talent gaps related to climate mitigation or adaptation		x			
Financing related to climate mitigation or adaptation		x			
Investment related to climate mitigation or adaptation		x			
Infrastructure and other specific public goods related to climate mitigation or adaptation	x				
Regulatory agendas related to climate mitigation or adaptation	x				
Internationalization related to climate mitigation or adaptation	x				
Carbon pricing mechanisms	x				
Sectoral policies: the great productive transformation and sectors driving climate change mitigation or adaptation					
Advanced manufacturing related to climate mitigation, adaptation or sustainability					x
Modern or ICT-enabled service exports related to climate mitigation, adaptation or sustainability			x		
Care services related to climate mitigation, adaptation or sustainability				x	
Energy transition	x				
Sustainable mobility	x				
Circular economy	x				
Bioeconomy	x				
Agriculture	x				
Sustainable water management			x		
Sustainable tourism			x		
Governance					
Institutional arrangements	x				
Citizen participation	x				
Enhanced transparency mechanism (ETM)			x		
Monitoring, reporting and verification (MRV)			x		

Source: Economic Commission for Latin America and the Caribbean.

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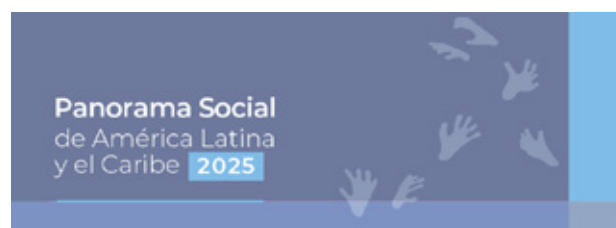


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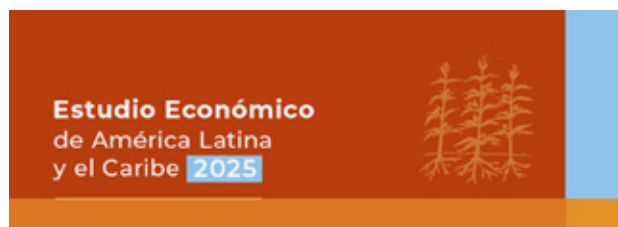
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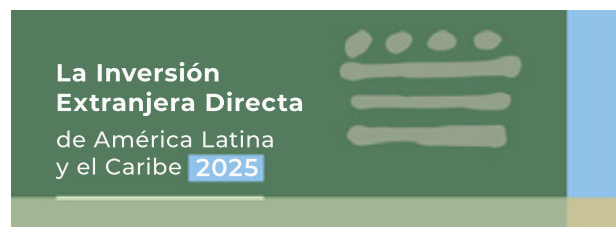
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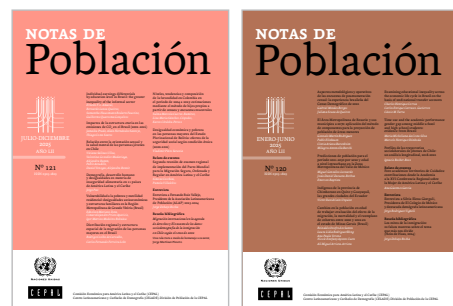
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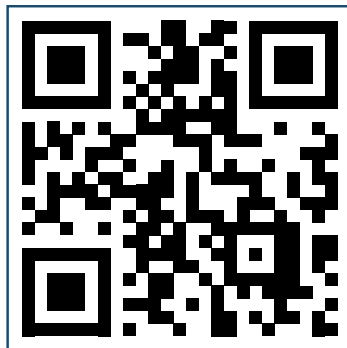
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