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COLOMBIA



**Regional Disparities and
the Road to Integration**

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1818 H Street NW, Washington, DC 20433

Telephone: 202-473-1000

Internet: www.worldbank.org

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TEAM MEMBERS AND ACKNOWLEDGMENTS

This report was produced by a team led by Fernando Giuliano (Task Team Leader), under the supervision of Shireen Mahdi (Practice Manager) and the guidance of Mark Roland Thomas (Country Director), Peter Siegenthaler (Country Manager), and Rafael Muñoz (Program Leader).

Fernando Giuliano authored the report together with the following co-authors by chapter:

Maryan Porras and Tim Freeman contributed to Chapter 1.

Chapter 2 was co-authored by Tim Freeman, Santiago Justel, and Fausto Patiño, with contributions from Maryan Porras and Maria Sarrabayrouse. Jon Strand provided estimates of the value of the Colombian Amazon, and Juan Carlos Muñoz Mora and Mariángela Ramirez Diaz provided land use change transition matrices. A team led by Martin Christensen that included Gustavo Hernandez Diaz, Gabriel Piraquive, and Julian Villamil from the National Planning Directorate estimated the computed general equilibrium simulations. Ellin Ivarsson and Juan Sebastián Vallejo provided inputs on connectivity between Colombian cities and to the ports.

Chapter 3 was co-authored by Maryan Porras and Erik Von Uexkull. Gustavo Hernandez Diaz, Gabriel Piraquive, and Julian Villamil from the National Planning Directorate estimated the computed general equilibrium results.

Chapter 4 was co-authored by Jurgen Blum, Julian Folgar, Tomas Martin, and Jose Olivera with inputs from Sofia Barrios and Juan Gonzalo Zapata.

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Acronyms

DANE	National Administrative Department of Statistics	OECD	Organization for Economic Cooperation and Development
DIAN	National Tax and Customs Directorate (Dirección de Impuestos y Aduanas Nacionales)	PPP	Purchasing Power Parity
DNP	National Planning Directorate (Dirección Nacional de Planeación)	SGP	General Participation System (Sistema General de Participaciones)
GDP	Gross Domestic Product	SGR	General System of Royalties (Sistema General de Regalías)
GVC	Global Value Chains	SNGs	Sub-national Governments
ICT	Information and Communication Technologies	UBN	Unmet Basic Needs
NS	Net Substitution	USITC	United States International Trade Commission
NSQ	Net Substitution Quantity measure		

Executive Summary

1. INTRODUCTION

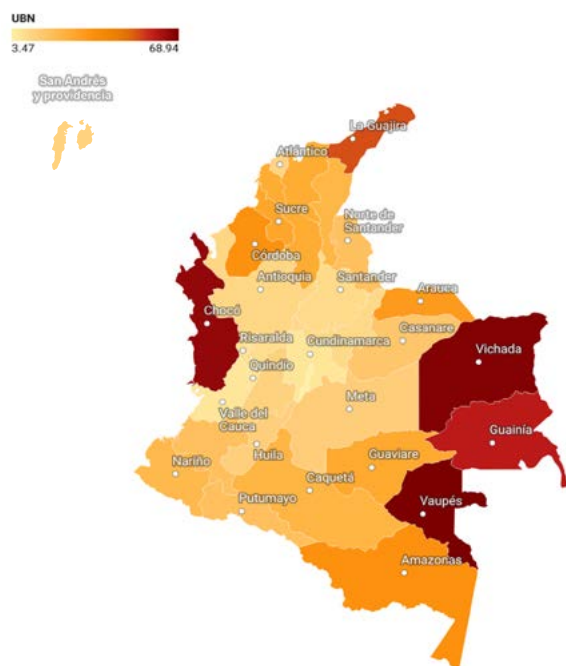
Based on solid macroeconomic fundamentals, Colombia has grown continuously in the last decades, but at rates not high enough to generate sufficient quality jobs and close development gaps with advanced economies. At the core of this outcome lies low productivity, mostly due to long-lasting structural constraints such as the low quality of human capital (including both education outcomes and managerial capabilities), infrastructure, and institutions. Ill-functioning markets, limited competition, excessive red tape, stringent labor regulations, and shallow capital markets further hinder innovation and optimum resource allocation across sectors and firms (World Bank, 2025). Colombia's per capita income compared to that of the United States (US) has remained relatively stable since the late 1990s, with the average Colombian consuming only 25 percent of the goods and services consumed by an average American. Even if Colombia were to achieve an GDP per capita growth rate of 3 percent annually, it would still take over 20 years to raise that ratio to just 30 percent. Low productivity has also hindered job quality and job creation, resulting in over half of the Colombian population working in the informal sector.

These low productivity levels have shaped a very specific development process in Colombia. In any structural transformation process, as economies develop, workers and resources usually move from rural-based economic activities into urban-based activities. In Colombia, this structural transformation process has been slow and incomplete. It has been characterized by persistently high employment in agriculture, a low level of industrialization, and a service sector that serves as an employer of last resort, absorbing low-productivity workers who typically resort to self-employment in small, informal enterprises. As a result, Colombia thus relies heavily on its natural resources for its exports, especially hydrocarbons. While some of these trends also apply to other emerging economies, they are particularly acute in Colombia because of its low productivity.

Yet Colombia encompasses a collection of economically and culturally distinct regions that add up to a country of stark contrasts. Colombia's high-performing economic sectors such as coffee, pharmaceuticals, and tourism illustrate its economic potential, but development is unevenly distributed. According to many measures, Colombia is one of the most unequal countries in the world, both in terms of economic development and from a social perspective. The extent of unmet basic needs (UBN) varies greatly across the country (Map 1). Colombia has the highest Gini coefficient in Latin America and, along with Mexico, the widest gap in poverty rates between its richest and poorest departments among OECD countries. Access to basic services is very uneven nationwide, leading to marked differences in education and health outcomes, which means that there is no equality of opportunity across the country. The gap between leading and lagging departments in terms of per capita GDP is also the widest in Latin America and the Caribbean (Map 2).

This report examines how these contrasts shape aggregate outcomes and, in turn, how aggregate outcomes reinforce Colombia's territorial inequalities. It complements World Bank (2025) which explored country-wide constraints to economic growth, by analyzing the macroeconomic dimensions of territorial disparities —namely spatial barriers to growth and job creation—, differences in stages of structural transformation, economic convergence patterns, and potential growth opportunities. This reports

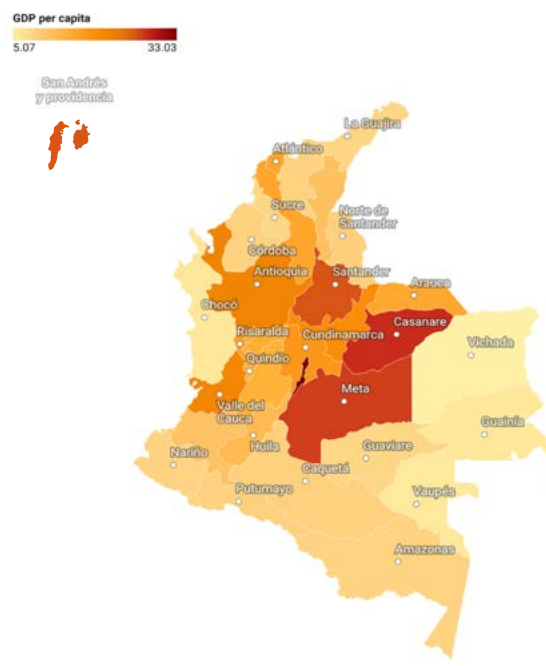
MAP 1. UNMET BASIC NEEDS BY DEPARTMENT, 2022



Created with Datawrapper

Source: Authors' elaboration based on data from the National Administrative Department of Statistics (DANE)

MAP 2. PER CAPITA GDP BY DEPARTMENT, 2022



Created with Datawrapper

Source: Authors' elaboration based on data from DANE

also complements World Bank (2024a), which focused its analysis on inequality in service access and outcomes. Together, these reports form an analytical triad to better understand Colombia's aggregate challenges and persistent inequalities.

The approach taken in this report is to characterize regions within the country based on their stage of economic development, identify their convergence patterns, and uncover spatial growth constraints that shape Colombia's development path. It then focuses on two key opportunity areas going forward: the changing international trade environment, and *Sistema General de Participaciones* (SGP), Colombia's main revenue-sharing mechanism across departments. By focusing on these two areas, the report aims to fill knowledge gaps and respond to current reform opportunities. The chapter on trade exploits detailed microdata and studies recent trends to explore to what extent the evolving reallocation of global value chains can enable Colombia to leverage global trade to increase its productivity. The study of SGP is motivated by its relevance to the territorial inequality debate—both in economic development and opportunity gaps—and by the ongoing decentralization reform process.

2. FOUR COLOMBIAS AND THE PRICE OF LOOKING INWARD

Colombia's departments can be classified into four economic regions (Map 3). Region 1 consists mostly of populous departments from the Andean Region, such as Bogotá D.C., Antioquia, Valle del Cauca, and Cundinamarca but also Atlántico on the Caribbean coast and the islands of San Andrés y Providencia. Region 1 is characterized by relatively high per capita GDP, a low level of UBN, and a high share of population and/or high population density. Region 2 consists of the hydrocarbon-producing departments, including departments with high per capita GDP such as Meta and intermediate per capita GDP such as Arauca. Per capita GDP in departments in this region overestimate its likely productive capacity in a non-oil future. Region 3 consists of intermediate per

capita GDP departments including Cauca, Huila, and Norte de Santander. Finally, Region 4 includes departments such as Amazonas, Guainía or Chocó, characterized by low per capita GDP and a high level of UBN, and mostly consists of a large forested area.



MAP 3. A SIMPLE TAXONOMY OF COLOMBIA'S DEPARTMENTS



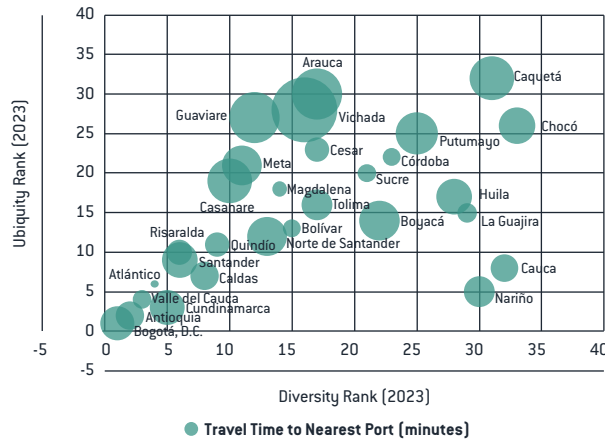
Source: Authors' elaboration.

These four regions are in different stages of development as shaped by their underlying productivity. Departments in Region 1 (also referred to as high-income and low UBN) have higher shares of marketable services (such as trade or professional activities) and manufacturing and lower shares of agriculture than other departments. Region 2 departments (hydrocarbon producers) have large shares of mining and low shares of marketable services. Public administration accounts for a large share of GDP in in Region 4 departments (*low-income*). The intermediate-income departments in Region 3 are a mix, with some characteristics of low-income departments (large public sector), and some characteristics of high-income departments (large trade sectors). These regional differences are also reflected in competitiveness indicators, such as the Departmental Competitiveness Index (*Índice Departamental de Competitividad*). These differences are underpinned by relative productivity, with high-income departments having systematically higher levels of productivity across all sectors than other departments.

Transport costs and urbanization challenges characterize the development stage of regions within Colombia and contribute to the country's disappointing growth outcomes. Economic geography aspects play a crucial role in both explaining the relative position of departments within Colombia, and in shaping development challenges for the country as a whole. While richer departments are more interconnected, helping them to become and remain richer than poorer departments, transport costs, both among departments and between Colombia and international markets, are high. These costs coupled with the fact that the most populous, developed, and economically complex regions in Colombia are located away from the coasts (Figure 1) add to the country's competitiveness challenges. This dynamic substantiates the common saying that "Colombia is a landlocked country with coasts on two oceans." Likewise, although richer regions tend to attract more workers and have larger cities, urbanization challenges in all

Colombian cities such as traffic congestion (Figure 2) and housing deficits limit the synergies and agglomeration that could increase urban productivity and job creation. This phenomenon is referred to as “sterile agglomeration” (Grover et al, 2022).

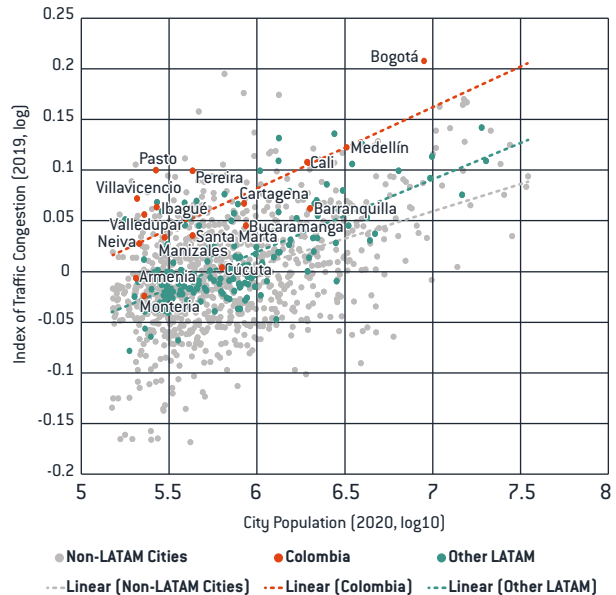
FIGURE 1. DEPARTMENTAL DIVERSITY AND UBIQUITY RANKING BY ACCESS TO EXTERNAL MARKETS



Source: Authors' elaboration based on the 2022 Great Integrated Household Survey (Gran Encuesta Integrada de Hogares)

Note: Ubiquity refers to how common or widespread a product or activity is in different places. A high ubiquity ranking (closer to the origin in the chart above) reflects a high share of products that are not produced elsewhere.

FIGURE 2. TRAFFIC CONGESTION INDEX BY CITY POPULATION, 2020



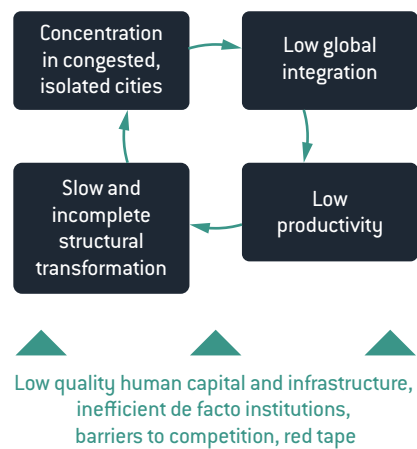
Source: Freeman and Giuliano (2025) based on data from the Cities in Motion Lab.

Cities with low competitiveness reinforce Colombia's inward-looking development model. Colombia is predominantly a country of “consumption cities,” characterized by high employment shares in non-tradable services catering primarily to domestic markets. In contrast, “production cities” have high employment shares in manufacturing and tradable services, which facilitate innovation and long-term economic growth. The lack of production cities in Colombia means that its urban areas are not contributing significantly to the country’s economic dynamism and global competitiveness. Instead, these cities are largely consumption-oriented, which limits their potential for integration into international trade and reinforces a cycle of low productivity and limited economic growth and formal job creation. In contrast, the most economically dynamic areas of the world are dominated by production cities (Ianchovichina, 2024).

Colombia is thus trapped in a low productivity equilibrium across sectors that perpetuates the status quo of low overall growth and fragmented economic development. Figure 3 summarizes the main elements that contribute to and reinforce Colombia’s low aggregate productivity and geographic economic fragmentation. Low productivity in all sectors translates into the country’s slow structural transformation process, in which the agricultural sector holds a relatively large share of the labor force, manufacturing is stagnant, and the service sector serves as a low-productivity employer of last resort. The population is concentrated in congested cities far from the main ports, thus causing Colombia to miss out on the productive potential of agglomeration economies. This results in an inward-looking development model that prevents Colombia from benefiting from trade flows, which in turn perpetuates its low productivity. All of these elements are underpinned by country-wide constraints to economic growth and productivity dynamics, such as a lack of quality in human capital, infrastructure, and institutions.

This vicious cycle reinforces the prominence of hydrocarbons in Colombia's economic structure and promotes deforestation, hindering Colombia's chances of achieving a successful climate transition. Low productivity in urban sectors such as industry and services keeps real wages low and makes it more profitable to expand the agricultural sector, including through deforestation. Put simply, the root causes of deforestation in Colombia can be traced back to stagnant productivity in cities like Bogotá, Medellín,

FIGURE 3. A VICIOUS CYCLE OF LOW PRODUCTIVITY, SLOW STRUCTURAL TRANSFORMATION, CONGESTED CITIES, AND TRADE ISOLATION



Source: Authors' elaboration

Quibdó, and Florencia. Moreover, if agricultural productivity gains are not matched by equivalent increases in urban sectors, this can trigger counterproductive incentives to intensify deforestation. This is known as the Jevons paradox (Hanusch, 2023). Moreover, low urban productivity also reinforces the predominant role of hydrocarbons in Colombia's export basket, making the country, particularly region 2, vulnerable to global decarbonization trends. To break this vicious cycle, Colombia must find ways to make its economy more resilient to climate shocks, less dependent on hydrocarbons, and consistent with its global decarbonization commitments as discussed in World Bank (2023).

These dynamics hinder Colombia's low-income departments from gradually closing the per capita GDP gap with higher-income departments, a process known as economic convergence. Economic theory predicts convergence only between departments with similar structural characteristics such as demographics, human capital, institutions, and investment rates. Moreover, even when departments share similar structural characteristics, if there are wide differences in their initial levels of per capita GDP, these differences can persist over the long term. The analysis in this report confirms the findings of a series of studies of economic convergence in Colombia¹ by establishing that there has been only weak convergence at best in per capita GDP among Colombia's departments. Moreover, it finds evidence that the departments in region 4, though converging among themselves, are following their own path and diverging from the rest of the country. These different realities call for differentiated policy strategies.

3. POLICY APPROACHES FOR TERRITORIAL DEVELOPMENT

Sound reform programs to promote the closing of opportunity gaps across the territory should be a cornerstone of the territorial development policy agenda. Colombia suffers from significant territorial inequalities in terms of access to quality public services. This access is particularly critical because it directly affects individuals' opportunities in life, particularly their earning trajectories and social mobility, but the extent of those opportunities depends to a large extent on where they were born. World Bank (2024a) estimates that one-third of labor income inequalities can be explained by place of birth. Not only is this unfair, but it is also detrimental to the country's economic development. A healthy, well-educated labor force is vital to enhance efficiency, foster innovation, and promote broad-based economic growth and job opportunities. World Bank (2024a) lays out an approach for narrowing gaps in access to quality services with concrete examples for Colombia.

1 See for example Galvis-Aponte and Hanh-De-Castro (2016), Meisel-Roca and Hanh (2020), and Acosta and Bonet (2022).

Intergovernmental transfers are a crucial component of any policy aimed at closing opportunity gaps. This report shows that Colombia's main transfer system to subnational governments *Sistema General de Participaciones* (SGP) has a strong redistributive bias, with richer departments being net contributors to SGP and poorer departments being net beneficiaries. This contributes to a significant equalization of per capita revenues across departments. However, the association between subnational government spending and human capital outcomes appears to be weak, indicating that regional disparities in opportunities can mostly be attributed to variations in the efficiency of spending rather than differences in fiscal capacity. While the efficiency of spending is influenced by a broad range of factors, certain elements of the SGP system can foster inefficiencies. Some actions that might reduce these inefficiencies could include clarifying which government level has responsibility for which functions and expenditures, strengthening the autonomy of subnational governments over their own spending, and making inter-governmental transfers to subnational governments conditional on their performance.

The picture is more nuanced regarding policies to promote economic growth more evenly across regions. The economic growth process is less like yeast evenly expanding a bread dough and more like an uneven mushroom field, where mushrooms pop up and grow at different rates in different places. This analogy, used by Harberger (1998) to explain the growth process from a sectoral perspective, can also be read through an economic geography lens. Economic growth is unbalanced across the country, which might not necessarily reflect an underlying problem. Agglomeration economies form when migration brings people together in cities, which generates self-reinforcing patterns that make them more productive, setting them further ahead of lagging regions. Unlike opportunity gaps, economic performance gaps do not necessarily reflect inefficiencies. So long as there is a level playing field, migration can help align unbalanced growth with economic efficiency and equal opportunities.^{2,3} Moreover, guaranteeing true equality of opportunity is crucial for identifying and fostering new sources of growth as it enables talent and ideas to thrive in currently underdeveloped regions. In its absence, considerable economic potential remains unexploited because of unequal origins or enduring local obstacles.

However, policies should aim to unlock each region's growth potential rather than forcing them toward economic convergence. As argued in Chapters 1 and 2, the four regions of Colombia have different structural characteristics that compound their original endowments with historical path dependencies. They may even reflect past policies, not necessarily well-designed, that have shaped the distribution and composition of economic activity across the country. Unlocking growth potential in this context means enabling the regions to fully leverage their comparative advantages rather than steering their development towards specific sectors or industries to accelerate structural transformation.

A solid foundation for national and regional growth should start with horizontal growth policies. Horizontal policies refer to broad-based policies aimed at overcoming growth constraints in sectors and regions. These might include ensuring macroeconomic stability, promoting low-tariff access to international markets, deepening financial markets, and providing an enabling business environment. These measures would help entrepreneurs to respond to market incentives, to innovate, and to allocate resources efficiently. Since the growth constraints faced by locations and industries vary, adopting broad-brush policies may result in uneven growth in ways that are hard to predict. This unpredictability is why it is so difficult to pick winners among targeted sectoral policies.

While place-based policies have a role to play, they should be an integral part of a coherent package of policy interventions. Place-based policies are strategic interventions designed to achieve or enhance the economic potential of lagging regions. They often involve a combination of investments in infrastructure, skills development, and entrepreneurial support. The theoretical reasons for promoting place-based policies are grounded in externalities, coordination failures, and the provision of sector-specific

2 World Bank (2024a) studied migration characteristics within Colombia.

3 This study builds on the framework set out in World Bank (2009) on the link between regional growth, economic opportunity, and migration. Other World Bank studies that have used this framework in analyses of other regions of the world include World Bank (2020a) on the Middle East and North Africa.

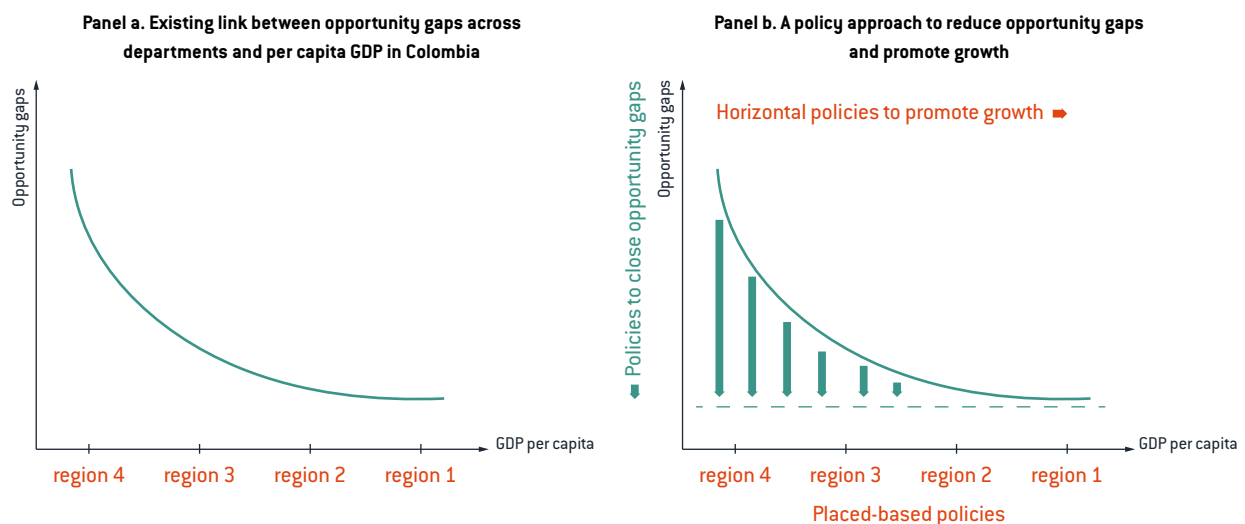
public goods (Juhász et al, 2023), but they are also subject to political capture, as Eslava and Meléndez (2009) has shown in their analysis of Colombia.

For place-based policies to move beyond ad-hoc measures and avoid political capture, they should be built on economic principles, rigorous evaluation, and institutional safeguards. Following Duranton and Venable (2018) and Grover et al (2022), sound place-based policies should follow a three-step principle to overcome these shortcomings: (i) explain; (ii) estimate; and (iii) ensure. First, it is necessary to be able to explain the rationale behind a specific intervention based on a thorough analysis of the economic issues causing geographical inequalities. Policymakers should be able to answer questions such as: Why this specific policy intervention as opposed to another, and why in a specific place and not another one? The answer might be, for example, to enhance agglomeration externalities in congested areas or to reduce high transport costs. Second, it must be possible to estimate the potential impacts of any policy, including both the direct and indirect effects. Do the overall benefits of the policy intervention exceed the costs? What groups benefit and who bears the burden of the costs? This involves identifying causality and implementing cost-benefits analysis that takes into account general equilibrium effects. Third, it must be possible to put complementary policies in place to ensure for successful implementation. Is the institutional context appropriate for effective implementation? This might involve building local capacity, putting evaluation frameworks in place, and promoting transparency.

Figure 4 illustrates a policy approach to reducing geographical inequalities. Opportunity gaps in the form of high poverty, low educational achievement, and low quality health services in Colombia's departments fall as per capita GDP rises. Therefore, policymakers should attempt to:

- (i) *Promote policies to close opportunity gaps* to level the playing field across all regions regardless of the level of their per capita GDP. This also contributes to economic growth by strengthening human capital. Moreover, by disproportionately benefiting lagging regions, which have the largest opportunity gaps, these policies have the potential to curb the divergence pattern observed in recent decades.
- (ii) *Implement horizontal growth policies* to overcome the constraints that get in the way of broad-based economic growth and job creation. These policies are not designed with a specific sector or region in mind but rather improve the overall enabling environment to help firms can to maximize their growth opportunities.
- (iii) *Complement i) and ii) with targeted place-based policies* when needed. These policies should be tailored to different regions after explaining their rationale, estimating their net benefits, and ensuring that key preconditions are met for their success.

FIGURE 4. A POLICY APPROACH TO EQUALIZING DEVELOPMENT BETWEEN REGIONS



4. POLICY EXAMPLES FOR COLOMBIA

The triad of analytical reports on economic growth and territorial inequalities that includes this study provide examples of these three types of policies. For Colombia to break its vicious cycle of low productivity, incomplete structural transformation, agglomeration in sterile consumption cities, and low trade integration, it should promote policies to close opportunity gaps, enhance country-wide growth, and leverage local comparative advantages with sound targeted interventions. The Colombia Country Economic Memorandum (World Bank, 2025) deals mostly with policies to promote broad-based economic growth. The report emphasizes the importance of sound fiscal policies for ensuring a stable macroeconomic framework and, as such, highlights the need to keep infrastructure spending steady through economic downturns. It also proposes a series of measures to make the tax system more pro-growth. Measures to ease access to international markets are detailed in Chapter 3 of this report. The Country Economic Memorandum also presents examples of policies that both promote economic growth and reduce opportunity gaps, particularly those aimed at improving educational outcomes.

The Colombia Poverty Assessment (World Bank, 2024a) assesses alternative ways to narrow opportunity gaps. The report advocates for targeted, coordinated, and integrated policies that address the specific needs and capacities of different regions and groups within Colombia. Some of the recommendations include improving the quality and increasing access to healthcare, particularly in rural and remote areas using telemedicine, creating multi-purpose cadaster initiatives to increase access to land and to strengthen local fiscal performance, and enhancing mechanisms to coordinate policy priorities between ministries at the subnational level. The report also points out that internal migration in Colombia does not always lead to improved economic outcomes, as many migrants are displaced due to conflict rather than in search of economic opportunities.

Chapter 4 of this report discusses more efficient ways to finance policies aimed at closing opportunity gaps. Specifically, it suggests that the current decentralization framework and revenue-sharing scheme could be reformed to increase their efficiency and effectiveness in closing opportunity gaps. These reforms might include defining expenditure responsibilities more clearly, granting subnational governments more autonomy over the use of funds, providing these governments with incentives to collect more revenue, adopting a system of conditional, performance-based intergovernmental transfers, and building institutional capacity throughout the country.

Place-based policies could help regions to exploit their comparative advantages effectively. This report identified four structurally distinct regions within Colombia. Region 1 is characterized by relatively high incomes, low UBN, and departments with complex and diversified economies. Region 2 is characterized by an economic structure dominated by hydrocarbon production. Region 3 is a heterogeneous collection of departments with intermediate-level incomes and UBN. Region 4 is characterized by departments that are rich in natural capital and biodiversity but also have low incomes, low economic complexity, and high UBN.

Different development strategies are likely to be needed to tackle the different structural characteristics of each of these regions. The options below can be considered as a tentative blueprint that would benefit from further analysis and discussion.

- Departments in Region 1 such as Bogotá, Antioquia, and Valle del Cauca would gain from boosting their integration into global markets while addressing congestion and housing affordability issues that could undermine their long-term growth. Key policy priorities include: (i) enhancing mobility in urban areas to reduce commuting time and costs and to support productivity; (ii) expanding affordable housing to support labor mobility and economic inclusion; and (iii) lowering the costs of transporting goods to ports to strengthen competitiveness and trade participation. Enhancing the links

between Colombia's most advanced industrial centers and global trade networks will be crucial to increase productivity and deepen the country's international integration.⁴

- Departments in Region 2, such as Meta and Casanare will need to diversify away from hydrocarbon production. These regions have substantial fiscal resources and receive considerable transfers but have weak governance indicators, which is limiting the effectiveness of public investment. Strategic priorities for this region might include: (i) strengthening institutional capacity to manage revenues from natural resources; (ii) investing in training and reskilling programs to help workers to transition out of hydrocarbons and into more sustainable sectors; and (iii) reinforcing social protection networks for displaced workers. The region might also benefit from the strategies proposed for Region 3 (see below).
- Departments in Region 3 like Huila, Bolivar, and Norte de Santander are very heterogeneous, which calls for a range of different strategies that reflect their specific locational and economic constraints. Departments that are located close to international markets, such as those in the Caribbean region, could try increasing their external trade integration. Departments that are more dependent on domestic markets could, in contrast, improve their transportation networks and infrastructure to major economic hubs. Poor agglomeration in these regions is driven by various factors including low housing elasticity and high intra-city commuting costs, which means that tailored approaches are needed to urban development within the region.
- Departments in Region 4 face fundamental geographic and demographic challenges that limit the effectiveness of traditional infrastructure investments, which must be carefully justified given the high costs associated with serving sparsely populated regions. Most departments in these regions are vast empty spaces with few scarcely populated cities. These circumstances make it necessary to take innovative development approaches. For example, fostering economic activity in sectors such as digital services, eco-tourism, and high-value agriculture can provide alternative pathways for economic diversification in remote areas. Also, making forest protection profitable through carbon markets, sustainable non-timber forest products, biodiversity economy, or payments for environmental services might be another productive policy option. All of this complemented with the implementation of a cadaster system that defines property rights. Expanding internet access is an essential policy aimed at overcoming geographic constraints, while finding ways to improve transportation links with the wider region through carefully tailored initiatives is also key, including exploring transportation options by river to help overcome the region's idiosyncratic connectivity challenges.

Going forward, the government should consider taking actions on the recommendations of the existing evaluations of programs such as *Mi Casa Ya* (housing affordability), Bogotá's Metro and Bus Rapid Transit System (urban mobility), and the 4G transport infrastructure program (national transportation). These actions have the potential to alleviate some binding constraints on productivity and development and to reduce geographical disparities across the country. By leveraging insights from this report, Colombia can develop more effective, tailored solutions that promote sustainable and inclusive growth across its diverse regions.

4 See Ianchovichina (2024) for an assessment of road corridors to be prioritized in Colombia.

Chapter 1.
Setting the Stage:
A Story of Four Colombias



1.1. INTRODUCTION

Colombia, a collection of economically and culturally distinct regions shaped by its diverse geography. Colombia's geographical diversity features rugged Andean mountains split into three parallel ranges, vast tropical rainforests, fertile plains, and extensive coastlines along both the Pacific Ocean and the Caribbean Sea (Map 1). These varied landscapes create a mosaic of ecosystems that range from snow-capped peaks to humid, tropical lowlands. Natural beauty and exuberant biodiversity bloom against this backdrop. Over centuries, the country's rough terrain and its myriad ecosystems have shaped relatively isolated economic and cultural regions with distinct idiosyncrasies and structural characteristics.

MAP 1. PHYSICAL AND ADMINISTRATIVE MAP OF COLOMBIA



Source: Worldometer

These diverse regional realities add up to a country of stark contrasts. Colombia's high-performing economic sectors such as coffee, pharmaceuticals, and tourism illustrate the economic development potential of its diverse geography, but development is unevenly distributed. By many measures, Colombia is one of the most unequal countries in the world, in terms of both economic development and social welfare indicators. It has the highest Gini coefficient in Latin America and, along with Mexico, the largest gap in poverty rates between its richest and poorest regions among all OECD countries. The gap between leading and lagging departments in terms of per capita GDP is also the widest in the region. Access to basic services varies greatly countrywide, leading to marked differences in education and health outcomes. This, in turn, limits equality of opportunity across the country. World Bank (2024a) has estimated that one-third of all inequality of opportunities in Colombia is directly linked to individuals' place of birth.

This report examines how these contrasts shape aggregate outcomes, and, in turn, how aggregate outcomes reinforce Colombia's spatial inequalities. It builds on World Bank (2025), which explored country-wide constraints to economic growth, by

analyzing the macroeconomic dimensions of territorial disparities —namely regional barriers to growth—, economic convergence patterns, differences in stages of structural transformation, and potential growth opportunities. This reports also complements World Bank (2024a), which focused its analysis on inequality in service access and outcomes across the country. Together, these three reports form an analytical triad that aim to increase knowledge about Colombia's aggregate challenges and persistent inequalities. They all build on a long series of analyses prepared by Colombian researchers on regional economics, which have established the historical roots of inequality (for example, Fergusson et al, 2017 and Bonet and Meisel-Roca, 2006) and the effects of structural reforms on productivity (for example, Eslava et al, 2004), which is the ultimate determinant of structural transformation. This report also borrows from frameworks laid out in World Bank (2009), Grover et al (2022), Hanusch (2023), and Ianchovichina (2024).

This chapter sets the stage by characterizing different Colombian regions from an economic structure perspective. This characterization provides a useful framework for understanding the structural differences between regions and informing decisions about which policies are most likely to foster economic development and equality of opportunity in each region. Chapter 2 delves deeper into the factors behind each region's different stages of economic development and their impact on aggregate outcomes and deforestation incentives. Building on this diagnosis, it lays out a policy reform ideas to support climate-sensitive and inclusive growth in each region. Chapters 3 and 4 then focus on two key areas of that policy agenda. Chapter 3 analyzes how changes in the trade landscape could help Colombia to increase its openness to trade and the implications that might have for economic convergence within Colombia. Finally, Chapter 4 examines the Colombia's main revenue-sharing scheme between the national government and subnational entities in light of regional disparities and provides guidelines for reform to enhance its efficiency and fairness.

The topics selected to be analyzed in this report are those where knowledge gaps exist and/or those that have the potential to be reformed in the current context. The discussion on trade in Chapter 3 uses detailed microdata and recent trends to understand how Colombia might be able to benefit from the evolving reallocation of global value chains to create opportunities to increase its productivity. The discussion in Chapter 4 of revenue-sharing mechanisms is motivated by their relevance to the inequality debate, in terms of both economic development and opportunity gaps, and to the ongoing decentralization reform process in Colombia.

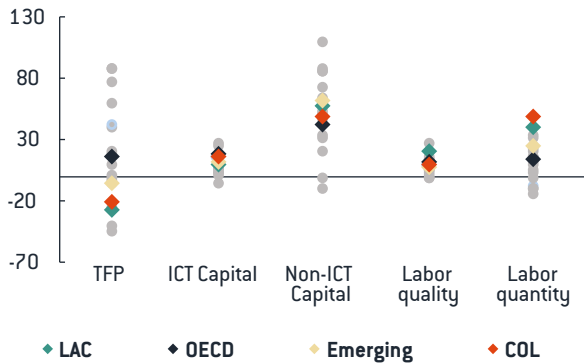
1.2. LACK OF CONVERGENCE AND COMMERCIAL ISOLATION: TERRITORIAL DEVELOPMENT EPITOMIZE COLOMBIA'S CHALLENGES

Colombia's economy has maintained steady growth in recent decades but not at a pace sufficient to close development gaps with advanced economies. Underpinned by prudent macroeconomic policies, the economy has rarely been in a recession, except when large external shocks happen such as during the COVID-19 pandemic. As documented in World Bank (2025), the country's per capita GDP has averaged an annual growth rate of 2.1 percent since 1960, exceeding the Latin America and Caribbean average of 1.7 percent but still far from the pace needed to achieve meaningful convergence with developed economies. In comparison, Colombia's per capita income relative to that of the United States has remained relatively stable since the late 1990s, with the average Colombian consuming only 25 percent of the goods and services consumed by an average American. Even if Colombia were to achieve an annual growth rate of 3 percent in its per capita GDP, it would still take over 20 years to raise that ratio to just 30 percent.

Colombia's growth has been driven almost entirely by the accumulation of capital and labor rather than efficiency gains. In the two decades preceding the COVID-19 pandemic, average total factor productivity stagnated. Colombia lags behind not only OECD countries but also emerging economies and its regional peers in terms of its productivity dynamics (Figure 1). Structural constraints to productivity and economic growth at the national level, include low-quality human capital (including education outcomes and managerial capabilities), infrastructure, and institutions. Ill-functioning markets, a lack of competition, excessive red tape, stringent labor regulations, and shallow capital markets further hinder innovation and resource allocation across sectors and firms (World Bank, 2025).

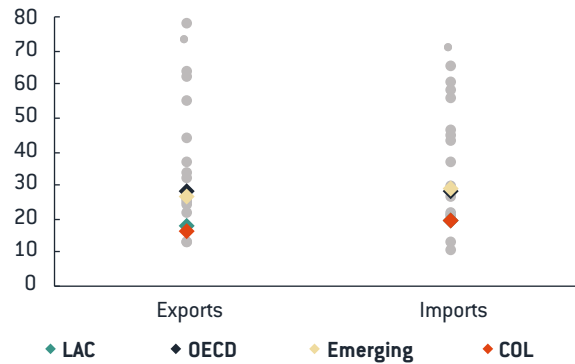
Despite having concluded numerous trade agreements, Colombia remains relatively closed to international trade. While the country has established agreements with numerous nations, its trade-to-GDP ratio remains low at around 40 percent, which makes it one of the least open economies among countries with over 30 million inhabitants (Figure 2). This in part reflects its reliance on primary commodity exports rather than a diversified mix of complex goods and services, which is constraining its participation in global value chains. As a result, Colombia misses out on the benefits of increased competition, technology transfer, and innovation that typically accompany deeper integration into international markets. This relative isolation compounds the other challenges it is facing in trying to boost productivity, increase economic growth, and create quality jobs for the large share of the population that currently works in the informal market.

FIGURE 1. GDP GROWTH DECOMPOSITION BY FACTOR OF PRODUCTION, 2000-2023



Source: Updated from World Bank (2025)

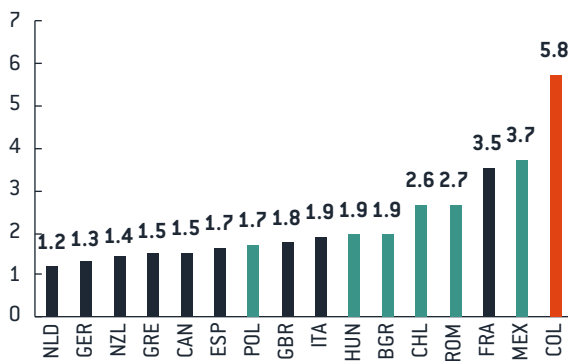
FIGURE 2. TRADE OPENNESS IN COLOMBIA AND COMPARATORS AS SHARE OF GDP, 2000-2023



Source: Updated from World Bank (2025)

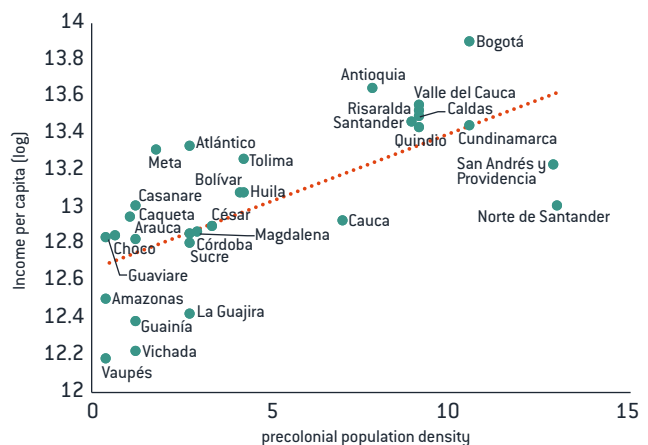
Colombia's national per capita GDP gap with respect to developed economies and limited trade openness are mirrored at the regional level. Despite national efforts to bridge gaps, regional inequalities persist. For instance, per capita GDP in Bogotá, the wealthiest district with income levels comparable to Chile or Bulgaria, is close to six times higher than in Vaupés or Vichada (Figure 3), which have per capita GDP levels similar to the bottom 22 percent of countries in the global income distribution (World Bank, 2025). This internal economic disparity is exacerbated by limited trade and investment between Colombia's regions, which mirrors the country's broader challenges with global economic integration. Regions that have few connections with national and international markets struggle to attract investment, adopt new technologies, and raise productivity, which perpetuates a cycle of underdevelopment and informality.

FIGURE 3. RATIO OF PER CAPITA GDP BETWEEN THE RICHEST AND POOREST DEPARTMENT IN COLOMBIA AND COMPARATORS



Source: World Bank (2025)

FIGURE 4. POPULATION DENSITY IN THE 16TH CENTURY AND CURRENT PER CAPITA GDP IN COLOMBIA'S CITIES, 2021



Source: World Bank (2024a)

Economic disparities between Colombia's regions have deep historical roots dating back to the colonial era. Colonial policies concentrated power and economic activity in select areas with geographical advantages, which marginalized regions like Chocó and parts of the Amazon. In fact, population density in the 16th century is a good predictor of current per capita GDP in Colombia's departments (Figure 4). This long historical legacy, compounded by challenging physical terrain and persistent inequities in institutional capacities and access to basic quality services, has set the stage for cumulative economic disparities (Box 1).

These economic disparities are correlated with social disparities, which further hinder the achievement of equality of opportunity, economic growth, and job creation. Social disparities constrain the potential of individuals in underdeveloped regions, limiting their ability to contribute to the economy and ultimately slowing overall growth and job creation. The lack of cohesive development impedes the flow of resources, knowledge, and skills, which are all essential to fostering a dynamic and resilient economy. Even though Colombia has a comprehensive intergovernmental fiscal transfer system aimed at reducing social disparities, notably the General Participation System (SGP), this has not been sufficient to close the country's regional development gaps.

BOX 1. THE ORIGINS OF TERRITORIAL INEQUALITIES IN COLOMBIA

Several scholars have highlighted the deeply rooted causes of regional economic disparities in Colombia.

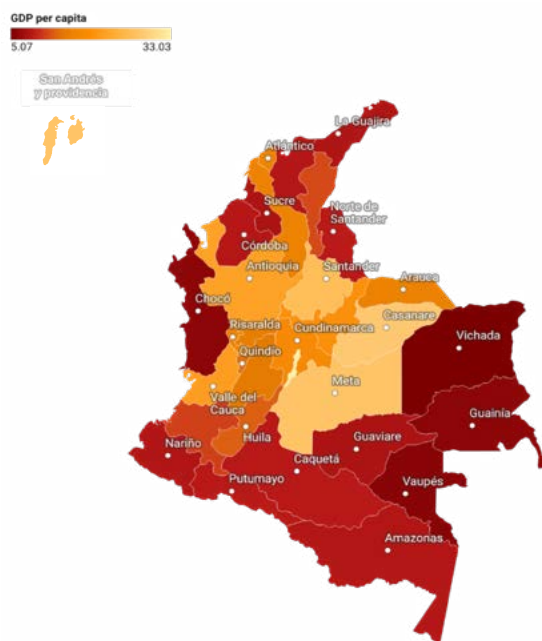
Geographic factors and endowments played a key role in establishing these disparities even as far back as the pre-colonial era. The Andean highlands, blessed with favorable climates and fertile soil, attracted population, whereas the Amazonian and Pacific rainforests and the plains in Orinoquia were located far from the main population centers and suffered from tropical diseases and unfavorable conditions for agriculture, meaning that they were sparsely populated from the onset.

Spanish colonial rule reinforced these patterns by organizing its administration in accordance with existing population patterns and concentrations of power, wealth, and institutional presence, thus neglecting more remote areas. Public service provision and skilled labor followed suit. Bonet and Meisel-Roca (2007) argued that these early colonial institutional choices created path-dependent processes that have reinforced regional inequalities over time. Also, Ferguson et al (2017) identified the uneven distribution of economic and political institutions during the colonial era as a fundamental factor in perpetuating inequalities across Colombia.

Agglomeration economies perpetuated the good fortune of what later became known as “the golden triangle” of Bogotá, Medellín, and Cali, which were the hubs of economic activity and diversification in Colombia. The self-reinforcing nature of agglomeration economies allowed these core regions to continue prospering, while more remote areas remained locked in a cycle of low productivity, underinvestment, weak state presence, and isolation.

Ethnic and racial inequalities in Colombia are closely intertwined with regional disparities. Afro-Colombian and Indigenous populations are mostly concentrated in the country's poorest regions, including the Pacific coast, parts of the Caribbean coast, and the Amazon. This distribution reflects a historical pattern of marginalization that continues to influence developmental outcomes across Colombia departments today.

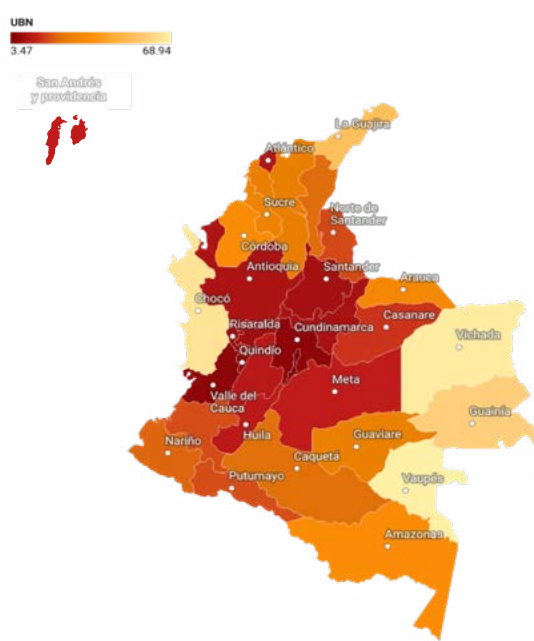
MAP 2. PER CAPITA GDP BY DEPARTMENT, 2022



Created with Datawrapper

Source: Authors' elaboration using data from DANE

MAP 3. UNMET BASIC NEEDS BY DEPARTMENT, 2022



Created with Datawrapper

Source: Authors' elaboration using data from DANE

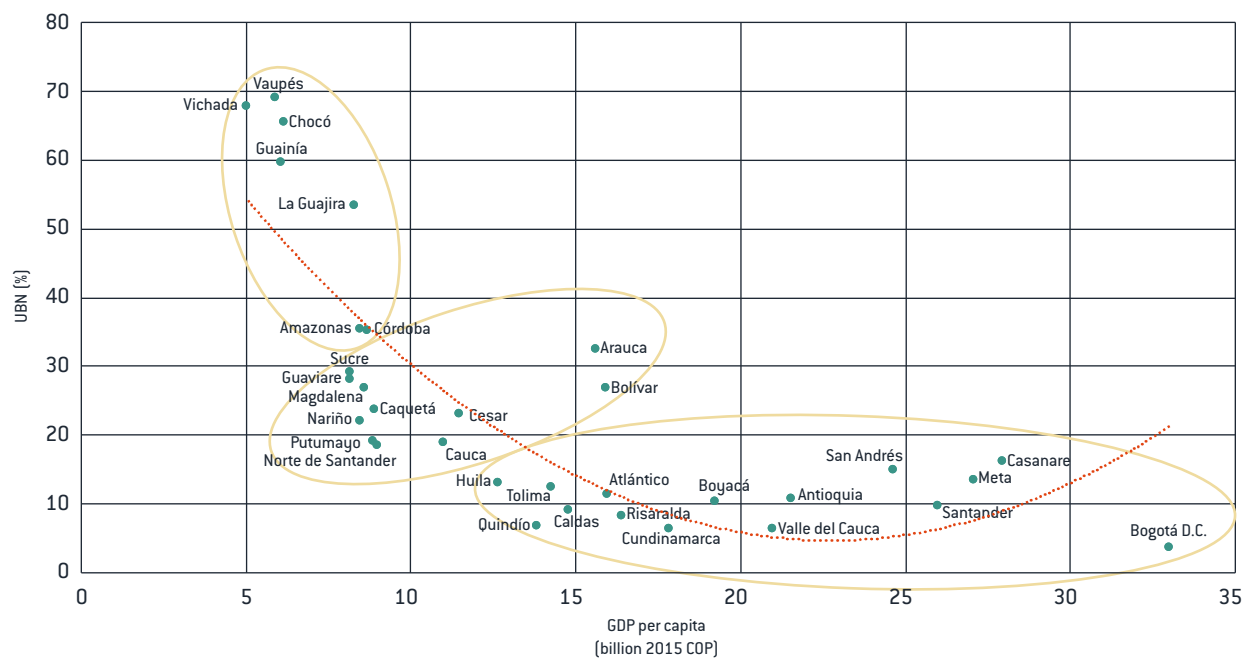
1.3. ONE COUNTRY, MANY ECONOMIC REALITIES

In many instances, referring to Colombia as a single economic entity is an oversimplification, as there are stark different economic and social realities across the country. These different Colombias are not aligned with the standard geographical classification of the country into six regions.⁵ Departments within different regions share structural economic characteristics such as infrastructure, roads and other transportation, institutional capacity, and access to quality public services. The variations across regions are an indication that different departments are at different stages in the development process, as reflected in their per capita GDP and the sectoral composition of their economic activities.

To analyze these differences, this report classifies Colombian departments according to their various stages of development. This report establishes a simple taxonomy of departments based on two key development variables: per capita GDP and the level of unmet basic needs (UBN) (Figure 5). The negative and non-linear correlation between these variables suggest that departments can be classified into three categories: (i) departments with relatively low UBN (around 10 percent) and where per capita GDP varies by a factor of around two between the poorest and richest departments (which is similar to the average in other countries); (ii) departments with high UBN and low per capita GDP; and (iii) an intermediate group of departments with intermediate UBN and per capita GDP.

5 These areas are as follows: (i) the Andean region, characterized by mountainous terrain, is the most populous, urbanized; (ii) the Caribbean region, known for its coastal plains and vibrant culture, is a major tourist destination; (iii) the Pacific region, home to the largest afro-descendant communities, has dense rainforests and high biodiversity; (iv) the Orinoquía region is known for agriculture and cattle ranching; (v) the Amazon region is known for its biodiversity and Indigenous communities; and (vi) the Insular region, which includes islands in both the Caribbean Sea and the Pacific Ocean, contributes Colombia's maritime territory and blue wealth.

FIGURE 5. LEVEL OF UNMET BASIC NEEDS AND PER CAPITA IN COLOMBIAN DEPARTMENTS, 2022



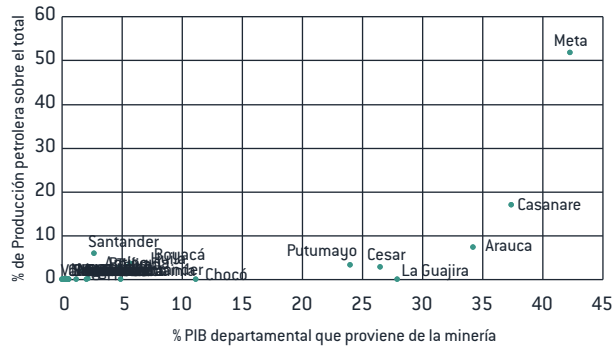
Source: Authors' elaboration using data from DANE

While this classification reflects past trends, it is also necessary to take into account expected future developments, particularly those related to the climate transition. Colombia will have to undergo three critical transitions related to climate change: i) towards an economy more resilient to climate shocks; ii) towards lower global hydrocarbon demand; and iii) towards an economy with net zero carbon emissions. According to the Colombia Country Climate and Development Report (World Bank, 2023), by 2050, lower global demand for oil and coal could result in a loss of about 10 percent of export receipts for Colombia, up to 6 percent of government revenues, and up to 8.2 percent of GDP. Many hydrocarbon-producing departments, such as Meta, Casanare, Arauca, Cesar, and Putumayo, are particularly vulnerable to this trend (Figure 6). Their economic structures differ from those of other departments with a similar per capita GDP, and their current income levels do not fully reflect their long-term productive potential. This distinction warrants classifying them as a separate category.

Similarly, many low-income, high-UBN departments are scarcely populated and rich in natural capital. Departments such as Amazonas, Vaupes, Guainia, or Guaviare are rich in biodiversity and forests (Figure 7), the conservation of which will be essential for Colombia to meet its ambitious climate commitments.⁶ Achieving these commitments will require significant efforts to curb deforestation, which is the main driver of emissions in the country (World Bank, 2023). Without drastically reducing deforestation and scaling up restoration and afforestation, Colombia's 2030 and 2050 climate commitments will remain out of reach. As a result, some departments such as Amazonas and Guaviare, despite having per capita GDP and UBN levels that could put them in the intermediate category, are included in the high-UBN group because they have certain characteristics in common with most low-income departments, including remoteness, low population numbers, and rich natural capital.

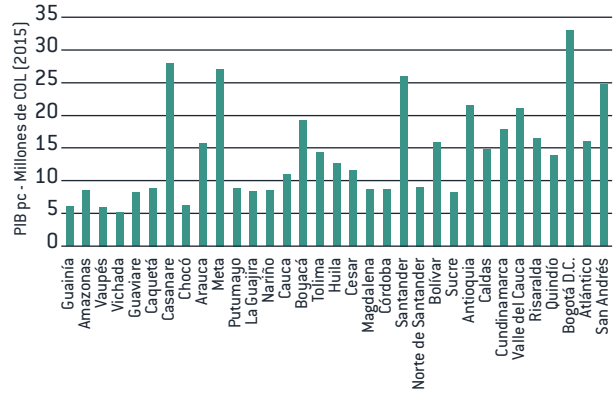
6 Colombia's updated Nationally Determined Contribution (NDC) commits to reducing greenhouse gas emissions by 51 percent by 2030 compared to a business-as-usual scenario, and achieving net zero emissions by 2050, with these targets enshrined in law through the Climate Action Law (Law 2169 of 2021). For a detailed discussion of Colombia's climate commitments and their aggregate implications for economic activity, see World Bank (2023).

FIGURE 6. OIL PRODUCTION AND RELEVANCE TO DEPARTMENTAL GDP, 2022



Source: Author's elaboration using data from DANE

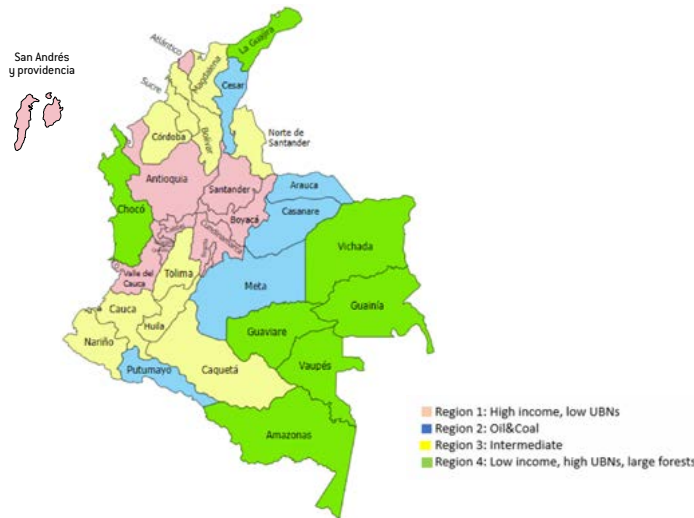
FIGURE 7. SURFACE AREA OF DEPARTMENTS COVERED BY FORESTS AND PER CAPITA, 2022



Source: Author's elaboration using data from DANE

Based on these criteria, the report classifies Colombia's departments into four economic regions (Map 4). Region 1 is characterized by relatively high per capita GDP, low levels of UBN, and a high share of the national population and/or high population density. This region includes mostly populous departments in the Andean region such as Bogotá D.C., Antioquia, Valle del Cauca, and Cundinamarca but also Atlántico on the Caribbean coast and the islands of San Andrés y Providencia. Region 2 consists of hydrocarbon-producing departments whose per capita GDP overestimates their productive capacity in a non-oil future. Departments in this category include those with high per capita GDP such as Meta and intermediate departments such as Arauca. Region 3 is characterized by departments with intermediate per capita GDP, including Cauca, Huila, and Norte de Santander. Finally, Region 4 departments have low per capita GDP and high levels of UBN and are richly forested, including Amazonas, Guainía, and Chocó.⁷ Box 2 explains the classification of the two departments with special characteristics, La Guajira and San Andrés y Providencia.

MAP 4. A SIMPLE TAXONOMY OF COLOMBIA'S DEPARTMENTS

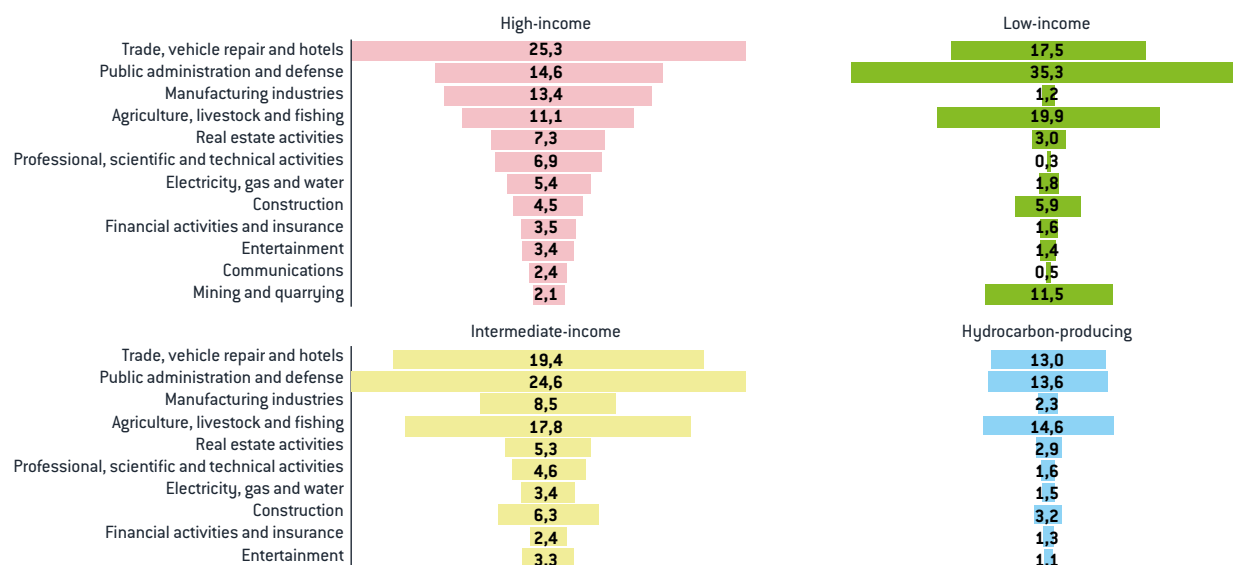


Source: Authors' elaboration

⁷ Annex 4 summarizes the department groupings using key departmental statistics. This simple exercise is robust to statistical clustering techniques involving a larger set of structural variables across departments. It is not intended to be a definitive grouping of departments but is rather a useful heuristic classification for the purposes of this report. Other recent studies have also found using a similar taxonomy of four regions to be useful for different purposes (see DNP, 2024 and Giles Álvarez et al, 2024)

This simple departmental taxonomy captures many aspects of departments' development stage such as the shifting sectoral GDP composition. Figure 8 shows the weight of different sectors in regional GDP. Departments in Region 1 (also referred to as high-income, or low UBN) have higher shares of marketable services (such as trade or professional activities) and manufacturing than departments in other regions and lower shares of agriculture. Departments in Region 2 (hydrocarbon producers) have very high shares of mining and low shares of marketable services. In the departments in the Region 4 category (low-income), public administration accounts for over one-third of GDP on average. And the intermediate-income departments in Region 3 are a mix, as they have some characteristics of low-income departments (such as a large public sector) and some characteristics of high-income departments (such as a large trade sector).

FIGURE 8. SHARE OF SECTORS IN GDP, 2022



Source: Authors' elaboration using data from DANE.
Note: Simple average shares across departments.

BOX 2. TWO SPECIAL CASES: LA GUAJIRA AND SAN ANDRÉS Y PROVIDENCIA

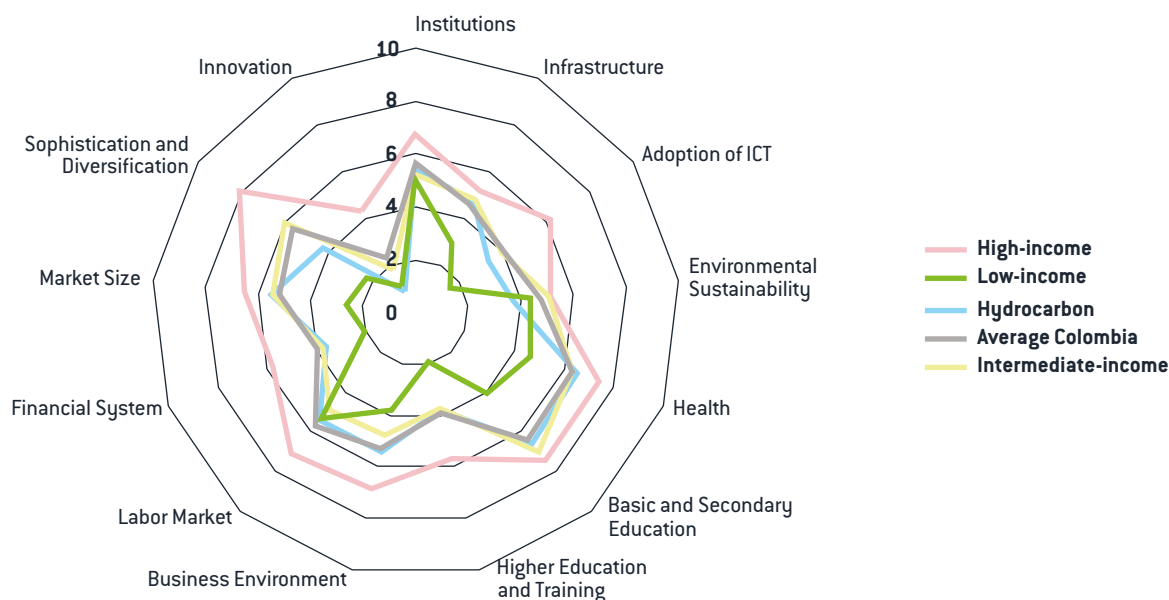
Two departments are at opposite ends of the income spectrum and not easy to classify within the proposed taxonomy: La Guajira and San Andrés y Providencia.

La Guajira is Colombia's northernmost continental department along the Caribbean Sea. Home to around 1 million inhabitants, many of them indigenous Wayuu people, La Guajira consistently ranks low on socioeconomic indicators, well below those of leading departments. Therefore, La Guajira is included in Region 4 along with other departments with high UBN and low per capita GDP. However, it is different from the other departments in this region in at least two important respects. First, a large share of its surface is covered by a dry desert instead of rainforests. Second, La Guajira is an important hydrocarbons producer (coal and gas).

San Andrés y Providencia is an insular department 700 kilometers northwest of Cartagena, off the coast of Nicaragua. The two small islands jointly cover a surface area of only 52.5 square kilometers but are an important tourism hub thanks to their crystal waters and tropical beaches. Although the San Andrés y Providencia department sits comfortably among the highest-income departments in Colombia, and as such is classified under Region 1, its geographic isolation and limited land resources restrict its opportunities to diversify its economic development beyond tourism.

Disparities between regions are also reflected in their competitiveness indicators. The Departmental Competitiveness Index (*Índice Departamental de Competitividad*) is a widely used annual index produced by the Private Council for Competitiveness (*Consejo Privado de Competitividad*) to capture different aspects of competitiveness across the country. It tracks 13 indicators ranging from infrastructure and ICT adoption to market size and innovation. Figure 9 presents each region's average score on each indicator. High-income departments in Region 1, on average, outperform other regions on all 13 competitiveness indicators. Region 4 departments, at the other extreme, perform worst on all indicators except environmental sustainability. Interestingly, the oil and coal producing departments in Region 2 have scores that are more similar to intermediate departments (Region 3) than rich departments, which justifies their classification as a separate category.

FIGURE 9. COMPETITIVENESS INDICATORS ACROSS DEPARTMENTS



Source: Authors' elaboration based on the 2024 Departmental Competitiveness Index

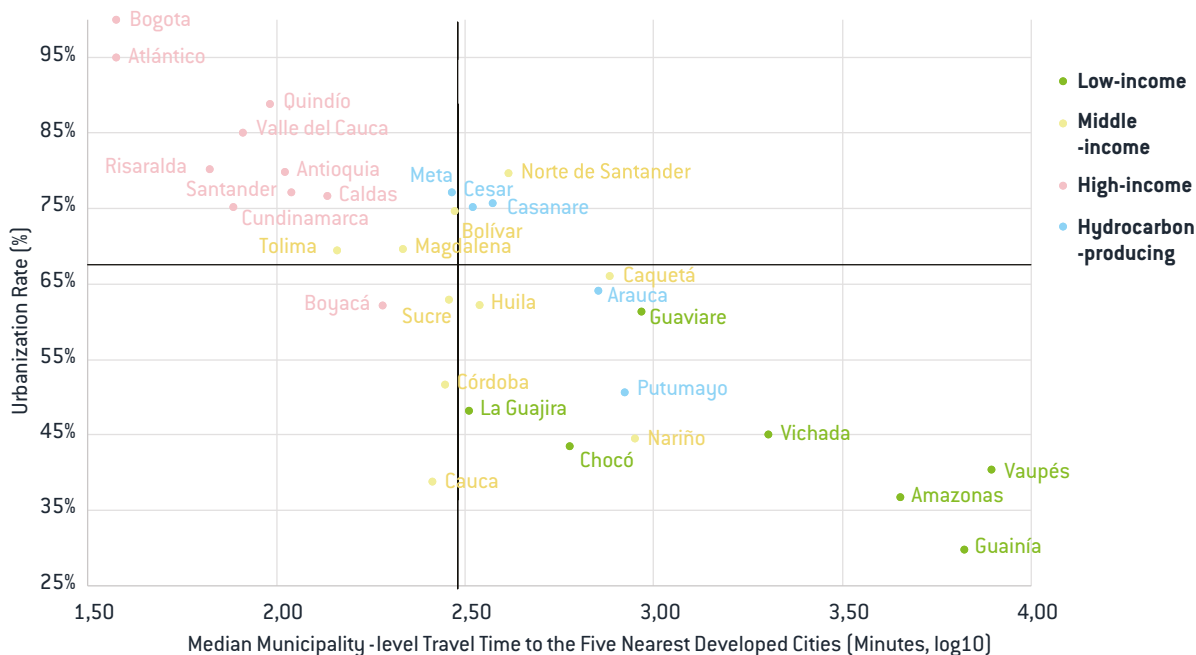
Two main factors characterize the different regions from an economic geography perspective: geographical isolation and level of urbanization. High-income departments (Region 1) are more urbanized and are located close to domestic markets, while low-income departments (Region 4) are more rural and are often isolated from markets. Intermediate and oil-producing departments (Regions 2 and 3) fall in between (Figure 10). The high costs of transportation to main cities and markets are a significant constraint to economic growth and integration as they impede the efficient movement of goods and services, leading to higher prices and reduced competitiveness in both domestic and international markets. This is exacerbated by inefficient markets for transport services, characterized by limited competition and informal restrictions, further inflating costs (Allen et al, 2024).⁸

Urbanization and agglomeration dynamics are pivotal forces driving economic growth. As urban areas expand, they create dense clusters of economic activity, which in turn foster increased productivity in various ways. One of these is specialization, where businesses and workers can focus on specific tasks and industries, leading to greater efficiency and innovation. Additionally,

⁸ Conflict and violence, a factor that is often associated with Colombia's development challenges, do not seem to be drivers of economic convergence or divergence within Colombia. Although there is evidence that conflict and violence affect aggregate economic growth (Díaz and Orozco 2025, Trujillo and Baradel, 1998), and that it has important negative local implications in certain areas of the country, it is not a factor that explains the grouping of departments into regions with different economic structures. As such, they don't correlate with departmental income, as measured by departmental rankings on homicide, kidnapping and extortion rates according to *Índice Departamental de Competitividad 2024*. See Freeman and Giuliano (2025) for more details. Maloney et al (2025) expand on the impact of violence in Latin America and the Caribbean.

the proximity of firms and individuals in urban areas facilitates the diffusion of knowledge and ideas, a positive externality that spurs innovation and economic development. Economies of scale are also more easily achieved in urban environments, as the concentration of resources and infrastructure reduces costs and enhances production capabilities. Moreover, urbanization often improves labor markets by producing larger pools of workers and more opportunities for employment, which in turn can attract further investment and economic activity.

FIGURE 10. TIME NEEDED TO TRAVEL TO MAIN URBAN CENTERS AND URBANIZATION RATE BY DEPARTMENT



Source: Freeman and Giuliano [2025] using data from the WHO, the DNP, and DANE
 Note: NNRR = Natural Resources.

Urbanization also explains why the Colombian population is concentrated in Region 1, while Region 4 is only scarcely populated. Departments in Region 1 account for over 60 percent of Colombia’s population and include Colombia’s five most populous cities (Bogotá, Medellín, Cali, Barranquilla, and Bucaramanga). Region 4, despite covering around 40 percent of Colombia’s surface area, accounts for only around 4 percent of the population, most of whom live in Chocó and La Guajira. The departments of Amazonas, Vaupes, Guaviare, Vichada, and Guainia combined have fewer than 400,000 inhabitants or less than 1 percent of Colombia’s population. Thus, the departments with the highest unmet basic needs tend to be isolated, rural, and scarcely populated.

1.4. ECONOMIC CONVERGENCE BETWEEN COLOMBIA’S REGIONS

the historical trends shown in Figure 4, there is no strong evidence of economic convergence between Colombia’s regions. Economic convergence refers to the process by which lower-income countries (regions within a country in our case) grow faster than higher-income countries and, thus, close the per capita GDP gap over time. There is a long tradition of economic convergence studies in Colombia, with the more recent analyses having found only weak evidence or no evidence of any convergence in income between the country’s high-income and low-income departments (for example, Acosta and Bonet, 2022 and Galvis-Aponte and Hanh-De-Castro, 2016). Figure 11 presents a simple scatterplot between per capita GDP in 1990 and growth in per capita GDP between 1990 and 2019. It shows that convergence over the last three decades has been weak at best and has largely been due to the fact that per capita GDP in Arauca, an oil-rich department in 1990, fell by half over the last 30 years as the department’s oil fields

matured and fewer discoveries were made (Meisel-Roca and Hanh, 2020). Figure 12 presents formal estimates of convergence coefficients for different time windows that confirm a lack of convergence between Colombia's departments as a whole.

FIGURE 11. PER CAPITA GDP IN 1990 AND GROWTH RATE BETWEEN 1990 AND 2019

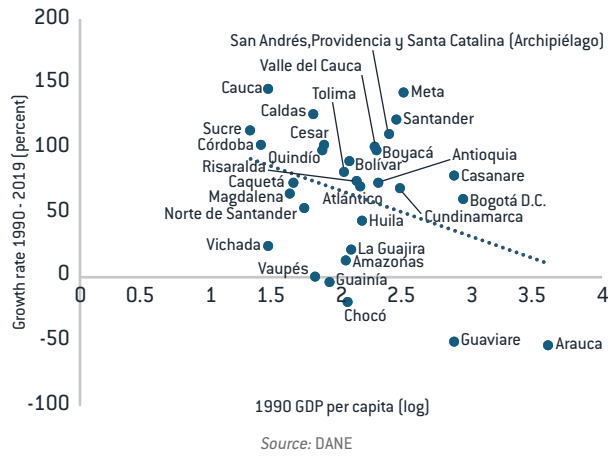
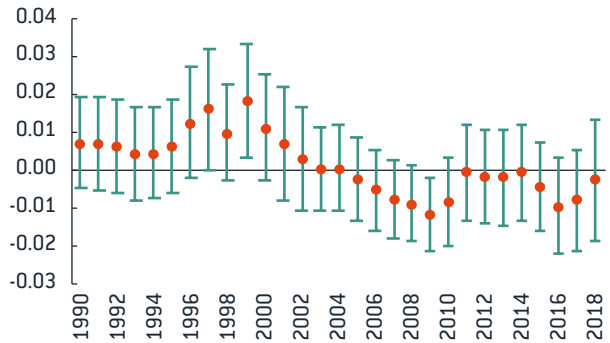


FIGURE 12. UNCONDITIONAL CONVERGENCE ESTIMATES BETWEEN DATE IN X-AXIS AND 2019



Source: Authors' estimates using data from DANE
 Note: The regressions use nonlinear least squares to estimate the standard Beta convergence equation. The figure plots the estimated Betas and their 95 percent confidence intervals. The estimates exclude Arauca.

Absolute convergence between Colombia's departments in terms of their per capita GDP levels is unlikely because of their large heterogeneity in structural characteristics and wide differences in starting conditions. Economic theory predicts convergence only if departments share similar structural characteristics including demographic and human capital indicators, institutional settings, and investment rates.⁹ This is known as conditional convergence. Moreover, even if all departments had the same structural characteristics, wide differences in their initial levels of per capita GDP could result in different groups of departments converging at different levels of per capita in the long run.¹⁰ This is known as club convergence. As was discussed earlier in this chapter and in World Bank (2024a), economic convergence cannot be expected when structural characteristics and per capita GDP levels differ so markedly between departments.

However, there is some evidence that at least two groups of departments in Colombia are converging to different per capita GDP levels, calling for different development strategies for different groups. Figure 13 shows the results of a club convergence exercise for Colombia that we conducted based on the analysis in Phillips and Sul (2007). For every year, the exercise ranks each department's ratio of per capita GDP to the national average and uses an iterative process to endogenously group departments into different convergence paths. We found that the departments in Region 4 formed a club that diverges from the national average, evidence that those departments are converging to a different (lower) GDP per capita level.¹¹ Departments outside Region 4 are better performers, but the evidence of convergence among them is weak (Figure 14). The existence of convergence clubs reinforces the need for differentiated development strategies for these different regions.¹²

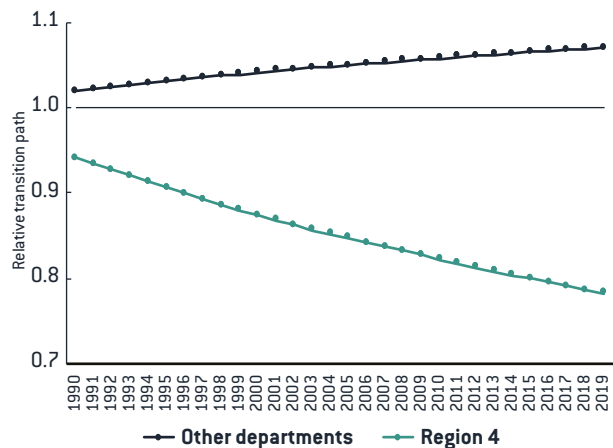
9 See Barro and Sala-i-Martin (1992) for a seminal paper on regional convergence.

10 See Galor (1996) for an early theoretical discussion on club convergence.

11 The endogenous iterative process puts the department of Cordoba into Region 4.

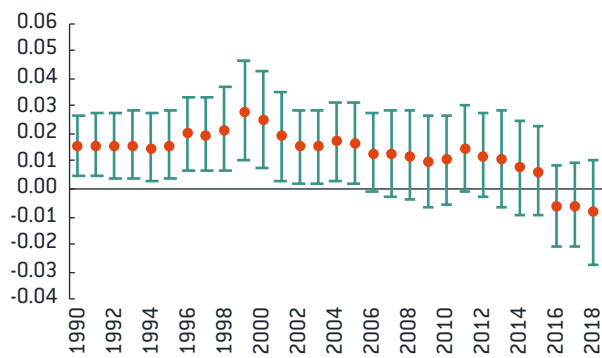
12 Franco and Raymond (2009) and Rodríguez and Ceballos (2022) also found evidence that club convergence existed within Colombia.

FIGURE 13. CLUB CONVERGENCE: RATIOS OF DEPARTMENTAL PER CAPITA GDP TO NATIONAL AVERAGE PER CAPITA GDP, 1990-2019



Source: Authors' elaboration using data from DANE

FIGURE 14. UNCONDITIONAL CONVERGENCE ESTIMATES BETWEEN DATE IN X-AXIS AND 2019



Source: Authors' elaboration using data from DANE

Chapter 2. Colombia's Structural Transformation: Regions in the Rearviewmirror



2.1. INTRODUCTION

Many different economic development realities coexist in Colombia. Chapter 1 showed that economic development has been uneven across the country dating back to colonial times. In the chapter, we classified Colombia's departments into four different categories or regions based on their main structural characteristics including the composition of economic activity, competitiveness outcomes, access to domestic markets, and urbanization rates. It also showed evidence of economic convergence and divergence process across regions, evidence that different structural characteristics and initial conditions provide for different development paths.

This chapter further characterizes the development stage of different regions, its causes, and analyzes their link to deforestation incentives. It first describes Colombia's structural transformation process and then defines where each region is currently situated along that process. It shows how these levels of development have been influenced by relative productivity levels across regions and sectors. It then analyzes the economic geography factors that constrain growth and development and the vicious cycle that keeps Colombia in a low-growth equilibrium that reinforces inequalities and informality, and keep the country relatively isolated from international markets. To conclude, it links these outcomes to the deforestation processes occurring at the agricultural frontier in Colombia.

2.2. STRUCTURAL TRANSFORMATION ACROSS COLOMBIA'S DEPARTMENTS

Productivity dynamics drive structural transformation as workers and resources moving away from rural activities and into urban activities as economies develop. This well-documented phenomenon in economic literature, describes how countries shift away from being a mainly agricultural economy to one that is more diversified and encompasses manufacturing and services.¹³ As agricultural productivity increases because of automation and better practices, labor demand in rural areas falls, driving workers and their families out of rural areas and into urban areas. This internal migration concentrates labor, capital, and innovation in cities, which become hubs for industrial and service development. As cities grow and reap the benefits of economies of scale and network effects, urban productivity increases further, creating new economic and job opportunities and reinforcing the structural transformation process.

The process of structural transformation evolves differently in developed countries than in emerging economies. In developed economies, the trajectory has been that the share of manufacturing employment increases as workers leave agriculture, reach a peak when 30 to 40 percent of all employment is employed in manufacturing, and later recede as the service sector becomes the main employer in the economy (Figure 15). This hump-shaped pattern of employment in manufacturing was characteristic of the development process of those economies that reached high-income status during the 20th century. This pattern is less stark in emerging economies (Figure 16), where peak industrialization is reached earlier in the development process and at lower shares of industrial employment. This process has been referred to as premature de-industrialization (Rodrik, 2016), and its implications for the development process have been subject to academic debate as summarized in Box 3.

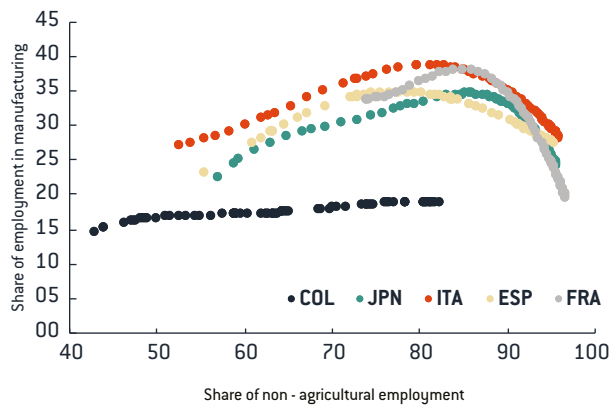
Colombia's process has its own specific characteristics, even with respect to other developing economies. It is characterized by three aspects:

13 See, for example, Kuznets [1971] for an early exposition, Huneus and Rogerson (2024) for a recent study of the role of productivity, and Buera et al (2023) for a recent literature review.

- (i) *Persistent employment in agriculture.* Even though the share of agricultural employment declined as the development process advanced, it remains high, accounting for 16 percent of the employed workforce. This is higher than the share of workers employed in manufacturing and higher than the shares in other developing economies.
- (ii) *Low industrialization.* Colombia's industry never really took off. Its share of employment remained relatively flat at less than 20 percent and now seems to have already peaked.
- (iii) *Service sector as “the employer of last resort.”* Seventy percent of employment in Colombia is now in the service sectors, many of them subsistence self-employed jobs with low productivity.

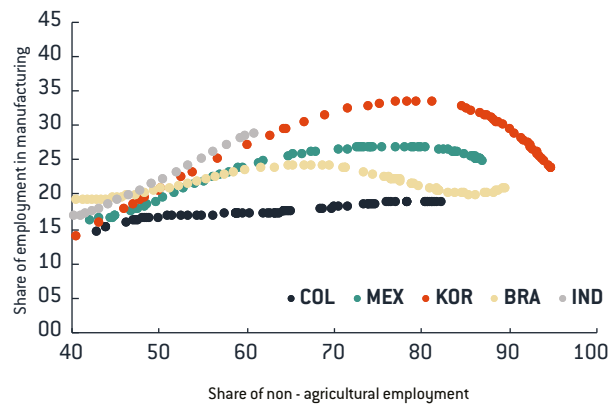
While some of these trends are shared with other emerging economies, in Colombia they are particularly acute.

FIGURE 15. INDUSTRIALIZATION TRAJECTORIES OF COLOMBIA AND SELECTED DEVELOPED ECONOMIES SINCE 1950



Source: World Bank (2025), following the methodology in Huneus and Rogerson (2024)

FIGURE 16. INDUSTRIALIZATION TRAJECTORIES OF COLOMBIA AND SELECTED EMERGING ECONOMIES SINCE 1950



Source: World Bank (2025), following the methodology in Huneus and Rogerson (2024)

BOX 3: THE PREMATURE DE-INDUSTRIALIZATION DEBATE

Premature de-industrialization happens when the share of manufacturing employment in emerging economies peaks earlier and at a lower level than when developed countries were at the same stage of development. Developed economies today have declining shares of manufacturing employment, but their peak was reached only after they had achieved high-income status at a level between 30 percent and 40 percent of total employment (Felipe et al, 2019). In contrast, peak manufacturing in emerging economies is much lower and is achieved at a lower income level than in developed countries. This is particularly true in Latin American countries, and this, together with the region's disappointing development outcomes, has raised concerns about their growth prospects.

Should premature de-industrialization be a source of concern? Is there anything special about the industrial sector that would affect the development outlook of these emerging economies?

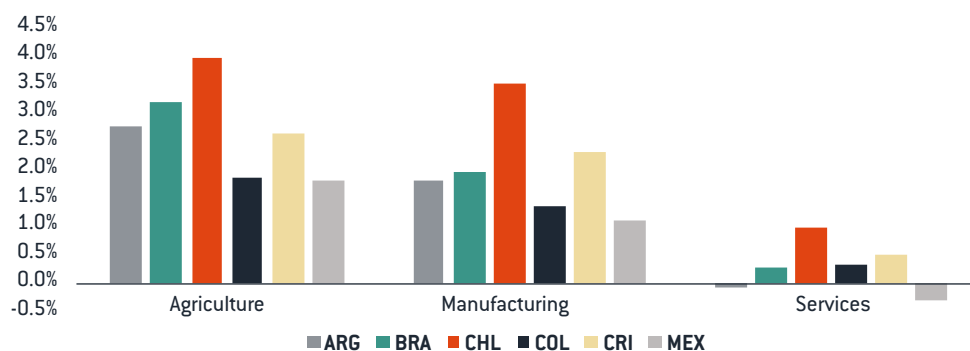
Manufacturing has traditionally been regarded as a dynamic, high-productivity sector that is a key engine of economic growth and development. Manufacturing is often particularly associated with R&D and innovation and the adoption of technology. It is seen as a source of economic advancement and diversification, a sector capable of demanding both high-skilled managers and engineers and low-skill workers where learning-by-doing processes are strong and capable of creating economic hubs of knowledge spillovers. From this perspective, cutting short the industrialization phase of development could be expected to result in an incomplete structural transformation process that prevents countries from climbing the technological ladder and that forces workers into low-productivity service sectors that dampen aggregate productivity.

However, other studies have argued that the structural paths followed by developed economies were responses to a specific technological, institutional, and historical context and that the same blueprint cannot be expected to apply to emerging economies. Technology advances shared across borders make manufacturing processes much less labor-intensive than in the past, regardless of where they are located, making the idea of manufacturing as a strong driver of labor demand obsolete. Economic specialization also affects these trends, as many complementary services previously integrated into manufacturing firms have been gradually outsourced, thereby reducing the amount the manufacturing sector contributes to both output and employment. Global demand has also shifted, with consumption of services increasing as incomes grow and populations age. From this perspective, high-productivity services such as information and communication technologies, health, tourism, and the creative industries have the potential to become engines of growth for emerging economies by playing a similar role to that played by manufacturing for developed countries in terms of labor demand, productivity gains, and economic growth. In line with this view, recent research has found that welfare losses from premature deindustrialization are small (Fattal-Jaef, 2022).

In sum, while there is a consensus that the structural transformation process followed by emerging economies differs from the path followed by developed economies in the 20th century, it is not clear if this does or does not constitute an additional challenge for emerging economies. However, there is consensus that productivity growth and the reallocation of factors of production towards higher productivity sectors are the ultimate drivers of growth and development.

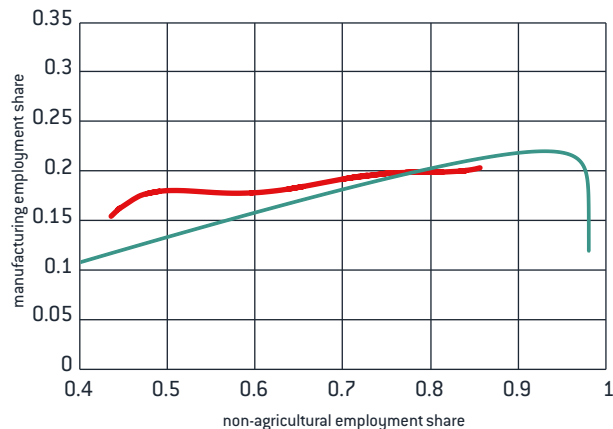
Low productivity growth across sectors in Colombia explains the salient features of its structural transformation process. Figure 17 shows that long-term labor productivity growth across sectors in Colombia lags behind that of its regional peers. Using these productivity growth figures to calibrate a standard structural transformation model to Colombia, we found that it closely matches what the observed process for Colombia (the blue line in Figure 18). This implies that the current composition of economic activity across Colombian departments, and Colombia’s development process as a whole, is explained by the low growth rate of productivity across all sectors. In fact, a counterfactual exercise in which the growth rate of average labor productivity in the service sector is doubled resulted in a development path with a larger manufacturing sector and a later peak in the development process (the blue line in Figure 19).

FIGURE 17. LONG-TERM LABOR PRODUCTIVITY GROWTH ACROSS SECTORS IN COLOMBIA AND OTHER LATIN AMERICAN COUNTRIES, 1950-2010, ANNUAL AVERAGE



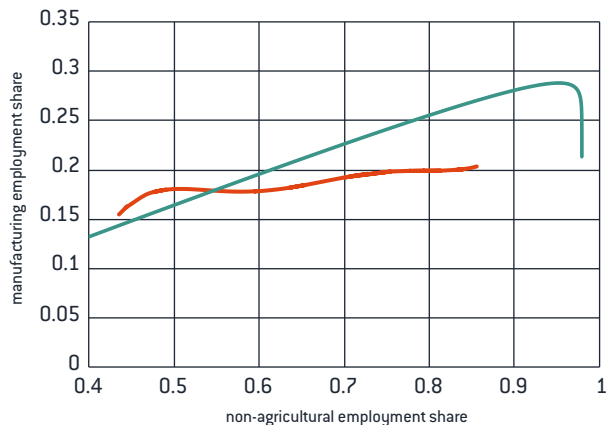
Source: Groningen Growth and Development Center

FIGURE 18. ACTUAL AND CALIBRATED INDUSTRIALIZATION TRAJECTORIES FOR COLOMBIA



Source: Authors' elaboration based on Huneelus and Rogerson (2024)
 Note: The red line depicts the structural transformation process for Colombia as a whole since 1950 as in Figure 15. The blue line represents the calibrated structural transformation process based on observed productivity growth rates across sectors, following the model in Huneelus and Rogerson (2024).

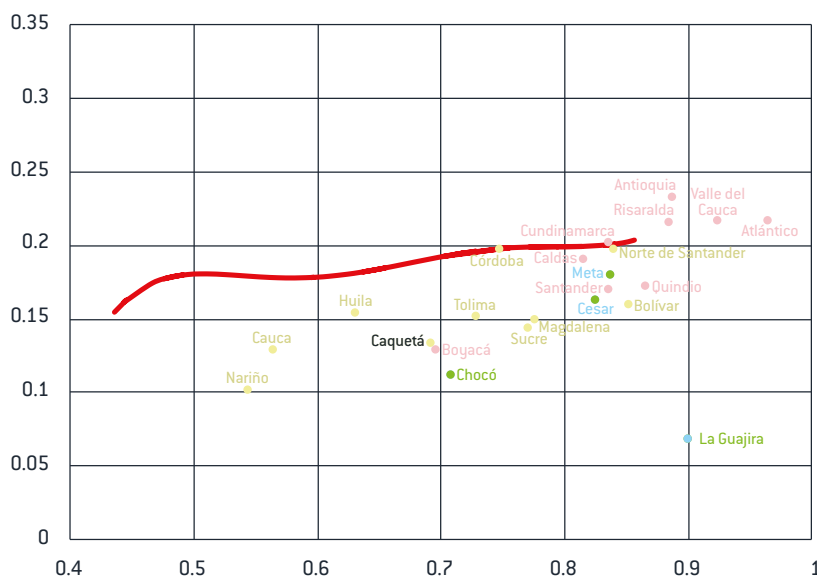
FIGURE 19. ACTUAL AND COUNTERFACTUAL INDUSTRIALIZATION TRAJECTORIES FOR COLOMBIA



Source: Authors' elaboration based on Huneelus and Rogerson (2024)
 Note: The red line depicts the structural transformation process for Colombia as a whole since 1950 as in Figure 15. The blue line represents the counterfactual structural transformation process based on double the actual productivity growth rate in the service sector.

An interesting feature in Colombia is that the current sectoral composition of economic activity across departments mirrors Colombia's development journey, with underdeveloped regions representing the earlier stages. High-income departments like Atlántico or Valle del Cauca, marked in dark blue in Figure 20, have lower agricultural employment and higher employment in manufacturing and services on average than the other regions, closer to the current Colombian average (displayed by the right tip of the red line). Hydrocarbon-intensive departments such as Meta (green), intermediate departments such as Magdalena and Cauca (orange), and low-income departments such as Chocó (light-blue) have notably higher agricultural employment and lower manufacturing and services employment, albeit with a lot of heterogeneity. This is in line with the earlier development stages of Colombia as a whole.

FIGURE 20. COLOMBIA'S INDUSTRIALIZATION TRAJECTORY AND THE CURRENT STANDING OF COLOMBIA'S DEPARTMENTS, 2022



Source: Authors' elaboration using data from DANE and the methodology in Huneelus and Rogerson (2024).
 Note: The red line depicts the structural transformation process for Colombia as a whole since 1950 as in Figure 15. Departments were selected for this figure based on their situation in 2022.

The relative economic position of different regions within Colombia is also explained by their productivity levels. Table 1 summarizes average sectoral labor productivity by regions and sectors. High-income departments have systematically higher levels of productivity across sectors (except for mining, which includes oil) than any other departments. Regions with lower productivity across all sectors lag behind in terms of the structural transformation process, having a larger share of the workforce employed in agriculture, even by Colombian standards. Low productivity means lower wages, as shown in Figure 21, with wages clearly declining from the higher-income departments to the lower-income departments (blue bars), even after controlling for differences in sectoral employment shares across regions (orange bars).

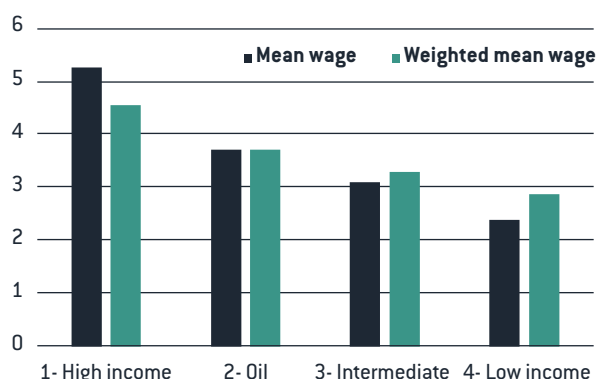
TABLE 1. INDEX OF AVERAGE LABOR PRODUCTIVITY AND SHARES ACROSS SECTORS (1=COLOMBIAN AVERAGE FOR AGRICULTURAL SECTOR)

	Employment Share	Sectoral Productivity in Colombia Index Agri=1	Sectoral Productivity High Income Departments
Agriculture	15%	1	1,4
Mining	1%	7,5	2,5
Manufacturing	11%	2,8	3,2
Construction	1%	1,6	1,6
Professional Activities	7%	5,4	5,8
Commerce	11%	1,3	1,5
Utilities	34%	5,2	5,9
Public sector	20%	2,3	2,3
Total		2,2	2,5

Source: Authors' elaboration based on data from the 2022 Great Integrated Household Survey (Gran Encuesta Integrada de Hogares).

Note: Average labor productivity, with an index of 1 representing average labor productivity in the agricultural sector for Colombia as a whole.

FIGURE 21. AVERAGE HOURLY WAGES ACROSS REGIONS, US\$ 2017 PPP



Source: Authors' elaboration based on data from the 2022 Great Integrated Household Survey (Gran Encuesta Integrada de Hogares).

Note: The blue bars are simple average wages across sectors by region. The orange bars are weighted average wages across sectors, where sectoral weights are held equal to the national average to control for sectoral composition across regions.

2.3. CONSTRAINTS TO GROWTH

Economic geography plays a key role in departments' productivity levels and growth rates. To identify these relevant factors, we conducted a growth diagnostic exercise applied to the subnational level. The exercise adapted the growth diagnostics framework originally developed by Hausmann et al (2008), which combines economic diagnosis with a heuristic decision-tree framework to pinpoint obstacles that directly constrain growth and private sector investment at the national level. Our proposed subnational approach focused on region-specific factors that are likely to explain or reinforce regional disparities rather than on broad regulatory frameworks, institutional structures, or macroeconomic conditions that affect the country as a whole. These broader issues have been analyzed in World Bank (2025).¹⁴

Transport costs and urbanization challenges are key economic geography factors that affect productivity in Colombia. Chapter 1 showed how our classification of departments into region was based on their transport costs to the main domestic consumption centers and their urbanization rates. While richer departments are more interconnected, helping them become and remain richer than poorer departments, transport costs, both between departments and to international markets, remain high. Likewise, although richer regions tend to attract more workers and grow their cities bigger, urbanization challenges in Colombia such as high housing costs and traffic congestion limit the synergies and agglomeration that could increase urban productivity, a phenomenon referred-to as "sterile agglomeration" (Grover et al, 2022). These factors constraint Colombia's overall competitiveness.

14 The details of this exercise can be found in Freeman and Giuliano (2025), which was produced in conjunction with this report.

High transport costs coupled with the fact that the most populous and developed regions are located far from the coasts add to Colombia's competitiveness challenges. Figure 22 shows that higher-income departments, which have relatively more complex and diversified economies, tend to be located far from the main ports. This is particularly true of Colombia's most populous metropolitan areas of Bogotá (Bogotá D.C. and Cundinamarca) and Medellín (Antioquia).¹⁵ In fact, the costs of shipping goods from Bogotá to the port of Barranquilla (Atlántico) or to Cartagena (Bolívar), a 1,000 kilometer road trip, are similar to how much it would cost to send the same goods from those ports to the city of New York in the US.¹⁶ This illustrates the common saying that "Colombia is a landlocked country with coasts on two oceans," which encapsulates the irony of high internal transport costs preventing Colombia from leveraging its access to the Atlantic and Pacific oceans. Colombia in this respect is an outlier in Latin America, as in most countries on the continent the major urban agglomerations are located close to the main ports. This prevents Colombia from maximizing its competitiveness and from effectively leveraging its diversified and complex economic bases for exports and its consumers from accessing goods at low prices.

In addition, Colombia's pervasive urbanization challenges undermine the benefits of agglomeration. As shown in Figure 23, housing supply has not been very responsive to price signals, with Medellín having the lowest price elasticity and Barranquilla the highest. In a related problem, higher-income departments devote a larger share of their earnings to rent, as illustrated by the median rental-to-income ratios shown in Figure 24. This is particularly acute in lower-income deciles, which spend a fraction of income over four times larger than top deciles on housing (Minvivienda, 2022). This illustrates the significant housing cost burden borne by the average Colombian worker. It is estimated that Colombia has 5.1 million vulnerable households, defined as living in overcrowded units or units with a qualitative housing deficit (World Bank, 2021). Ultimately, cities that fail to develop affordable housing risk losing the economic advantages of labor pooling, input matching, knowledge diffusion, and skill complementarities.

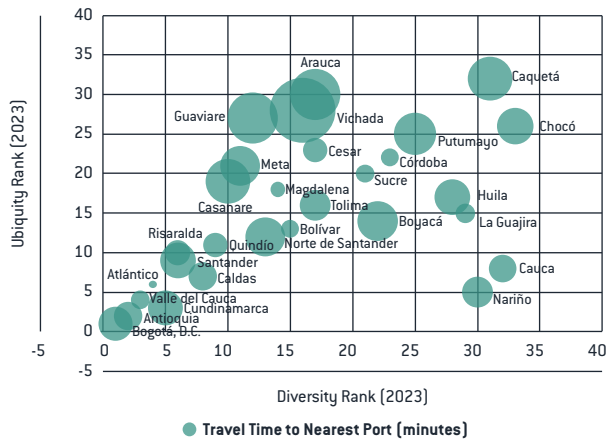
Moreover, Colombia's main cities are plagued by traffic congestion, with the Bogotá metropolitan area being particularly affected. By many metrics, Bogotá is among the most congested cities in the world (see for example Figure 25). According to the Mobility Survey conducted by the Bogotá Mobility Secretariat (*Secretaría de Movilidad de Bogotá*), the average commuting time in 2023 was 48 minutes, with commuting time by public transport taking as long as 79 minutes. Bogotá's congestion persists despite the implementation of strategies such as license-plate circulation restrictions, a pioneering rapid bus transit system, and the promotion of cycling infrastructure. Bogotá is not alone in facing severe congestion; other Colombian cities also experience high levels of congestion even when compared to other Latin American cities, which are themselves known for their traffic issues.¹⁷ Hinterland congestion, particularly around industrial zones, logistic hubs, and port access corridors, is a key aspect of overall congestion in Colombian cities (DNP, 2020). Congestion, like the burden of housing costs, disproportionately affects lower-income households. This has produced a pattern of lagging neighborhoods within cities, which adds to the regional fragmentation across the country.

15 Industry diversity refers to the number of industries in a department that give it a comparative advantage, indicating the department's ability to successfully compete in those industries. In contrast, industry ubiquity measures how common or widespread a particular industry is across departments. A low ubiquity score indicates that an industry is highly specialized and exists in only a few departments, while a high ubiquity score suggests that the industry is broadly distributed. As Hidalgo and Hausmann (2009) demonstrated in their work on economic complexity, regions with greater industry diversity and low average industry ubiquity tend to have more sophisticated and robust economic structures.

16 Freeman and Giuliano (2025) based on MoverDB.com and the National Registry of Cargo Dispatches (*Registro Nacional de Despachos de Carga*).

17 For a comprehensive study of Colombia's urbanization challenges, see Samad et al (2012).

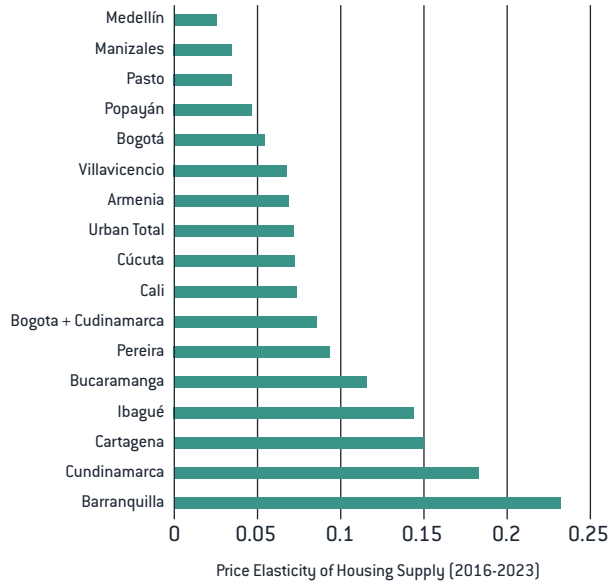
FIGURE 22. DEPARTMENTAL DIVERSITY AND UBIQUITY RANKED BY ACCESS TO EXTERNAL MARKETS



Source: Authors' elaboration using data from the 2022 Great Integrated Household Survey (Gran Encuesta Integrada de Hogares)

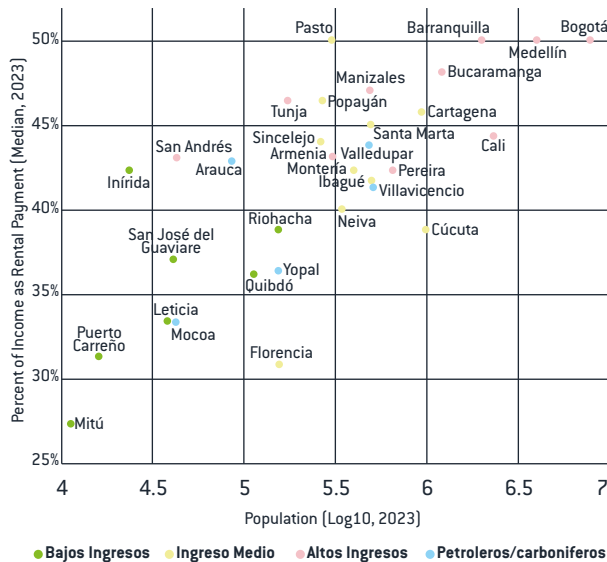
Note: Ubiquity refers to how common or widespread a product or activity is across a range of different places. A high ubiquity ranking (closer to the origin in the chart above) reflects a high share of products that are not produced elsewhere.

FIGURE 23. PRICE ELASTICITY OF HOUSING SUPPLY ACROSS COLOMBIAN CITIES (2016 - 2023)



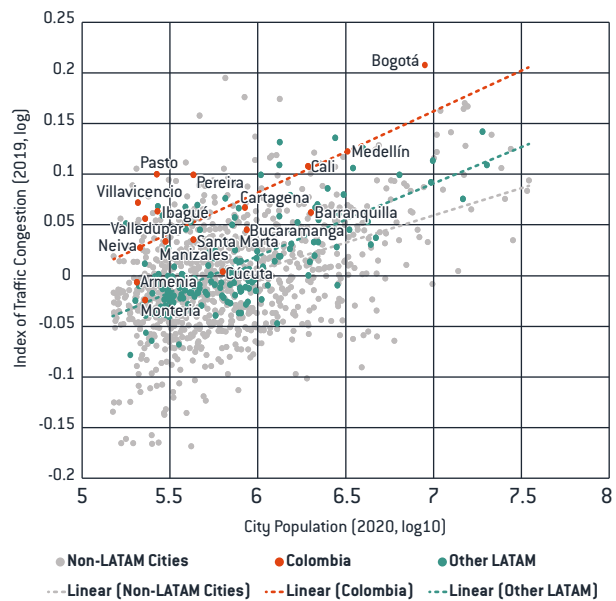
Source: Authors' elaboration using data from the 2022 Great Integrated Household Survey (Gran Encuesta Integrada de Hogares)

FIGURE 24. MEDIAN RENTAL PAYMENTS AS A PERCENTAGE OF INCOME, 2023



Source: Freeman and Giuliano (2025) using data from the Great Integrated Household Survey (Gran Encuesta Integrada de Hogares).

FIGURE 25. TRAFFIC CONGESTION INDEX BY CITY POPULATION, 2020

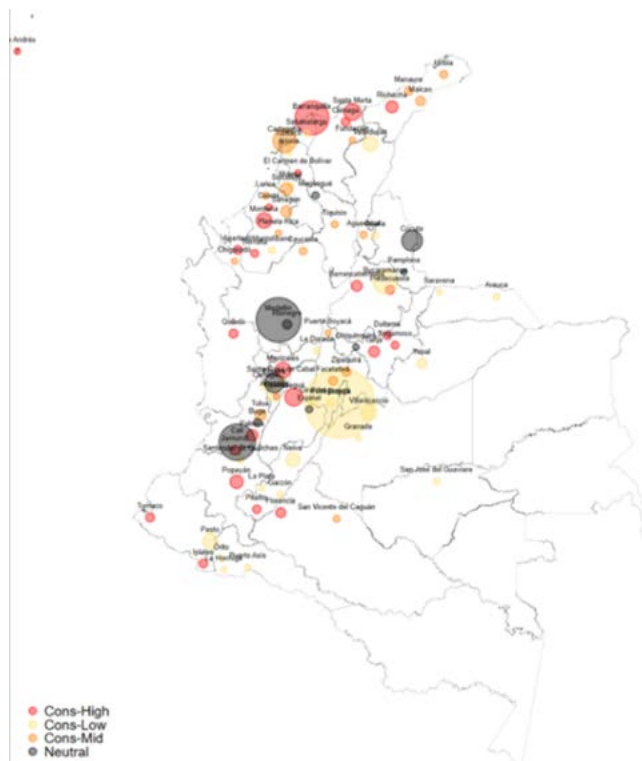


Source: Freeman and Giuliano (2025) using data from Cities in Motion Lab.

Traffic congestion, low housing supply, and steep transport costs hamper Colombian cities' competitiveness, reinforcing an inward-looking development model. Colombia is largely a country of consumption cities (Map 5) characterized by high shares of employment in non-tradable services that cater primarily to domestic markets. There is evidence that agglomeration economies are weaker in countries where consumption cities are prevalent (see Jedwab et al, 2022). In contrast, production cities are

characterized by a high employment share in manufacturing and tradable services, which drive economic growth and innovation. The lack of production cities in Colombia means that its urban areas are not contributing significantly to the country's economic dynamism and global competitiveness. Instead, these cities are mostly consumption-oriented, which limits their potential to be integrated into international trade and reinforces a cycle of low productivity and limited growth. This contrasts with the most economically dynamic areas of the world, which are dominated by production cities (Ianchovichina 2024).

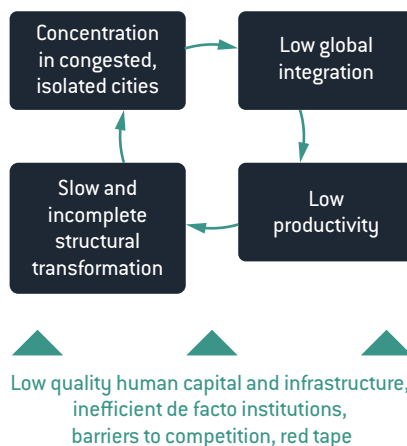
MAP 5. CONSUMPTION AND NEUTRAL CITIES ACROSS COLOMBIA



Source: Authors' elaboration using data provided by Ianchovichina (2024).

Colombia is thus trapped in a low productivity equilibrium across sectors that perpetuates the status quo of low overall growth and fragmented economic development. Figure 26 summarizes the main elements that contribute to and reinforce Colombia's low aggregate productivity and geographical economic fragmentation. Low productivity across sectors translates into a slow structural transformation process, in which a large share of the workforce is employed in the agricultural sector, manufacturing is stagnant, and the service sector serves as a low-productivity employer of last resort. The population is concentrated in congested cities, far from main ports, which limits the productive potential of an agglomeration economy. This results in an inward-looking development model characterized by consumption cities that prevents Colombia from benefiting from trade flows, which helps to perpetuate its low productivity equilibrium. All of these elements are underpinned by country-wide constraints to economic growth and productivity dynamics, such as a lack of quality human capital, infrastructure, and institutions.

FIGURE 26. A VICIOUS CYCLE OF LOW PRODUCTIVITY, SLOW STRUCTURAL TRANSFORMATION, CONGESTED CITIES, AND TRADE ISOLATION



Source: Authors' elaboration

This vicious cycle contributes to weak economic convergence. A more vigorous structural transformation process driven by high productivity growth rates would allow departments in hydrocarbon-producing departments in Region 2 and intermediate departments in Region 3 to move faster along the development path as the composition of their economic activity morphs into that of higher-income departments. The per capita GDP of Colombia's departments would then be more likely to converge, both through greater economic activity in all departments and through migration driven by available economic opportunities in Colombia's cities. Low-income departments in Region 4, which are currently lagging behind the rest of the country given their structural characteristics and initial conditions, might still need a different development model that takes account of their relative isolation and leverages their natural capital.

2.4. DEFORESTATION IN COLOMBIA AND ITS LINK TO PRODUCTIVITY

The vicious cycle discussed above also depletes Colombia's natural capital, particularly its tropical forests located in low-income departments. This section expands on the link between low productivity and deforestation incentives in Colombia.

2.4.1. Natural Forests in Colombia

Colombia's natural forests are a cornerstone of its rich biodiversity and play a vital role in both its economy and cultural heritage. Stretching across diverse ecosystems from the Andean cloud forests to the Amazon basin, these forests cover over half of Colombia's territory. They benefit the ecosystem by means of carbon sequestration, water regulation, and soil conservation, all of which support agriculture, ecotourism, and local livelihoods. Moreover, for many indigenous and rural communities, the forests are deeply woven into their cultural identity and traditional practices, underscoring their significance beyond private economic value. Preserving and sustainably managing these landscapes is crucial to fostering long-term resilience and inclusive growth in Colombia's departments.

Curbing deforestation is also vital for Colombia to be able to meet its ambitious climate commitments. Colombia lost 2.1 percent of its forest cover or 59.2 million hectares between 2016 and 2023. While a range of measures from enhancing energy efficiency to promoting sustainable agriculture and transitioning to renewable energy is essential for a comprehensive climate strategy, limiting forest loss plays a critical role. Management of forest landscapes including deforestation control, restoration, and afforestation are expected to contribute about 52 percent of the country's emission reduction efforts by 2030 (World Bank, 2023).

Deforestation in Colombia is thus a massive destruction of wealth. The Colombian Amazon is not the only forested area in Colombia, but it covers about 40 percent of the country's surface area and accounts for around 60 percent of total deforestation in the country. Strand (2025) performed an initial macroeconomic valuation estimate of the Colombian Amazon for this report using primary sources and similar previously conducted exercises for the Brazilian Amazon (Hanusch, 2023). The valuation distinguished between private exploitation values (in the form of agriculture, timber, and mining) and protection values, some of which are private, sustainable economic activities, and some of which are public (the regional public value of ecosystem services and the global public value of the Colombian Amazon in terms of CO2 storage and biodiversity). In an estimate for this report, Strand (2025) made a conservative estimate of the annual value of protecting the Colombian Amazon as being close to US\$40 billion. This is orders of magnitude higher than deforesting and exploiting the land for private profit, estimated to range from US\$5.3 to US\$11.65 billion per year (Table 2).

TABLE 2. ASSESSED ANNUAL EXPLOITATION AND PROTECTION VALUES FOR THE COLOMBIAN AMAZON, US\$ BILLION/YEAR, 2020

Exploitation values		Protection values							
		Private values		Regional public values		Global public values			
Colombian Amazon (direct use)		Colombian Amazon (direct use)		Indirect use	Agriculture		Indirect use value	Carbon dioxide storage	\$23,30
Agriculture (crops or pasture)	\$ 2.7 – \$8,50	Timber	\$0,11		Livestock	\$0,15			
		Non-timber forest products	\$0,63		Soy, other agricultural products	\$0,25			
Pollination	\$0,39				Option value	Biodiversity	\$1,10		
Regulation services (water and erosion)	\$0,96				Existence value	Biodiversity	\$7,40		
Regional climate	\$0,30					Forest cover	\$3,70		
Mining	\$1,50	Sustainable tourism	\$1		Fire protection	\$0,08			
Total	\$ 5.3 – \$11,65		\$1,74		\$2,10				\$35,50
Grand total	\$ 5.3 – \$11,65	\$39,30							

Source: Strand (2025), a background paper for this report.

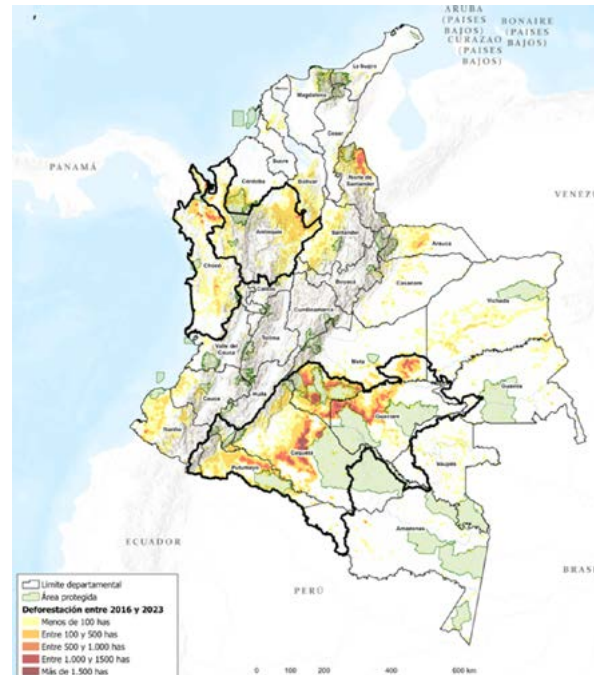
Note: The exercise uses a global carbon value of (US\$ 40/t CO2). This is the lower bound Stiglitz et al (2017) guidance carbon price estimate range for the period up to 2030 for practical use by the World Bank (US\$40 to US\$80). This price represents the willingness to pay by the entire global population for the preservation of this carbon stock and must not be confused with offset values in carbon markets.

Most deforestation in Colombia occurs along the edges of the agricultural frontier or in mining regions, far from cities and in low-income or intermediate regions. The Northwestern Amazonian Arc is the main deforestation hotspot, driving country-wide deforestation dynamics in departments in the low-income, intermediate-income, and oil-producing regions, mostly near Putumayo, Caquetá, Guaviare, and Meta. While the Amazonian Arc accounts for a majority of deforestation in Colombia, there are other hotspots scattered around the country, including in Norte de Santander, Northern Antioquia, Chocó, and Arauca (Map 6). A case study was conducted for this report to discover the immediate drivers of deforestation in three deforestation hotspots, the Amazonian Arc, Antioquia, and Chocó, which together accounted for close to 75 percent of total deforestation in the 2016 to 2023 period (Conservation and Development Foundation, 2025).

Immediate drivers of deforestation include extensive cattle ranching, mining, informal road expansions, and illicit crops. Box 4 expands on the report's findings about the immediate drivers and their prevalence across deforestation regions in Colombia. Cattle ranching, for example, is a main driver of deforestation in all three regions, while mining is more prevalent in Chocó. These activities are made profitable by the expansion of tertiary and informal roads, which also contribute to deforestation directly by the clearing of land. Deforestation usually begins with illegal grabbing of public lands (*baldíos*), which are later converted into pastures and traded

in markets. Some legal protections such as the National Natural Parks have helped to limit these land grabs and to promote forest preservation, while others like Forest Reserves have proven to be less effective. Cheston et al (2024) showed how existing land tenure regimes that allow for “subtractions” from forest reserves create perverse incentives that foster deforestation activities along the Colombian Amazon frontier. Under this regime, lands can be legally removed from their preserved status for rural development, creating an incentive to clear the forest in hopes of gaining legal rights over the land in the future.

MAP 6. MAIN DEFORESTATION HOTSPOTS IN COLOMBIA, 2023



Source: Conservation and Development Foundation (2025)

Deforestation reinforces an economic structure that keeps departments in the early stages of the development process. Low productivity agricultural activities, extensive cattle ranching, extractive mining activities, and illegal crops contribute to the lack of expansion and diversification of the economic base of Colombia’s departments and the country as a whole. These economic activities provide short-term private gains that come at the cost of depleting natural forests and do contribute little to overall productivity or long-term development prospects, particularly of marginal areas around the country.

These economic drivers at the deforestation frontier are associated with illegal activities, armed groups, and conflict. Enforcement agencies have only an uneven presence in many parts of Colombia after decades of armed conflict. As a result, armed groups and criminal organization are *de facto* in control of many municipalities, including those where deforestation is prevalent. These groups execute their control through extortion and violence and are key players in promoting and financing deforestation. Illegal and informal economies operate in this context, as the state’s limited reach leaves vast areas without effective monitoring or regulatory oversight. To varying degrees, these organizations promote deforestation to expand coca cultivation on fields that are later converted into grazing and cattle ranching zones and finance illegal land-grabbing activities. (Conservation and Development Foundation, 2025).¹⁸

18 Conservation and Development Foundation (2025) has a detailed account of the different actors influencing these dynamics in deforestation hotspots.

These drivers are facilitated by low urban productivity, which is the deep underlying root of deforestation.¹⁹ Urban centers are the main engines of growth in modern economies. Increased productivity in such sectors as industry and services, raises real wages, attracts labor, and reduces the profitability of farming by increasing wage costs. This has two effects. On the one hand, it incentivizes a substitution away from rural labor into a more modern, capital-intensive agriculture. This crowds out the least productive farmers (and workers), lowering the demand for land and, consequently, for deforestation. On the other hand, it also enhances agricultural productivity, reinforcing the cycle, reinforcing the cycle. This productivity-driven process promotes urbanization, advances the structural transformation process, and contains deforestation incentives.

However, if agricultural productivity gains are not matched by similar gains in urban sectors, then this reinforces incentives to clear additional land. Put simply, the long-term causes of deforestation in Colombia are related more to stagnant productivity in cities like Bogotá, Medellín, Quibdó, and Florencia than to dynamics in the agricultural sector. Stagnant urban productivity in Colombia's cities perpetuates the country's slow and incomplete structural transformation, thus increasing incentives for deforestation. The imbalance between positive productivity gains in agriculture and stagnant productivity in urban areas can encourage farmers to push the boundaries of the agricultural frontier, the so-called Jevons paradox (Hanusch, 2023), thus intensifying deforestation pressures.

BOX 4. DEFORESTATION DYNAMICS IN COLOMBIA

A background study conducted for this report analyzed deforestation drivers in the Amazon Arc, Antioquia, and Chocó (Conservation and Development Foundation, 2025). The study conducted a thorough descriptive analysis of the drivers of deforestation in the selected areas, including their intricate relationship with illegal activities and conflict, and presented an econometric analysis of deforestation in the 2016 to 2023 period. The study found the main drivers in the different hotspots to be the following:

- i. *Extensive cattle ranching.* Cattle ranching expansion is a major contributor to deforestation along the three hotspots. The cattle headcount in the Amazonian Arc, for example, increased by over 50 percent during the period, with pasturelands increasing by around 20 percent. Because the productivity of extensive cattle ranching in the deforested areas of the Amazon is low, it requires a continuous expansion of pasturelands, as soil fertility declines quickly.
- ii. *Informal road expansions.* Road expansions are both a direct cause of deforestation and an indirect enabler of deforestation, as both legal and illicit economic activities are more profitable when transport costs to reach consumer markets are lower. For example, over 60 percent of deforestation in the Amazonian Arc has occurred within one kilometer of a road, and over 90 percent occurred within three kilometers. Most of these roads are informal: an estimated 4,622 kilometers of informal roads were constructed along the Arc between 2018 and 2023, which are not reported in official cadasters.
- iii. *Coca cultivation.* Although at a lower order of magnitude than cattle ranching and road expansion, the expansion of coca plantations continues to drive deforestation, particularly at the south edge of the Amazonian Arc, due to its strategic location along the border and its weak governance, as well as in areas of Chocó. Coca cultivation often gives way to pastures that are later devoted to extensive cattle ranching.
- iv. *Alluvial gold mining* is one of the major drivers of deforestation in Chocó. It was also a historical driver of deforestation in Antioquia, Colombia's main exporter of gold, but evidence is limited on its role in driving deforestation in the most recent period.

The study also found that legal conservation statutes like National Natural Parks and Indigenous Territories contribute to forest preservation, while other lower-level arrangements such as Forest Reserves of different types seem to be less effective. This is consistent with the findings of Cheston et al (2024).

19 Hanusch (2023) presents a comprehensive framework of the immediate drivers and root causes of deforestation in the Brazilian Amazon.

Table 3 illustrates the general equilibrium effects of productivity shocks on deforestation incentives. It summarizes the results of simulations conducted using an interregional computed general equilibrium model from the National Planning Directorate (DNP) that we expanded to account for deforestation dynamics (see Annex 1 for more details). The first line shows the impact of an aggregate 10 percent productivity shock across sectors on GDP and the deforestation rate for both Colombia as a whole and for departments that comprise the Colombian Amazon, the largest deforestation hotspot. It shows that GDP increases in response to an aggregate TFP shock both in the Colombian Amazon and in Colombia as a whole, while the deforestation rate falls for both the Colombian Amazon and the country as a whole. The effects of productivity shocks in specific sectors on GDP are less pronounced but are still positive regardless of which sector is affected by the shock. However, the deforestation rate responds differently to an agricultural productivity shock than to a manufacturing or services productivity shock. A positive agricultural productivity shock when productivity in other sectors stays constant increases deforestation incentives, which is a quantitative validation of Jevon's paradox. In contrast, deforestation incentives are reduced in response to a productivity shock in either the manufacturing or services sector.

TABLE 3. GENERAL EQUILIBRIUM EFFECTS OF A TEN PERCENT PRODUCTIVITY SHOCKS ON GDP GROWTH RATE AND DEFORESTATION RATE FOR COLOMBIA AND THE COLOMBIAN AMAZON

Sector	Colombia		Colombian Amazon	
	GDP growth	Deforestation rate	GDP growth	Deforestation rate
Colombia - Aggregate TFP Shock	11.6	-6.23	12.5	-1.01
Colombia - Aggregate Sectoral Shocks				
Agriculture	0.7	1.99	1.1	0.64
Manufacturing	3.4	-2.54	5.4	-0.21
Services	7.2	-5.62	5.7	-1.44

Note: Responses expressed as percent changes.

Source: Based on an extension of the DNP's multiregional computed general equilibrium model to accommodate deforestation effects.

These dynamics challenge the notion that economic development must come at the expense of natural capital. Cities drive economic growth and aggregate productivity through a diverse portfolio of economic activities that leverage economies of scale and agglomeration economies. Thriving cities not only foster economic activity but can also promote sustainable development in rural areas in many direct and indirect ways. First, they do so by reducing the profitability of agriculture along the frontier, as explained above and illustrated in the general equilibrium exercise. Second, by promoting overall economic growth and a more robust fiscal environment, which makes it more feasible to redistribute revenues to closing opportunity gaps, promoting economic activities in urban centers, and enhancing conservation activities. Third, by discouraging illegal economic activities that find fertile ground in the lack of economic opportunities and inequality. Fourth, by developing and importing administrative and institutional capacity to enforce environmental regulations. Fifth, by promoting a cultural shift toward and social awareness about the importance of nature conservation.

2.5. FINAL REMARKS

A wide range of policy reforms exists that could enable the Government of Colombia to respond to the issues diagnosed in this chapter. These policies range from those specifically aimed at improving connectivity (including infrastructure investments, digital connectivity, and regulations to reduce transport costs) and reducing congestion costs to an internalization agenda and broader economic growth policies. Some of the policies are horizontal, some are more differentiated. The central government has comparative advantages over many, while local entities are better suited to serve others. All of these policies should be complemented with policies to promote equality of opportunity.

Chapter 3. Export Capacities for Growth:

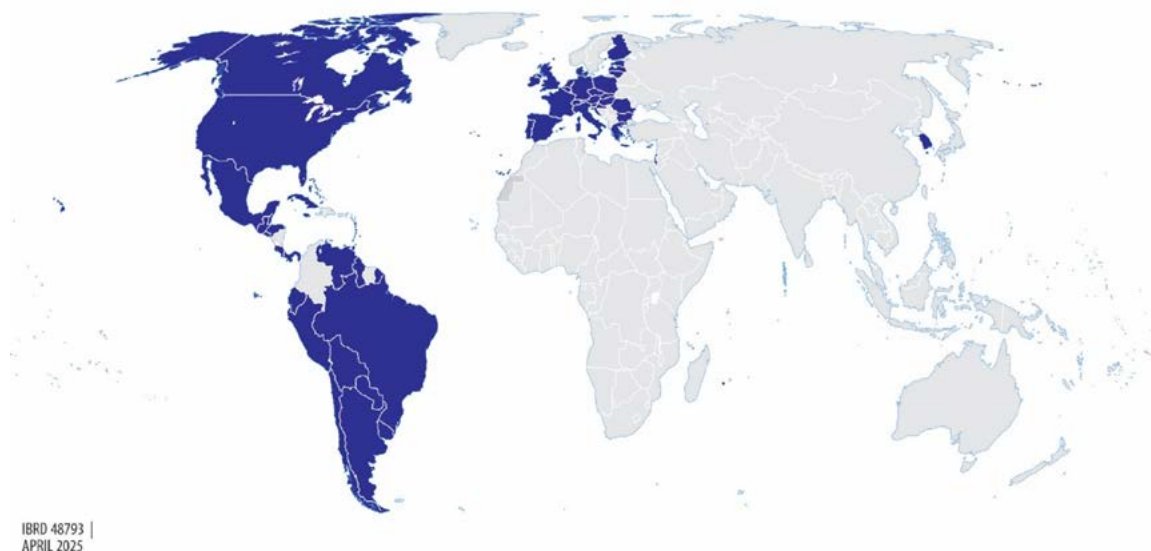
Opportunities from Global
Value Chain Reallocation



3.1. INTERNATIONAL TRADE AMONG COLOMBIA'S REGIONS

Colombia has had limited success in integrating itself into international trade flows. Despite having free trade agreements with over 60 countries in America and Europe (Map 7), Colombia is in the lowest quintile of trade openness (as measured by the exports plus imports ratio to GDP) among countries with more than 30 million people. The country's exports have increased by only 1.3 percent annually over the last 15 years, keeping its exports-to-GDP ratio at around 18 percent and contributing little to economic growth.

MAP 7. COUNTRIES WITH WHICH COLOMBIA HAS FREE TRADE AGREEMENTS

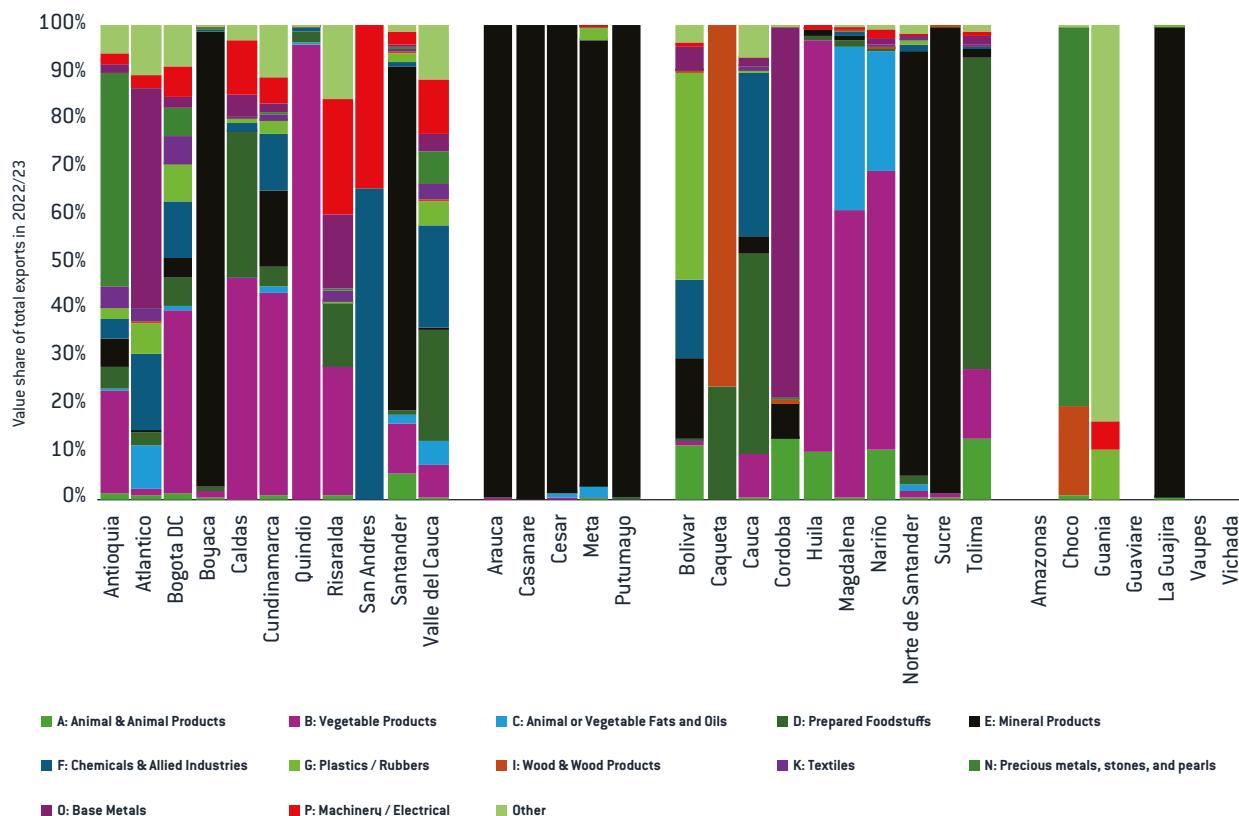


Source: Authors' elaboration based on Ministry of Commerce, Industry, and Tourism.

Colombia's export basket has low complexity and diversity, with hydrocarbons accounting for about half of exports Oil and coal (34 percent and 16 percent of goods exports respectively) have been responsible for most of the increase in the country's exports over the last 15 years. Agriculture products (especially coffee, cut flowers, and bananas) amounted to one-fifth of total exports, while chemicals (including polymers, insecticides, and packaged medicaments) constituted another 8 percent. Colombia ranks 126th out of 180 countries in terms of the geographic diversification of its exports markets as only eight trade partners absorb two-thirds of Colombia's goods exports. With an export basket heavily concentrated on a few commodities and partners, Colombia's trade also lacks backward links to the world economy. It also amplifies Colombia's exposure to the global trend toward decarbonization and to economic shocks in its trading partners and reduces the extent to which it can benefit from technology spillovers and "learning by exporting" (De Loecker, 2013 and Keller, 2002).

Most Colombian exports are shipped by sea, but the country's main cities are located far from its ports. With access to the Pacific and the Caribbean, Colombia has seven main seaports, from which three-quarters of its exports leave the country. Cartagena (on the Caribbean Coast) and Buenaventura (on the Pacific Coast) are ranked 6th and 42nd among the 50 best performing container ports in the world (World Bank, 2024c). However, with a few exceptions, the main production centers are located far from the ports, and the country's rugged terrain and poor road infrastructure make it difficult to access them. For example, driving a container from Bogotá to Buenaventura can take more than 12 hours by road and 19 hours from Bogotá to Barranquilla. Some industrial zones (for example, those in Valle del Cauca and Atlántico) benefit from their closeness to Buenaventura or the Caribbean ports but still experience long import/export times and high costs. Airborne and road transportation account for 18 percent and 6 percent of

FIGURE 29. PRODUCT EXPORTS BY DEPARTMENTS AS PERCENTAGE OF TOTAL EXPORTS



Source: Authors' elaboration using data from DIAN.

Colombia's lack of integration into global markets is both an outcome and a source of low productivity. Colombia's productivity growth over the two decades prior to the pandemic was virtually zero and, in some years, even negative (World Bank, 2024a). This low productivity compounded by high logistic and transport costs has reduced the ability of firms to participate and compete in international markets. This limited international integration also prevents Colombia from taking advantage of positive spillovers from trade. These include opportunities to access cheaper goods and a greater variety of products; to take advantage of technologies, advanced managerial capabilities, and how-to-knowledge to increase productivity; and to set incentives to increase the productivity, quality, and competitiveness of domestically produced goods (World Bank, 2021).

3.2. CHANGING TRADE PATTERNS: RECONFIGURATION OF GLOBAL VALUE CHAINS

The rules of engagement in international trade have been changing. While these changes have not always been linear or predictable, adjustments in the structure and location of global value chains (GVC) have consistently reflected a shift away from focusing solely on efficiency considerations. Several aspects contributed to this outcome, from the vulnerabilities in global supply chains exposed by the COVID-19 pandemic to geopolitical developments reflected in changing tariff and non-tariff measures.

Export capacities that offer flexibility in destinations are particularly valuable in this changing context. We used a market switching index to measure Colombia's export destination flexibility. As explained in more detail in Annex 5, the index is based on historical patterns in terms of how frequently countries switch their exports from one market to another. Through a simple fixed

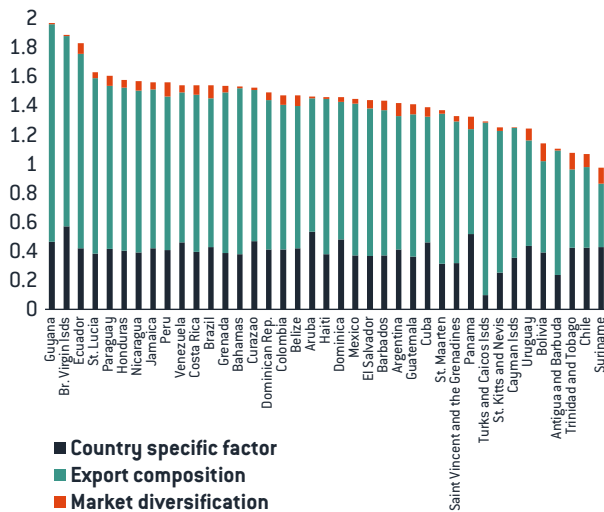
effects regression, it extracts country- and product-specific patterns, taking into account the importance of initial market diversification. This makes it possible to assign country scores based on three components:

- *Country-specific factors* such as distance to key markets, market access, and transport logistics.
- *Export composition*, in the form of a weighted average of the product-specific patterns of a country's exports. This would reflect inherent differences between homogenous commodity exports that can relatively easily be re-directed to other markets as opposed to inputs that are very specific to a particular value chain and thus difficult to re-direct.
- *Market diversification*, which is a function of how many different markets a country is currently reaching.

Colombia ranks slightly above the average markets switching index for Latin America (Figure 30). However, this is mostly due to the basket composition of its exports, which are dominated by oil, a commodity that's relatively easy to re-route in response to a fall in demand from a specific country. Colombia's measured market switching index is to an extent overestimated given that future demand for oil is likely to drop as the world gradually decarbonizes.

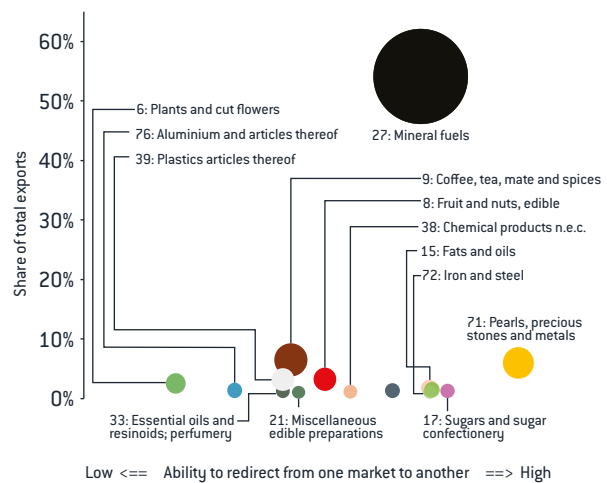
A more granular assessment of Colombia's export sectors paints a more mixed picture. Figure 31 shows how different sectors support Colombia's export resilience along two dimensions: i) Its share in total exports, or the risk faced by the country if that sector were to suffer a contraction, and (ii) how difficult it would be for the sector to compensate for market-specific demand shocks by re-directing exports as measured by the market switching index. The sectors in the top-left zone of the figure have a large weight in total exports and are vulnerable to specific markets. Sectors with a small weight and easy market switching are to the bottom right. Oil constitutes about half of all goods exports from Colombia, which makes these exports very sensitive to demand shocks but, as mentioned above, relatively easy to re-route. Cut flowers are Colombia's most locked-in export to a single market (the US).

FIGURE 30. MARKET SWITCHING INDEX FOR LATIN AMERICAN COUNTRIES



Source: Authors' estimates based on BACI dataset for Colombia from CEPII, France.
Note: See Annex 5 for methodological details.

FIGURE 31. VULNERABILITY OF EXPORTS TO DEMAND SHOCKS



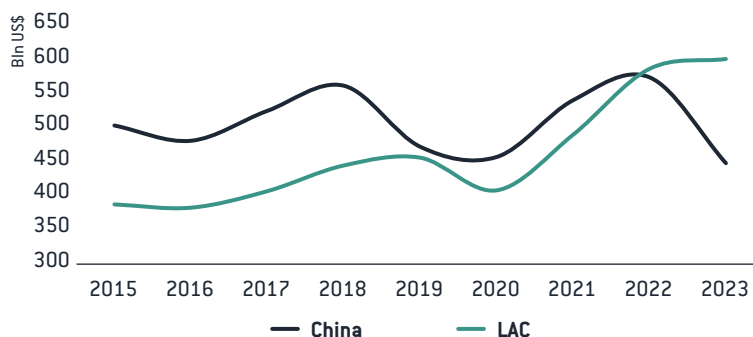
Source: Authors' estimates using data from DIAN and US International Trade Commission (USITC)

Note: x-axis displays the market switching index by sector. The Y-axis and size of the bubble illustrate the share of sectoral exports in total. The y-axis has a discontinuity marked by "//"

Another way to measure export resilience is to analyze the recent past behavior of Colombian exports in response to a specific reconfiguration of GVC. We used the inclination of the US to reduce its trade links with China in recent years as a case study to assess how Colombia's exports have responded to the shifting trend and its aggregate implications. There is some evidence of the US reallocating its supply chains away from China and into Latin America (Figure 32). While US imports from Latin America to the US have increased since the outbreak of the pandemic outbreak, imports from China in 2023 were 9 percent below their 2015/2016

levels. Meanwhile, Latin American exports gradually rose, by a total of 55 percent. The region is estimated to have earned US\$183 billion in real terms, with more than half of these gains occurring in sectors where China had experienced losses (especially, machinery and electrical goods), mostly after trade conflict between US and China (World Bank, 2024b).

FIGURE 32. US IMPORTS FROM CHINA AND LATIN AMERICA AND THE CARIBBEAN (US\$ BILLION)



Source: Authors' elaboration using data from the United States International Trade Commission (USITC).

As the trade policy landscape evolves, the recent gains of Colombian firms in the US market have revealed latent export capacities that could benefit from changing trade dynamics. In the rest of this chapter, we use US market GVC reallocation away from China as a case study of revealed export capacities that could untap Colombia's potential in a changing trade landscape. We first analyze the evidence of Colombia's export gains in the US market since 2015/16 that resulted from the reallocation of GVC away from China using detailed customs microdata and document the regional and sectoral decomposition of these trade gains. We then assess the macroeconomic effects of these gains using a system of interconnected regional computed general equilibrium models adapted to the Colombian context. Finally, we turn the focus forward and investigate different simulation scenarios to explore the potential general equilibrium effects of these trends and their implications for income convergence going forward. In doing so, we explore differences in the competitiveness of departments to discover which departments have benefited from the reallocation of GVC and how to lift the constraints that may be preventing others from benefiting from such trade shifts.

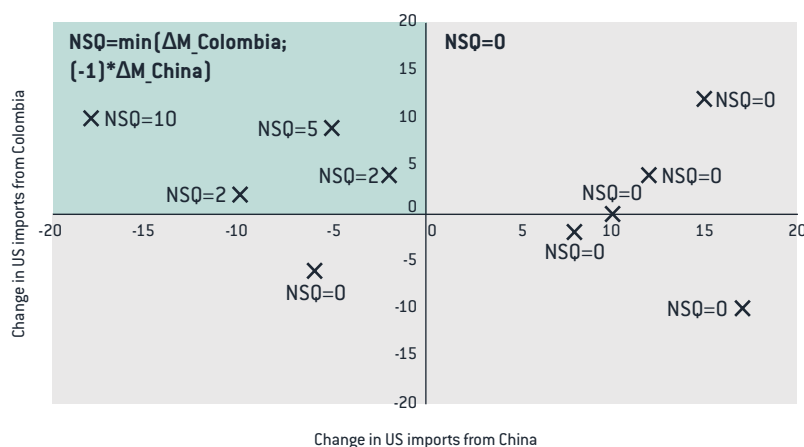
3.3. LOOKING BACK: MARKET GAINS IN THE US MARKET SINCE 2015/16 ATTRIBUTABLE TO GVC REALLOCATION

We constructed a measure of Colombia's market gains from the US goods' trade to estimate the extent to which GVC reallocation has affected Colombia in recent years. The Net Substitution Quantity measure (NSQ) captures in quantity absolute terms how much of China's losses in exports to the US are being replaced by Colombian imports. As presented in Figure 33, the green area represents the minimum between Colombia's gains and China's loss in exports to the US while the red area represents zero if China does not lose any exports and/or Colombia does not gain any exports. The NSQ is always calculated at the product level²¹ in absolute constant price terms to ensure that the observed patterns represent the actual substitution of the same product.²² The NSQ can then be aggregated up to the sector level. This implies that not all growth in a sector's exports is "NSQ growth" but only the share that, at the product level, coincides with a proportionate contraction in US imports from China. We compare the change between 2015/16 and 2022/23.

21 Six digits level of the Harmonized System.

22 This ensures that we would only observe substitution between US imports from China and Colombia within narrowly defined product groups such as for instance "HS 851640 -- Smoothing irons; electric" or "HS 851631 -- Hairdressing apparatus; electro-thermic hair dryers." Some studies on the subject of GVC reallocation may have overestimated its effects by working at much higher levels of aggregation, thus implicitly assuming substitution between such diverse items as toaster ovens and curling irons.

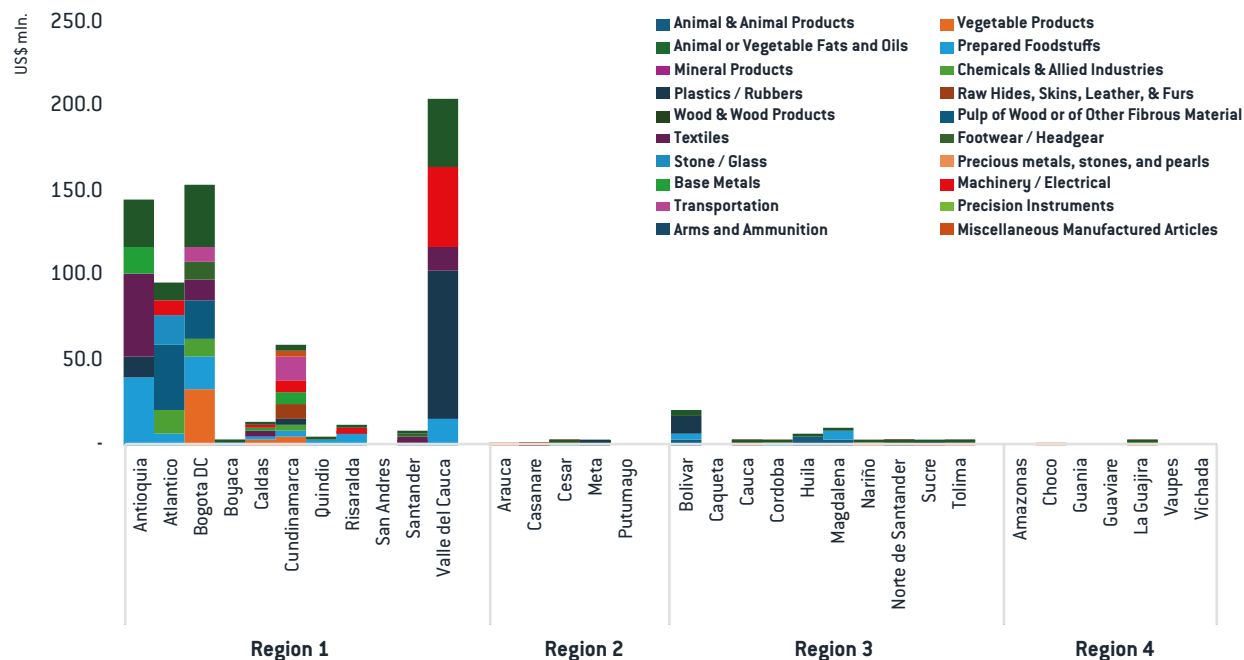
FIGURE 33. ILLUSTRATION OF THE NET SUBSTITUTION QUANTITY (NSQ) MEASURE



Source: Authors' elaboration using data from USITC and DIAN.

Based on the NSQ measure, trade substitution away from China accounted for over US\$730 million in new Colombian exports of goods to the US between 2015/16 and 2022/23. This means that Colombia was able to export an additional US\$366 million worth of goods per year, the equivalent of 1 percent of its total annual exports. In absolute terms, these gains were concentrated in high-income departments, which accounted for an NSQ of US\$346 million per year, while most of the rest were accounted for by three intermediate (Region 3) departments: Bolivar, Magdalena, and Huila (Figure 34). Valle del Cauca was the largest beneficiary with more than a quarter of Colombia's total gains (US\$205 million), mainly from plastics (US\$113 million), prepared food (US\$101 million), textiles (US\$87 million), and machinery (US\$67 million). Bogotá, Antioquia, and Atlántico were responsible for half of the country's total gains. The sectoral composition of Colombia's export gains is very similar to the independent analysis of GVC reallocation potential in Colombia by Ferro and Vijil (2024).

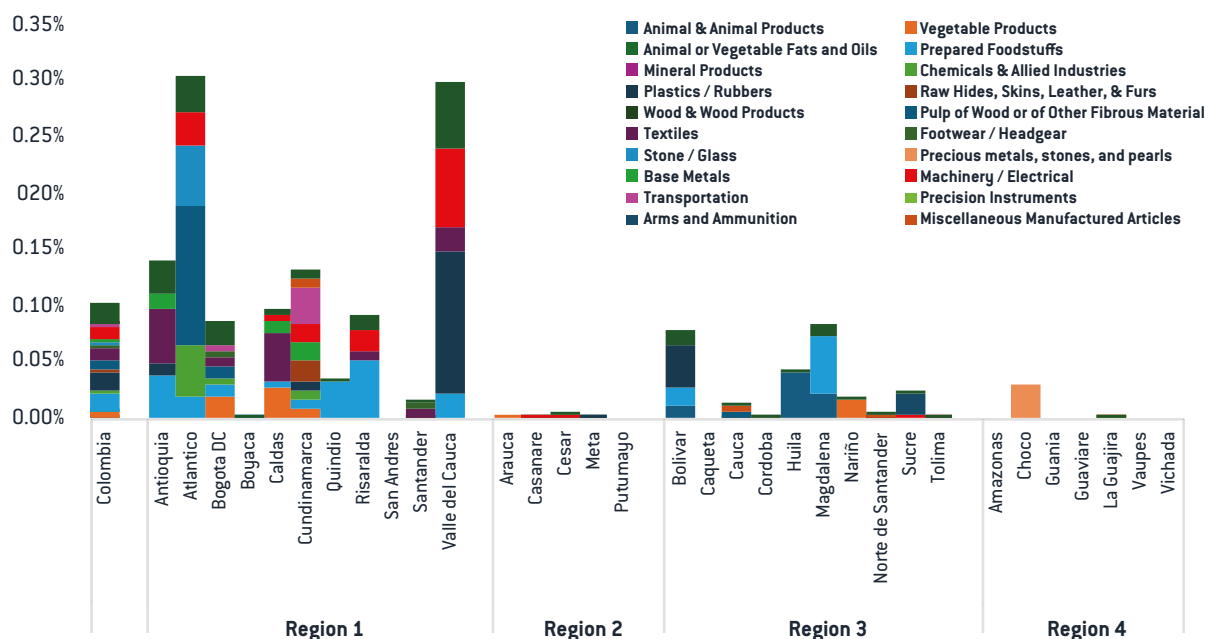
FIGURE 34. DEPARTMENTS' TRADE GAINS ATTRIBUTED TO GVC REALLOCATION (NSQ) IN 2022/23 (US\$ MILLION)



Source: Authors' elaboration using data from DIAN and USITC.

Relative to the size of their GDP, Valle del Cauca and Atlántico benefited the most from this GVC reconfiguration. While the boost in exports in Valle del Cauca and Atlántico was as high as 0.3 percent of GDP, the most export-oriented departments in Region 3 also gained between 0.05 and 0.1 percent of their GDP (Figure 35). In particular, they expanded their exports of animal products, prepared foodstuffs, and plastics/rubber markets.

FIGURE 35. DEPARTMENTS' TRADE GAINS ATTRIBUTED TO GVC REALLOCATION (NSQ) IN 2022/23 (PERCENT OF THE DEPARTMENT'S GDP)



Source: Authors' elaboration using data from DIAN and USITC.

The GVC reallocation increased the complexity and diversification of exports in most Region 1 and Region 3 departments (Figure 40). Tolima (vegetable products and textiles) and Santander (textiles and footwear) are outliers whose reallocation exports to the US were less complex than average exports and thus led to lower average complexity. Among Region 2 and Region 4 departments, only Chocó's exports increased in diversity and complexity, but the value of its exports remained almost constant.

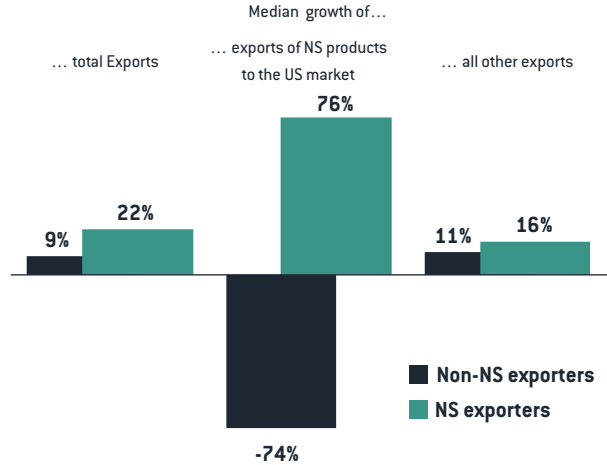
It also mostly reflected increases in total exports rather than diversion of existing exports from other destinations to the US market. By definition, Net substitution (NS) firms grow in the US market for products for which China's exports to the US are falling, and non-NS firms do not (they either did not export products to the US when China lost market share or their exports of those products contracted). Between 2015/16 and 2022/23, exports from Colombia's NS firms grew significantly faster in terms of total exports (22 percent) than those from non-NS exporters (9 percent). This was not only due to the increase in NS exports to the US market (Figure 41). Exports of non-NS products to the US market or of any product to non-US markets rose by 16 percent in NS firms compared to 11 percent in non-NS firms. This suggests that GVC reallocation provided a boost to NS firms' total exports rather than the boost coming from a reallocation from other markets/products.

FIGURE 36. CHANGE IN COMPLEXITY, CONCENTRATION, AND REAL VALUE OF REGIONAL EXPORTS



Source: Authors' elaboration using data from DIAN and USITC.
 Note: The size of the bubble shows the percentage change in the real value of exports.

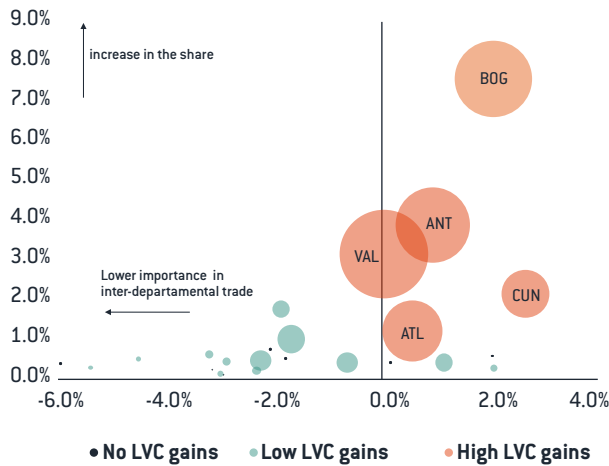
FIGURE 37. MEDIAN EXPORTS GROWTH OF NS AND NON-NS FIRMS (PERCENT)



Source: Authors' elaboration using data from DIAN and USITC.

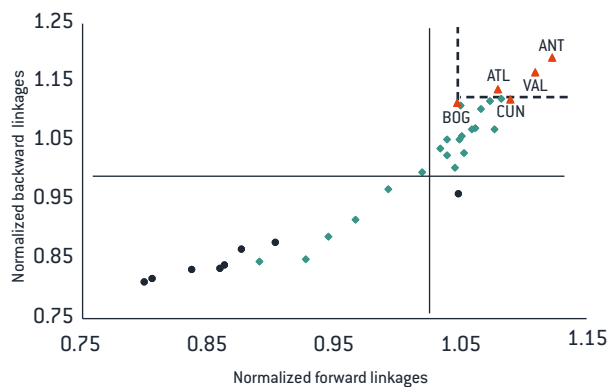
Using the general equilibrium model at the regional level, we found that departments with stronger forward and backward linkages benefited the most from GVC reallocation. The departments that experienced larger absolute gains from GVC reallocation were also those with higher inter-departmental trade (Figure 38). With a few exceptions, those departments whose exports increased as a result of GVC reconfiguration have stronger backward linkages to their suppliers and forward linkages to the industries that use their products than other departments (Figure 39). In particular, Antioquia, Valle del Cauca, Atlántico, Cundinamarca, and Bogotá (which together accounted for 88 percent of the gains) have higher backward and forward linkages, facilitating gains from GVC reconfigurations to sectors and departments not directly benefiting from this trend (see Annex 3 for details of the computed regional general equilibrium model).²³

FIGURE 38. INCREASE IN THE SHARE OF LOCAL VALUE CHAINS AND NSQ



Source: DNP
 Note: The size of the bubble indicates high NSQ

FIGURE 39. FORWARD AND BACKWARD LINKAGES BY DEPARTMENT

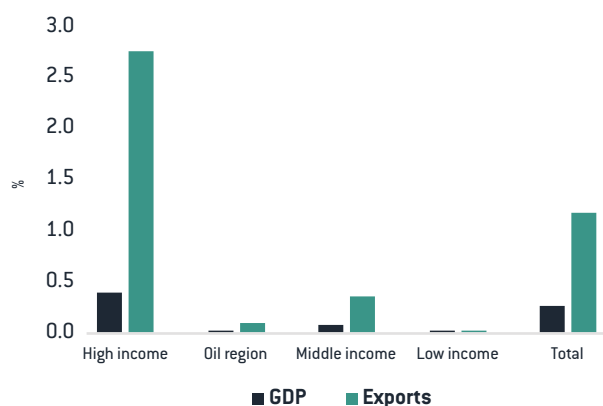


Source: DNP

²³ The general equilibrium model was developed by the DNP's Department of Economic Studies. The modeling results in this chapter benefited from close collaboration between the World Bank and the DNP.

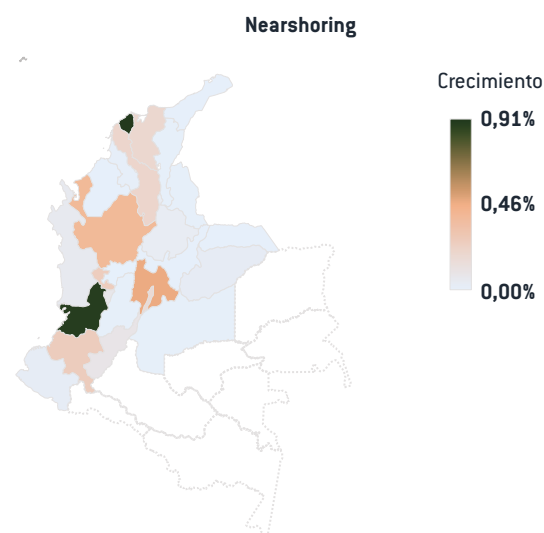
Taking into account both direct and indirect effects, the reallocation of GVC as measured by the NSQ accounted for 0.3 percent of Colombia's GDP and 0.7 percent of its exports per year on average in 2022/2023, with these gains mostly being concentrated in high-income departments. Exports increased by 1.7 percent in high-income departments in Region 1, leading to GDP gains of 0.4 percent in that region (Figure 40 and Figure 41). Meanwhile, both exports and GDP in intermediate departments rose slightly (by 0.1 percent and 0.2 percent respectively), mostly due to the contributions of Bolivar, Cauca, and Magdalena. The general equilibrium effects in hydrocarbon-producing departments and low-income departments were small because these regions do not participate very much in national value chains. Overall, the GVC reconfiguration in question is estimated to have increased Colombia's GDP by 0.4 percent, with growth in exports accounting for 57 percent of that rise. Its overall impact on Colombia's GDP was sizeable compared to the country's estimated gains from the 2013 free trade agreement with the US that ranged between 0.17 and 0.48 percent of GDP (DNP, 2023; Hernández and Sanchez, 2004; and Gracia and Zuleta, 2007). Given the nature of computed general equilibrium models, the estimated impacts do not account for any dynamic effects, which are usually the largest source of gains from trade (Baldwin 1992 and Wacziarg 2001).

FIGURE 40. ANNUAL GDP AND EXPORT GROWTH ATTRIBUTABLE TO THE NSQ BY REGION, 2022/2023 (PERCENT)



Source: World Bank and DNP
 Note: With respect to 2015/16 baseline

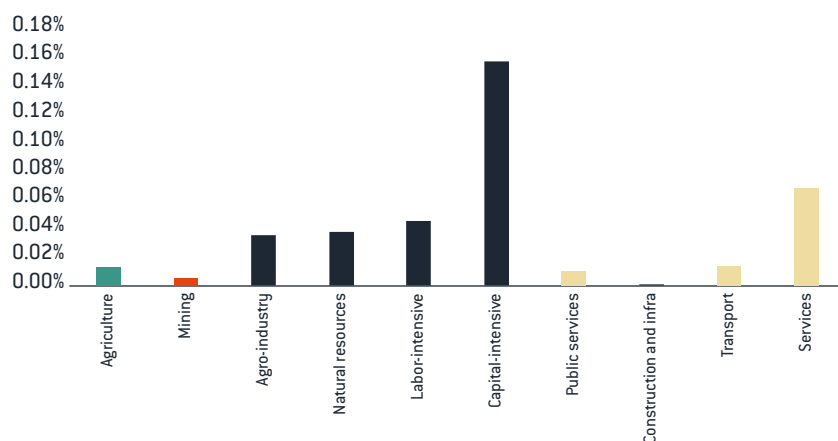
FIGURE 41. ANNUAL GDP GROWTH ATTRIBUTABLE TO THE NSQ BY DEPARTMENT, 2022/2023 (PERCENT)



Source: World Bank and DNP
 Note: With respect to 2015/16 baseline

Although Colombia's capital-intensive sectors benefited the most from these trends, all sectors are positively affected through backward and forward linkages (Figure 42). GVC reallocation is estimated to have increased national production by 0.4 percent. Capital-intensive industries were responsible for 40 percent of the rise, reflecting the relevance of GVC reallocation for the plastic and rubbers sectors (which jointly accounted for one-quarter of the NSQ). Labor-intensive, natural resources, and agro-based industries also increased their production, which is reflected in new exports of processed foodstuff, textiles, and wood products. However, the impact is not limited to the export sector as backward and forward linkages expanded the production gains to other sectors. These spillovers have been particularly notable in the services sector, which produced almost one-fifth of the gains in output.

FIGURE 42. SECTORAL CONTRIBUTION TO GROSS VALUE OF PRODUCTION GROWTH



Source: World Bank and DNP

3.4. LOOKING AHEAD: EXPORT CAPACITIES AND OPPORTUNITIES FROM GVC RECONFIGURATION

The direction and details of future GVC reconfigurations are uncertain, but the development of Colombia’s export capacity would be a solid basis of any successful trade strategy. We undertook a hypothetical exercise with three scenarios to understand how and by how much Colombia could benefit from future GVC reconfiguration opportunities.²⁴ In the first scenario (“more of the same”), we assumed that products that have already gained from GVC reconfiguration (those with an NSQ score of more than zero would continue to experience similar patterns over the coming years, only constrained by the point at which China’s market share in the US disappears entirely. The second scenario (“intensive margin”) assumed that Colombia’s regions would be able to take an additional 5 percent of China’s market share loss under the previous scenario.²⁵ Finally, the third scenario (“extensive margin”) assumed that Colombia has the potential to make export gains in products that have not yet benefited from GVC reallocation but with which the department has experienced growth in other global markets.²⁶ All three scenarios are hypothetical and are intended to illustrate the potential dividends from different expansion strategies.

Increasing the competitiveness of existing exports could significantly increase the benefits of future GVC reconfiguration trends for Colombia. Under the first scenario (“more of the same”), our exercise showed additional gains of 0.5 percent in exports and 0.2 percent in GDP (in Figure 43 and Figure 44), which is slightly below the actual gains between 2015-16 and 2022-23. However, increasing export competitiveness could yield significant benefits on both the intensive margin (higher gains on products that are already experiencing gains, leading to growth in exports of 2.9 percent and in GDP of 0.8 percent) and the extensive margin (products that did not previously benefit from the GVC reallocation, leading to growth in exports of 1.2 percent and in GDP of 0.3 percent).

High-income departments would remain the main beneficiaries of additional gains. However, whether trade diversification was on the intensive or extensive margin would have a different impact on different regions. Given their existing capacity and comparative advantages, high-income departments in Region 1 would continue to make the highest gains in terms of exports and GDP,

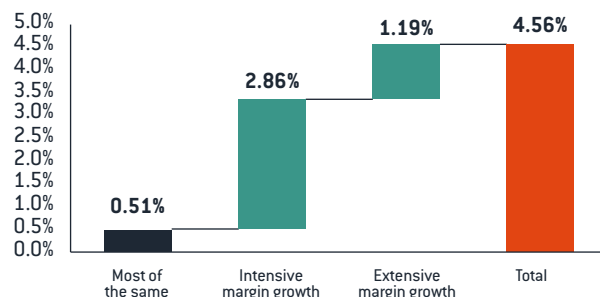
24 All three scenarios assume that US-China trade grows linearly.

25 In other words, we calculated China’s losses based on the same patterns since 2015/16 (as in the first scenario), but we assumed that Colombia’s exporters could absorb a larger share of these losses.

26 The departments’ gains in the “unexploited” US segments are proportional to their gains for the same products exported to on-US markets since 2015-16.

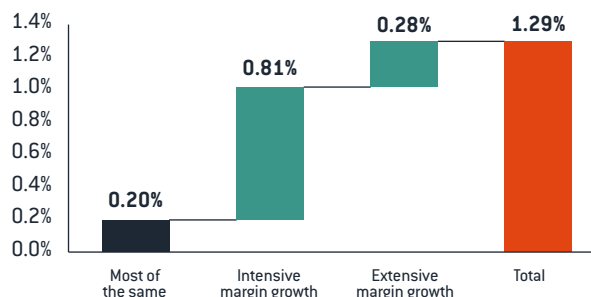
with expansion on the intensive margin yielding the most (Figure 45 and Figure 46). This scenario would also raise exports and GDP in middle-income (Region 3) and oil-producing departments (Region 2) the most as well. However, more interestingly, GDP gains from product diversification on the extensive margin in middle-income departments would be almost as high that on the intensive margin, despite the absence of much growth in exports. This suggests that the ability of high-income departments to get into unexploited product markets in the US would leverage activity in other sectors in middle-income departments. Strengthening networks between exporting sectors in high-income departments and non-exporting sectors in middle-income departments could help to maximize spillovers from trade diversification and GVC reconfiguration.

FIGURE 43. EXPORT GROWTH FROM GVC RECONFIGURATION IN FORWARD-LOOKING SCENARIOS



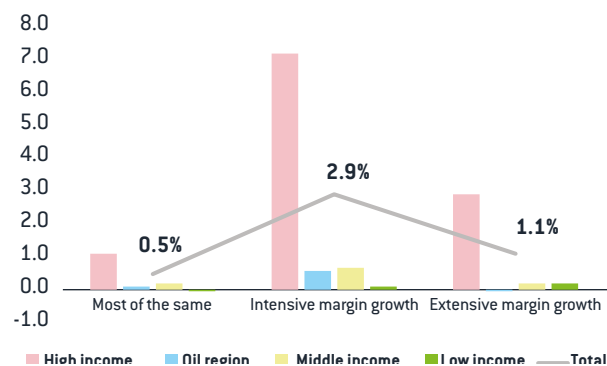
Source: DNP

FIGURE 44. GDP GROWTH FROM GVC RECONFIGURATION IN FORWARD-LOOKING SCENARIOS



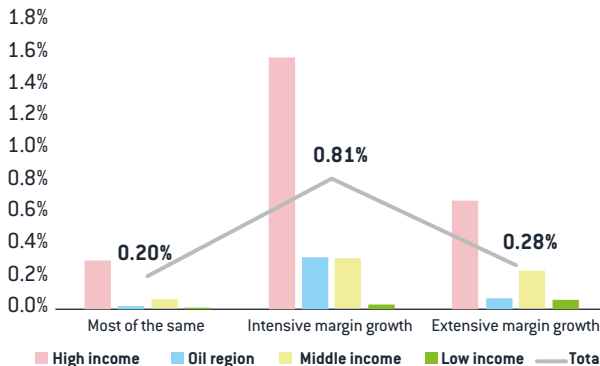
Source: DNP

FIGURE 45. EXPORT GROWTH FROM GVC RECONFIGURATION IN FORWARD-LOOKING SCENARIOS BY REGION



Source: Authors' elaboration based on joint simulations with DNP

FIGURE 46. GDP GROWTH FROM GVC RECONFIGURATION IN FORWARD-LOOKING SCENARIOS, BY REGION

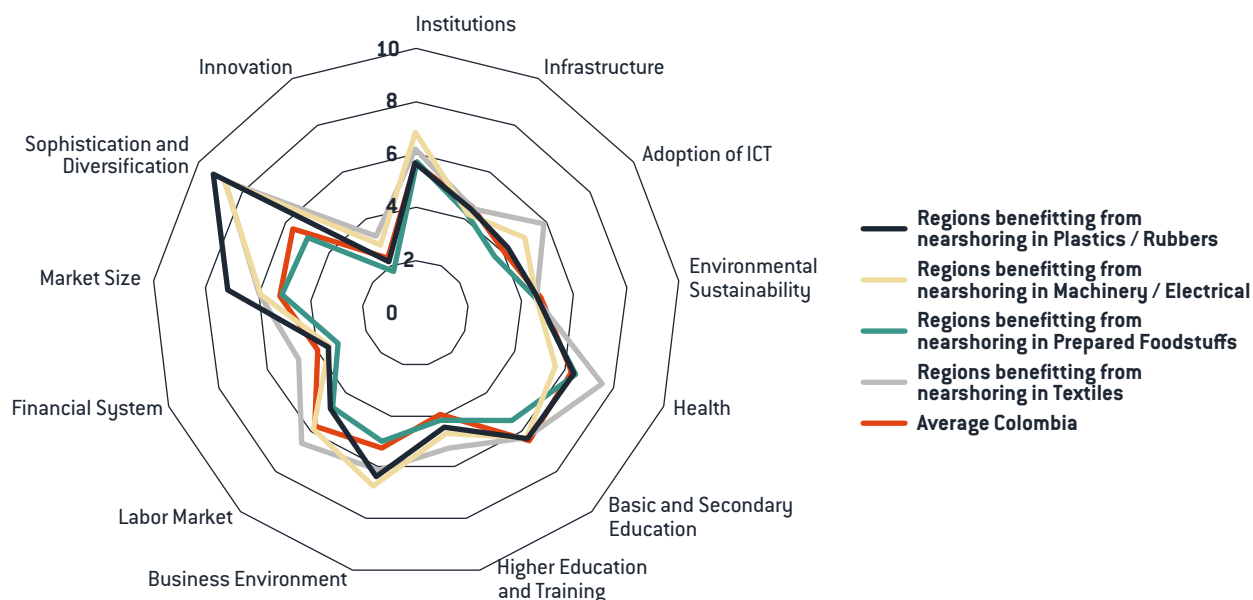


Source: Authors' elaboration based on joint simulations with DNP

How can Colombia's regions position themselves to capitalize on future trade opportunities while increasing their export resilience? The scenarios outlined above are not intended as forecasts of outcomes under a business-as-usual approach but as an indication of the potential scale of the opportunities that could become available. Achieving these outcomes would require substantial increases in productivity and competitiveness throughout the country. Assessing the comparative advantages of different regions in sectors that have already benefited from GVC reallocation can provide a hint as to the best places for policymakers to focus their efforts to leverage on this trend.

We carried out a competitiveness benchmarking exercise that showed that most gains from GVC reallocation occurred in highly competitive regions but with some exceptions. Even regions with medium competitiveness scores were able to benefit in some sectors (Figure 47). Most gains in plastics, machinery, and textiles happened in departments that are well above the national average in terms of the sophistication, diversification, and size of their market and business environment. In addition, departments that benefited from GVC reallocation in textiles have better health indicators and higher levels of ICT adoption than the country's average. On the other hand, even regions with below average competitiveness in most dimensions were able to benefit from GVC reallocation in foodstuffs.

FIGURE 47. COMPETITIVENESS SCORE BY PRODUCT GAINS BY REGION



Source: Author's elaboration using data from Departmental Competitiveness Index 2024/25

Note: The blue lines show the 10th percentile of the competitiveness scores of all regions benefiting from GVC reallocation in a sector, weighted by NSQ as a share of their GDP. This can be interpreted as a minimum threshold below which no region has been able to realize significant gains in a sector.

3.5. POLICY IMPLICATIONS

Colombia's exports have increased in response to a recent reconfiguration of GVCs, which is a sign of that the country has latent export potential. Using the recent US trend away from trade with China as a case study, we found that GVC reallocation towards Colombia reached over US\$730million between 2015/16 and 2022/23, with an aggregate impact estimated at 0.3 percent of GDP and 0.7 percent of Colombia's exports, including both direct and indirect effects. This impact was particularly strong in some departments such as Valle del Cauca, where it had a direct impact of over 4 percent of the department's exports. Despite spillovers to other regions, the effects were particularly concentrated in high-income departments, which are in the best position to respond to an external demand shock. Although the future is uncertain, the export capacity displayed by Colombian firms that were able to benefit from the reconfiguration of GVC hints at the possibility of further gains going forward.

Forward-looking exercises such as those discussed in this chapter can illustrate the importance of adopting complementary policies to boost export competitiveness. Regardless of which scenario is under consideration, if Colombia were to become more competitive, it would be more able to substitute for its competitors' US trade losses and/or to expand its trade gains from GVC to other product groups.

While this chapter has focused on the trade of goods, trade in services also has considerable potential in Colombia, especially as services are less constrained by high transport costs. In fact, exports of services have notably increased in Colombia over the last decade, from an average of 3.1 percent of GDP between 2015 and 2019 to 4.2 percent in 2019. Travel services (which account for 2.1 percent of GDP) accounted for about 44 percent of the overall increase. Another half of the overall increase was due to telecommunication and information services, other business services (especially consulting, advertising, and consumer research services), and transport exports (mostly passenger air transport). These services are mostly provided by firms in Bogotá (75 percent), Antioquia (13.2 percent), and Atlántico (4.3 percent).

As shown above, the service sector already benefits indirectly from GVC reconfiguration and has the potential to benefit even further in the future. Our exercises did not directly account for services, but it is clear that increasing Colombia's exports of services could integrate the country further into international trade flows, foster a stronger structural transformation process, and lead to a more diversified and resilient economy. As global demand for services rises, Colombia could focus on promoting this sector, which does not suffer from the physical constraints of being located far from international markets.

Colombia's gains from GVC reconfiguration have not promoted convergence but instead have intensified existing disparities. High-income departments benefited most from past trends. This does not mean that Colombia should shy away from such development strategies but emphasizes the need for policymakers to take complementary measures to ensure that shared prosperity reaches all corners of the country. That is, the country should try to exploit all potential export gains and, at the same time, it should be making efforts to provide equality of opportunity across the country.

Neither past nor future trends in GVC reconfiguration will solve Colombia's longstanding issues with global trade integration on their own, but they might increase the potential payoffs of boosting economy-wide productivity and enhancing trade integration. Productivity and trade outcomes are intimately linked: no country can effectively participate in international trade without competitive firms, and firms cannot be competitive if they have no access to inputs at efficient prices, international know-how, and large markets to reach scale. Therefore, any efforts to overcome barriers to productivity growth will also increase Colombia's integration into the global economy. Effective trade policies are also needed to accelerate the process. As shown in World Bank (2025), the measures most likely to help Colombian firms to access international markets, include:

- Strengthening *Procolombia's* support programs for firms, including related to attracting international talent, making quality improvements to attract new customers, and increasing technological capabilities.
- Strengthening internationalization strategies at the firm level in accordance with current and international best practices.
- Strengthening the national quality system to help exporters to obtain internationally recognized quality certification.
- Increasing the access of SMEs to new markets through market intelligence services for both goods and services
- Developing an overall value chain and sectoral analysis to identify sector-specific constraints.
- Aligning Colombia's tariff system and removing nontechnical bottlenecks in manufacturing to modernize the customs system and increase non-mining exports.

Chapter 4. Intergovernmental Transfers for Equalizing Opportunities across Colombia's Regions



4.1. INTRODUCTION

Across Colombia, persistent and large disparities exist in the extent to which people have access to opportunities to develop their productive assets and human capital. State provision of public services has historically been concentrated in prosperous regions, leaving the excluded population without adequate access to basic services and opportunities (World Bank, 2024a). For example, in 2022, over 70 percent of people in Bogotá had attained a secondary education compared to only 28 percent in Guainía and only 14 percent in Vichada. In addition, the rate at which these gaps are being narrowed is slow.

People living in poor and rural areas on average have worse human capital outcomes. Departments in Region 4 have the lowest levels of per capita GDP, including Vaupes, Vichada, Choco, Guainía and La Guajira, despite their wealth of natural capital. They also have some of the poorest health and education outcomes in the country. Municipalities with higher poverty rates on average have less access to potable water, lower educational attainment, higher learning poverty,²⁷ and higher levels of avoidable infant mortality (World Bank, 2024a).²⁸ The gap between urban and rural areas is strikingly large.

Reducing these territorial opportunity gaps will be critical to promote equity, economic growth, and environmental protection. World Bank (2024a) estimated that one-third of labor income inequalities in Colombia can be explained by a person's place of birth. This is not only unfair but is also detrimental to economic development and sustainability. A healthy, well-educated labor force can lead to higher productivity, incomes, and economic growth and can promote national cohesiveness. As was shown in Chapter 2, higher productivity also fosters forest conservation, which will be key to Colombia meeting its ambitious climate commitments.

Colombia's decentralization reform in 1991 made departments and municipalities responsible for delivering the critical services needed to provide equal opportunities, including education, health, and water and sanitation.^{29,30} In fact, Colombia is one of Latin America's most decentralized unitary countries, at least in terms of expenditures. As shown in Figure 48, in 2019, Colombia's subnational governments (SNGs) were responsible for 36 percent of general government expenditure, a similar order of magnitude as in federal countries such as Austria, Germany, and Mexico. A centerpiece of Colombia's decentralization model is the General Participation System (SGP), the country's main transfer system to SNGs and their single largest source of revenue.

A recent constitutional reform committed the central government to increasing SGP transfers over the next 12 years, contingent on the revision of the expenditure responsibilities of each level of government. The reform (Law 2441 of 2024) committed the central government to increase the share of net domestic revenues allocated through the SGP from about 20.8 percent in 2022 to 39.5 percent by 2036. This will put the central government budget under considerable fiscal pressure, even though the reform requires the government to adhere to its medium-term fiscal framework and fiscal rules. However, it also gives the government a historic opportunity to take a fresh look at the SGP system and to consider how it could become a more effective toolbox for supporting equitable and efficient subnational service delivery aligned with the country's conservation efforts. Comparing the SGP with international practices and with generally accepted principles could provide the Government of Colombia with useful lessons for seizing this opportunity to make the SGP more effective in fulfilling its purposes. This chapter conducts this review of the SGP

27 Learning poverty means being unable to read and understand a simple text by age 10. This indicator combines the share of primary-aged out-of-school children who are schooling deprived and the share of pupils below a minimum proficiency in reading who are learning deprived. For a detailed definition, see <https://www.worldbank.org/en/topic/education/brief/what-is-learning-poverty>.

28 Similarly, Al-Samarrai and Lewis (2021) using the Synthetic Index of Education Quality (SIEQ) found negative correlations between municipal poverty rates and upper secondary gross enrollment rates and learning outcomes.

29 Responsibility for sports and culture was also decentralized in 1991.

30 After the SGP and the SGR, co-financing grants from line ministries are a third, though small, source of transfers, amounting to about 0.2 percent of GDP on average.

system, but it does not address the question of which functions should be reassigned to SNGs in line with their increased revenue allocations.³¹

FIGURE 48. EXTENT OF EXPENDITURE AND REVENUE DECENTRALIZATION IN COLOMBIA COMPARED TO OECD COUNTRIES, 2019



Source: Authors' elaboration using data from the IMF's Fiscal Monitor.

Note: Federal countries are in red and unitary countries in black. The classification of countries as "federal" is based on OECD Subnational Governments Structure and Finance 2024.

4.2. COLOMBIA'S MODEL OF FISCAL DECENTRALIZATION

Colombia is a unitary state that has gradually devolved various competencies, functions, and resources to SNGs. The country comprises 32 departments and 1,124 municipalities, with large disparities in fiscal and institutional capacities between urban centers and remote rural regions. The decentralization process began in the mid-1980s, with a political push towards more localized governance, notably through the popular election of mayors in 1986 and governors in 1991.³² The main services devolved to departments and municipalities comprise education, health, water and sanitation, with the central government setting policies and standards.

Since 2001, with the establishment of Certified Territorial Entities, Colombia has adopted an asymmetric approach to decentralization. In this system, the assignment of functions between departments³³ and municipalities³⁴ now depends on whether they are certified or not. For example, departments handle most education service delivery functions for non-certified municipalities, including planning, administration, and personnel management. Non-certified municipalities are only responsible for managing

31 Addressing this question would require an in-depth review of *de jure* and *de facto* functional assignments in several sectors, which is beyond this chapter's scope. This chapter simply points out the lack of clarity regarding functional assignments and provides procedural guidance for the Government of Colombia to review.

32 For a detailed account of Colombia's decentralization reform trajectory, see López-Murcia (2022).

33 According to Colombia's Constitution, "departments have autonomy in managing sectional affairs and in planning and promoting economic and social development within their territory."

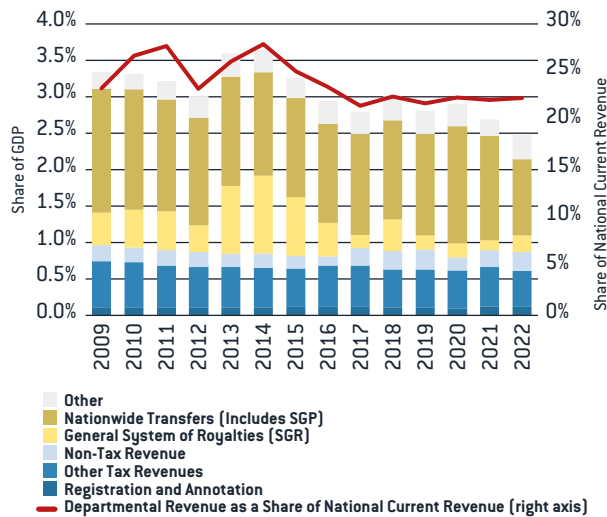
34 According to Colombia's Political Constitution municipalities are the fundamental political-administrative unit in the country, responsible for delivering local public services, organizing territorial development, and encouraging community participation. Colombian Law 136 in 1994, later modified by Law 1551 in 2012 details 23 specific duties for municipal administrations, a wide range of activities from creating development plans to ensuring that basic needs are met.

small allocations for capital investments and maintenance related to “educational quality.” However, in the case of certified municipalities, all of those departmental functions are devolved to the municipality. Since only a minority of municipalities are certified, departments play the main role in delivering education and health services across much of the country. Water and basic sanitation services, which are also subject to certification, are mostly a municipal function.

One longstanding issue with Colombia’s model of decentralization is that the assignment of functions is not clear, which has led to problems with functions being unassigned or misassigned or overlapping. In education, for example, the functions of the production and distribution of textbooks and teacher training are unassigned. Infrastructure development and maintenance and quality improvements are assigned to all three levels of government, which is likely to cause coordination problems and lead to poor delivery (Al-Samarrai and Lewis, 2021). The function of curriculum development is assigned to the school level, even though many schools lack the capacity to effectively perform this function and there is no possibility of achieving economies of scale. These issues are compounded by the Certified Territorial Entities system, which assigns functions differently between jurisdictions, thus further blurring responsibilities.

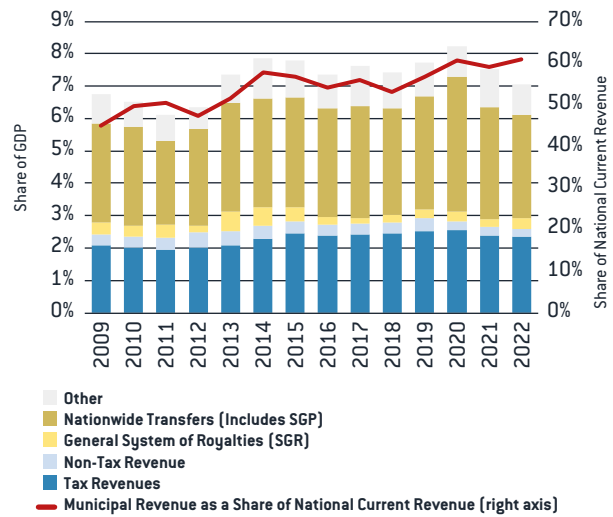
Colombia’s model of decentralization is also characterized by low levels of own-source revenue in SNGs. In 2022, about 37 percent of public spending was carried out by SNGs, but they only collected 13 percent of total public revenues, mainly through taxes on property, production, and specific goods. As a result, SNGs depend heavily on transfers as their primary revenue source. In 2022, transfers represented 49 percent of departments’ total revenues, while tax and non-tax revenues represented 38 percent (Figure 49). These transfers mostly come from the SGP and the General System of Royalties (*Sistema General de Regalías* or SGR), a revenue sharing transfer for natural resource revenues that funds SNGs’ capital investments. For municipalities, the equivalent values for transfers and taxes were 50 and 37 percent (Figure 50).³⁵

FIGURE 49. REVENUE COMPOSITION OF DEPARTMENTS, 2009-2022



Source: Authors’ elaboration using data from the Ministry of Finance and Public Credit, DANE, and the World Bank national accounts.

FIGURE 50. REVENUE COMPOSITION OF MUNICIPALITIES, 2009-2022



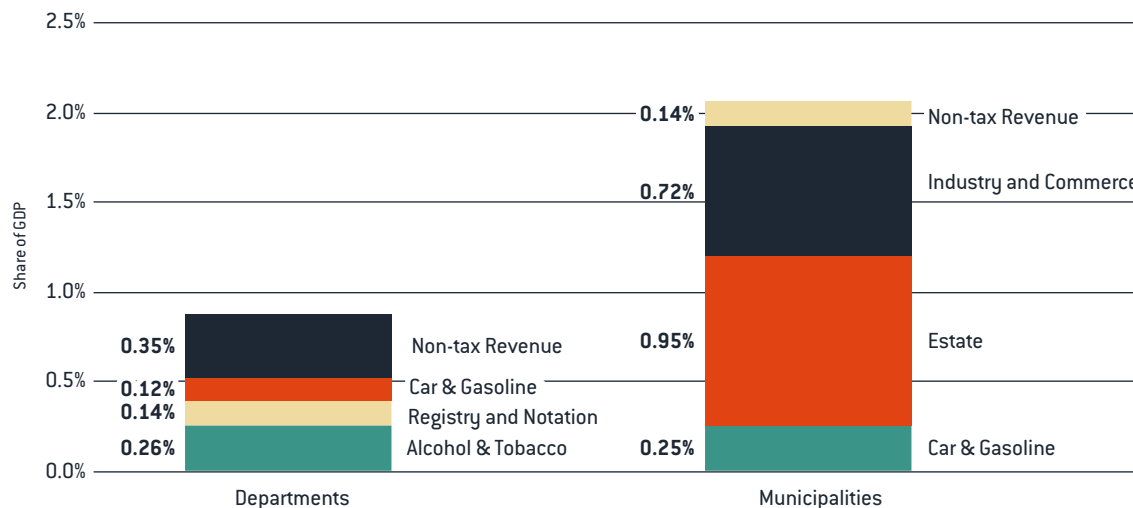
Source: Authors’ elaboration using data from Ministry of Finance and Public Credit, DANE, and the World Bank national accounts.

Municipalities have significantly more revenue autonomy than departments. The revenue bases for departments consist of excise taxes on alcohol, tobacco, and gasoline, various stamp duties, and the registry tax on business and property (Figure 51). However, departments only have rate-setting discretion over the registry tax (Bird, 2012), which raises the question of whether their other tax bases should be considered own revenues. Levitas (2017) argues that “most of the taxes should not be considered

35 The residual 13 percent of total revenue for both departments and municipalities is composed of current transfers (a category distinct from the SGP and the SGR) and other capital revenues and cofinancing.

own revenues because their rates and bases are fully set by the national government.” Municipalities collect taxes on property and industry, and commerce. They have significantly higher autonomy over these tax bases: for both the property tax (0.7 percent of GDP in 2022) and the industry and commerce tax (0.9 percent of GDP in 2022), they can set rates within nationally set ranges.

FIGURE 51. DEPARTMENTAL AND MUNICIPAL OWN-SOURCE REVENUES AS A SHARE OF GDP, 2022



Source: Authors' elaboration using data from Ministry of Finance and Public Credit

Having low own-source revenues and limited revenue autonomy can undermine the incentives for SNGs to promote regional growth, their accountability to citizens for service delivery, and their overall fiscal discipline. Those SNGs that raise a substantial portion of their own revenues tend to be more accountable to citizens thanks to a stronger “fiscal contract.”³⁶ Consistent with this argument, Martínez (2023) showed that increases in the tax revenue of Colombian municipalities have had larger positive effects on education, health, and water services than an increase of equivalent size in oil royalties.

Conversely, Colombia’s SNGs remain highly dependent on intergovernmental transfers, with large vertical and horizontal fiscal imbalances. In recent years, transfers have accounted for around 5 to 6 percent of GDP or 50 percent of total SNG revenues, with municipalities receiving over two-thirds. While the overall transfer system is equalizing across departments, horizontal fiscal disparities in total per capita revenues remain between municipalities.

One key challenge is that earmarked conditional grants severely limit SNGs’ spending autonomy. Most of the SGP transfers are earmarked for and within sectors. Only 32 percent of the SGP transfers to municipalities are unrestricted. In the case of departments, this figure drops to only 5.5 percent, with virtually all SGP transfers being earmarked, especially to paying salaries of teachers. The main source of unearmarked transfers is the “general purpose” grant, which only represents 11.6 percent of the total SGP pool (Figure 53), but for some municipalities, even these funds are partially earmarked.³⁷ This has led some observers to speak of SNGs as being merely the “payroll agents” of the central ministries (Levitas, 2017, 5).

Tight earmarking reflects a longstanding lack of trust between the central administration and SNGs. It comes at the price of forgoing the potential efficiency and accountability gains from locating spending discretion at the level closest to the community

36 A fiscal contract refers to an implicit or explicit agreement between a government and its citizens in which the government commits to providing public goods and services in return for the revenue collected through taxation. This concept shifts the perception of taxation from being a coercive process where the state unilaterally extracts taxes without accountability toward a reciprocal relationship grounded on mutual obligations and trust (Fjeldstad and Moore, 2008 and Moore et al 2018).

37 “For poorer municipalities, 42 percent of the funds can be spent as they see fit, while portions of the rest must be spent on culture, sport, investments or a national pension fund that is in deficit. Meanwhile, richer municipalities, must spend all funds either on investments or on the deficit pension fund, with some earmarking of the sectors in which investments can be made.”

(the principle of subsidiarity). Colombia's approach contrasts with the approach taken by many other decentralized countries, which use mainly unearmarked revenue sharing or equalization grants to fund SNGs.

Overall, Colombia's model has aptly been characterized as "decentralization without decentralizing" (Bird, 2012). Similarly, Levitas (2017) has written of a "tutelary model of intergovernmental relations," where the central government acts as the principal and SNGs as its agents. This is reflected in the fact that SNGs have significant expenditure responsibilities, but most lack significant revenue and spending autonomy, especially those that are highly dependent on transfers.

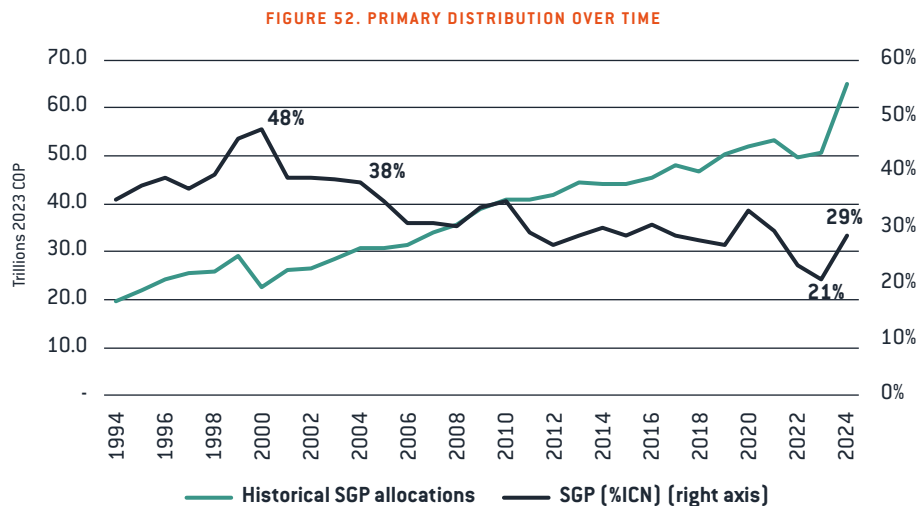
As Colombia's main transfer, the SGP is a major contributor to this model and a critical factor in shaping SNGs' service delivery outcomes (Bird, 2012). Therefore, a central question should be how to reform the SGP with the aim of promoting greater equality of opportunity through equalization and greater efficiency through greater SNG autonomy.

4.3. THE GENERAL PARTICIPATION SYSTEM

The Vertical Share

Over the past two decades, the size of the SGP pool transferred to SNGs has decreased significantly, thus reducing the extent of expenditure decentralization. The share of national current revenues allocated to the SGP declined from a peak of 46 percent in 1999 (under *Situado Fiscal*, the precursor of SGP) to 29 percent in 2024 (Figure 52). Similarly, as a percentage of total government expenditures, the SGP decreased from 16 to 10 percent during this same period.

This decline is largely due to the indexation of the SGP pool to inflation between 2002 and 2017, rather than to a decline in national current revenues. From 1994 to 2001, *Situado Fiscal* defined the pool size as a share of national current revenues and gradually increased that share to more than 40 percent. Law 1/2001, which created the SGP, provided that the SGP pool should continue to be indexed to growth in the national current revenues based on a four-year rolling average. However, because of fiscal sustainability concerns, the law provided that the SGP pool would temporarily be indexed to inflation plus a fixed (but time-variant) percentage (DNP, 2024). This indexation to inflation was later extended to 2017, meaning that it remained in place for nearly two decades. As national current revenues outgrew inflation for most of this period, the SGP pool had shrunk to about 27 percent of national current revenues by 2017. In 2017, the pool was finally indexed to a four-year rolling average of national current revenues growth as originally intended.



In response to declining transfer revenues, Colombia's Congress approved a constitutional revision in December 2024 to gradually increase the SGP pool to 39.5 percent over 12 years. This reform reflected the growing discontent of SNGs at their declining transfer revenues. It represents the most significant change to the SGP in the last 20 years and will substantially increase the extent of fiscal decentralization in Colombia over the next decade. However, this is happening in the context of challenging fiscal circumstances at the central government level.

While controversial (Box 5), this reform provides an opportunity for address longstanding problems in Colombia's SGP system. Its implementation will depend on the approval by Congress of a new Competencies Law within the next two years, which will redefine the assignment of functions and expenditure responsibilities to different levels of government, thus addressing the current assignment problems. The Competencies Law (i) can provide a vehicle for addressing the above-mentioned challenges with sub-optimally assigned or unclear overlapping expenditure responsibilities. The gradual growth of the pool also creates an opportunity to reduce horizontal inequities by providing additional allocations to underfunded SNGs. Not least, the SGP reform has the potential to address autonomy and incentive issues.

BOX 5. REFORM OF THE GENERAL SYSTEM OF PARTICIPATIONS (SGP)

The SGP reform has been controversial. Proponents argue that it is key to restoring the fiscal power and autonomy of Colombia's SNGs, as envisioned in the 1991 Constitution. However, the reform has faced criticism from economists and experts. One concern is that its sequencing—funding first, functions second—is at odds with good practice, which dictates that funding should follow function (Bahl and Bird, 2018). Another concern is that the reform will put the national budget under pressure, including adding to the public debt in the midst of a delicate fiscal situation. The expected increase in fiscal transfers due to the reform could be as much as 2 to 2.5 percent of GDP, or approximately COP 40 trillion annually once the full SGP allocation is reached. The redefinition of expenditure responsibilities across levels of government is therefore crucial from a debt sustainability perspective.

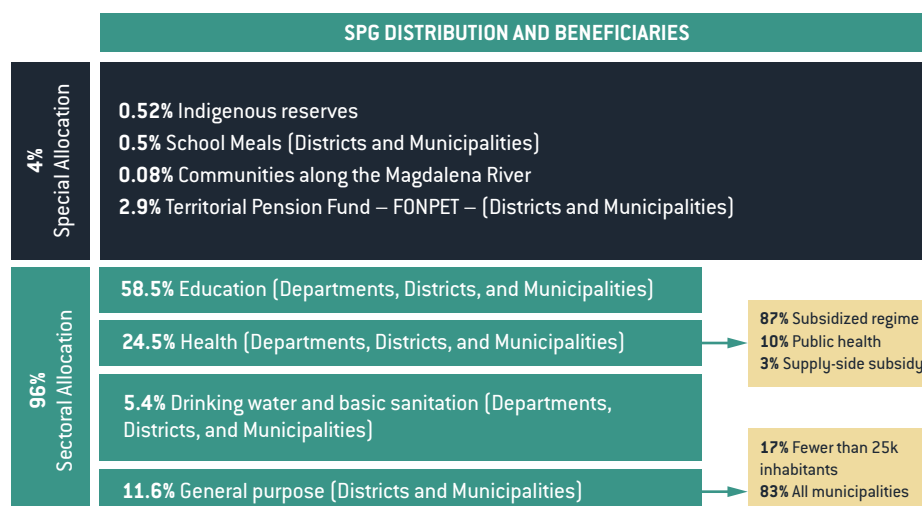
The Horizontal Share

Most of the SGP pool is allocated to departments and municipalities in the form of conditional sectoral grants. After reserving 4 percent of the pool for special assignments, the remaining 96 percent is split into sectoral sub-pools, based on fixed percentage shares (Figure 53). Education and health are by far the largest sectors, receiving 58.5 and 24.5 percent respectively. Only 11.6 percent is dedicated to a general purpose discretionary grant (*proposito general*), which is distributed only to municipalities.

Each sectoral sub-pool is then allocated to SNGs in the form of several specific purpose grants, each with specific allocation formulas. With the aim of fostering equalization, these formulas typically mainly consist of needs indicators such as population size, number of students, poverty rates, and a rurality index. They also mix in performance indicators such as administrative efficiency, budget execution rates, vaccination rates, and results from the World Bank's Systems Approach for Better Education Results (SABER) program, which measures the effectiveness of countries' education systems.³⁸ Notably, the allocation formulas currently lack any proxy for differences in fiscal capacity across SNGs.

38 The distributions for education, healthcare, and water are regulated by laws 715 of 2001 and 1176 of 2007 (see Annex 2 for details).

FIGURE 53. SGP DISTRIBUTION AND BENEFICIARIES



Source: Authors' elaboration based on Laws 715 of 2001 and 1176 of 2007

4.4. THE SGP COMPARED TO INTERNATIONAL TRANSFER SYSTEMS

The design of transfer system varies significantly depending on each country's context and objectives, but some common practices and principles can be identified. Generally, transfer systems are needed to address vertical³⁹ and horizontal imbalances between SNGs that arise from inadequate and/or unequal own-source revenue and disparities in their expenditure needs (Korczyk and Martinez-Vazquez 2020). One generally accepted design principle is to use “one separate instrument for each objective.” That is, a separate transfer instrument should be used to achieve each major objective rather than attempting to “kill several birds with one stone.” This is advisable because equity, efficiency, and autonomy objectives are subject to trade-offs and because trying to achieve several objectives using only one instrument leads to confusion about what is really being achieved. Box 6 sets out which types of transfer instruments typically serve which objectives and describes the most common structure of transfer systems around the world.

Considering the SGP system in international comparison helps highlight three main shortcomings. First, the SGP heavily relies on a complex system of conditional sector-specific grants that give SNGs little spending autonomy. Second, these grants attempt to achieve multiple objectives at once, such as equalization and incentivizing performance. This reduces the extent to which they are effective in achieving either of these objectives. For example, differences between SNGs in terms of their fiscal capacity are not accounted for in equalization. Third, transfer instruments that could be used to address some important objectives are not currently being used in Colombia. These include derivation-based revenue-sharing to support economic development incentives in Colombia's urban centers. In addition, a capital grant provided outside of the SGR could help to reduce large disparities in infrastructure endowments between SNGs and/or promote economic convergence.

39 Vertical imbalance “refers to the extent to which subnational governments finance their budgets from revenues that they raise from their own sources.” (Bahl and Bird, 2018, 283)

Revenue sharing. Revenue sharing means that the central government allocates a share of nationally collected taxes to sub-national governments (SNGs). The principle behind revenue sharing is that it is most efficient for central government to collect major tax bases such as the personal income tax (PIT) and the value-added tax (VAT), but it needs to share these revenues with SNGs to reduce vertical imbalances and to finance the execution by the SNGs of their devolved functions. In a “derivation-based” system, the share given to each SNG will depend on the share of taxes collected within its jurisdiction. This “allows a country to recognize the role of the most economically dynamic regions and provides them with a salient incentive to continue to play that role” (Korczyk and Martinez-Vazquez, 2020, 46). Spain and China, for example, share revenues from both the VAT and the PIT with SNGs on a derivation basis. Derivation-based revenue-sharing is similar to a local tax system and provides SNGs with similar incentives to grow their local tax base. These incentives are stronger if the SNGs are given discretion to set a surcharge on respective tax, as with the PIT in Croatia (Chattha et al, 2023). Natural resource revenues are also often subject to revenue sharing, as is the case in Colombia’s own General System of Royalties (SGR). Some countries use formulas other than the derivation-based system to implement revenue sharing programs. For example, Germany uses population rates as the basis for sharing the VAT with the states.

Equalization transfers. Both SNGs’ own revenues and derivation-based revenue sharing tend to produce horizontal fiscal imbalances that favor regions with high levels of economic activity, particularly including urban regions and those with natural resource wealth. When these revenue disparities remain unaddressed, this often translates into large inequalities in public services, which prevents all individuals having equal access to opportunities. Equalization transfers are designed to reduce such horizontal imbalances (see Boex and Martinez-Vazquez, 2007 and Martinez-Vazquez and Searle, 2007) whether as the result of the introduction of a new transfer scheme or as part of the revision of an existing one, is a key element of local government finance reform around the world. While the basic elements and principles of designing intergovernmental fiscal transfer schemes apply universally, less developed and transition countries (LDTCs for detailed discussions of equalization grant design issues. A common and solid design is to create an equalization pool to be allocated to SNGs based on in proportion to the difference between their estimated expenditure needs and their fiscal capacity. Countries that use fiscal gap formulas include Australia, Italy, Japan, the United Kingdom, China, Latvia, Vietnam, Indonesia, and Peru. Equalization transfers are usually unconditional.

Conditional transfers. Conditional transfers put limits on the autonomy of SNGs to spend the transfers as they wish. Block grants are typically provided to fund specific functions (such as education), but SNGs are allowed to decide on how to allocate the grant among education functions. In contrast, specific-purpose grants require SNGs to use the grant for specific functions in accordance with strict *ex ante* conditions. These conditional transfers usually have three main purposes: (i) to fund functions that the central government has delegated to SNGs; (ii) to ensure the delivery of a minimal level of services in critical sectors (such as education and health); or (iii) to achieve specific public goods goals, for example, those related to the climate. There has been an international trend over the past several decades to reduce the use of conditional transfers and to rely more on block grants and equalization grants with a view to enhancing SNGs’ autonomy over their own spending.

Performance-based grants. These are a specific form of conditional grants designed to give SNGs an incentive to strengthen institutions and service delivery by requiring them to meet *ex-post* performance indicators (see Lee et al, 2022; Lee, 2019; and de Walque and Kandpal, 2022 for studies of the evidence on performance-based grants. Performance-based grants have been used to improve service delivery in the health, education, and infrastructure sectors to strengthen SNG’s fiscal and human resource management, or to promote other objectives such as environmental conservation efforts). Argentina’s *Plan Nacer/Sumar* is a notable example in the health sector (see [Gertler and Giovagnoli, 2014 and Sabignoso et al, 2024 for details. A key design challenge for performance-based grants is to select indicators that set effective incentives, that SNGs can control, control, and that can be measured with sufficient reliability.

Capital grants. Given the occasional and non-recurrent nature of capital investment projects, most countries separate recurrent and capital grant instruments. Capital grants can be used to reduce disparities in infrastructure endowments between regions, to promote economic convergence among regions, and to address externalities. Capital equalization grants can be a useful complement to standard equalization grants, as the latter typically only equalize “present” spending needs (such as per student costs) but are not designed to reduce often large disparities in, for example, education or health infrastructure (Herrero-Alcalde et al, 2012). It is important to design these grants to ensure that they supplement rather than crowd out SNGs’ own funding for capital spending and that they do not hamper SNGs’ efforts to borrow financing for such investments.

Sources: Bahl and Bird (2018) and Korczyk and Martinez-Vazquez (2020).

The SGP lacks a derivation-based revenue-sharing instrument, which could strengthen fiscal incentives for Colombia’s high-income urban centers to promote their own economic development.⁴⁰ This kind of revenue sharing could provide SNGs with greater spending autonomy, especially departments, and foster a sense of fairness by allocating to urban centers a larger share of the taxes that their citizens generate back to them, given significant levels of redistribution (see Figure 55 and Figure 56).

Both the value-added tax (VAT) and the personal income tax (PIT) could be used as bases for revenue sharing. The Government of Colombia might consider using the VAT, given its large share of total revenues (32 percent of total revenues in 2022),⁴¹ provided that a suitable way to calculate the derivations can be found. For instance, Canada shares its VAT based on the basis of regions’ shares of taxable final sales, while Spain bases it on the region’s share of aggregate consumption in regional GDP.⁴² While in principle the PIT is also suited for derivation-based revenue sharing, its tax base in Colombia is restricted to higher-income taxpayers, which limits its utility as a basis for revenue-sharing.

The SGP’s conditional grants are designed with a focus on equalizing SNGs’ expenditure needs. All sectoral conditional grants are allocated based on needs indicators, except for education. The general purpose grant is mainly distributed on the basis of population size (40 percent weight) and poverty rates (40 percent).⁴³ In the health sector, the “subsidized regime” grant is allocated based on the size of the beneficiary population (100 percent), while the public health grant is allocated based on population size (68 percent), rurality (5 percent), and the poverty rate (15 percent). The education grant is mainly allocated to cover teacher payroll costs (both the “provision of service” and the “complement”).

These grants have contributed to a significant equalization of total per capita revenues across departments. In 2022, most departments had total revenues, including all transfers and revenues from municipalities, ranging between COP 2 and 3.5 million per capita, with a median of COP 2.6 (Figure 54). Some noteworthy exceptions that had particularly high per capita revenues included low-income, high poverty, thinly populated departments in the Amazon region in Region 4 and the tourist islands of San Andres y Providencia. In the case of the former, this was due to low populations and high transfers, while in the latter case, it was due to low populations and high own-source revenues from tourism. However, these departments account for only a small proportion of Colombia’s population (5.6 percent) and total SNG revenues (6.4 percent), thus their high transfers have had only minimal distributional effects on other departments.

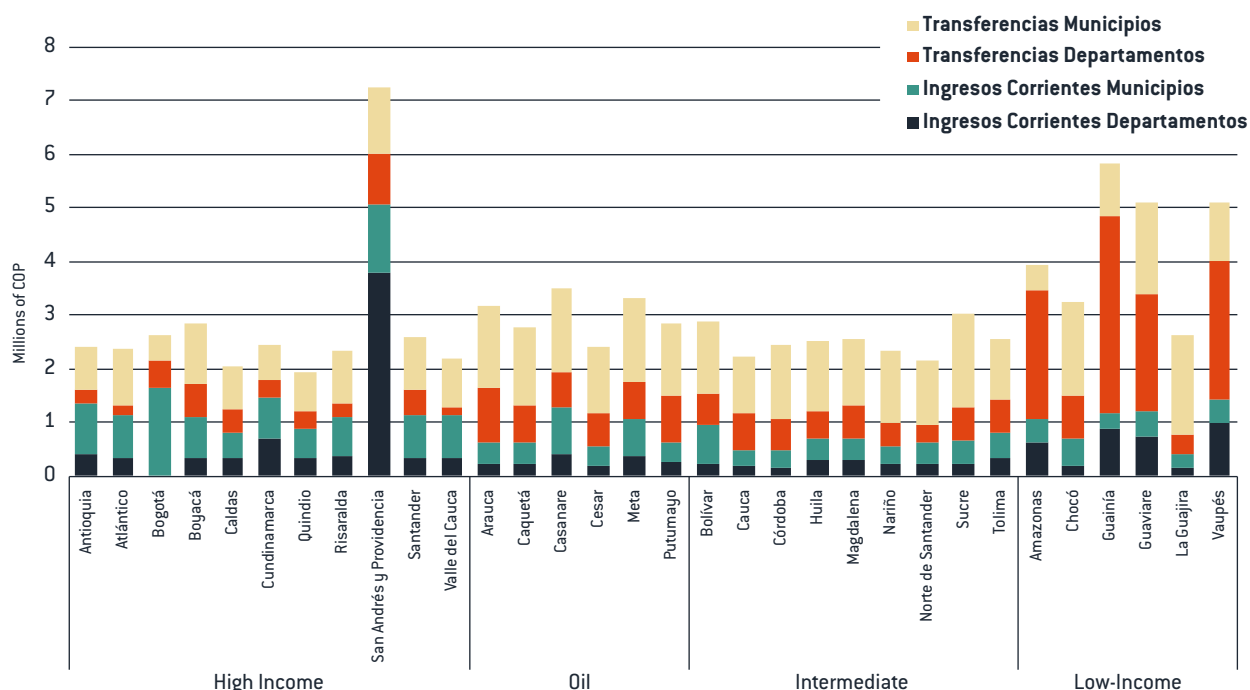
40 Theoretically, the Second Generation Fiscal Federalism literature underlines the importance of using transfers to set fiscal incentives for SNGs to support economic growth. See for example (Weingast, 2009).

41 OECD Revenue Statistics for Colombia: <https://www.oecd.org/en/data/datasets/global-revenue-statistics-database.html>

42 For a more detailed discussion of derivation-based revenue sharing, see Bahl and Bird (2018) and Korczyk and Martinez-Vazquez (2020).

43 For all municipalities and districts with more than 25,000 inhabitants.

FIGURE 54. TOTAL PER CAPITA REVENUES BY DEPARTMENT, 2022



Source: Authors' elaboration using data from Ministry of Finance and Public Credit and DANE.
 Note: The figure includes both departmental and municipal revenues as well as transfers.

While the resulting disparities in per capita revenues are still significant, the transfer system ensures that revenue is redistributed from departments with high incomes to intermediate and low-income departments. In the absence of transfers, high-income departments that include urban centers like Bogotá, Cundinamarca, and Antioquia would have some of the highest per capita revenues (Figure 55), as would some oil and coal departments in Region 2, such as Casanare and Meta. However, after accounting for transfers, total revenues are much more equal across departments, with the previously noted exceptions (Figure 56).⁴⁴

FIGURE 55. CURRENT PER CAPITA REVENUES AND UNMET BASIC NEEDS

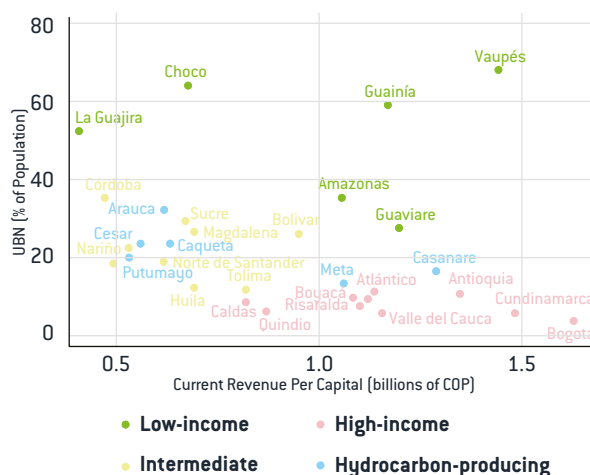
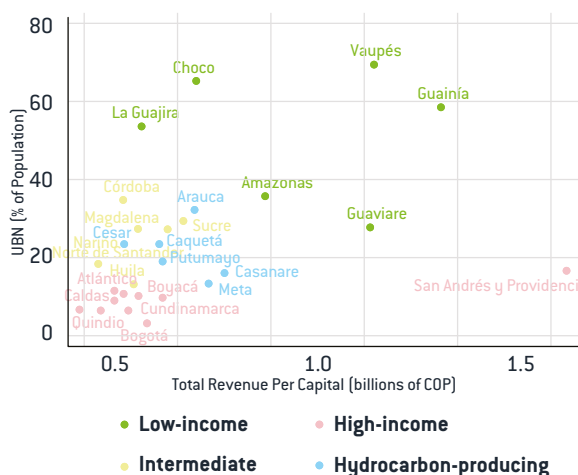


FIGURE 56. TOTAL PER CAPITA REVENUES AND UNMET BASIC NEEDS

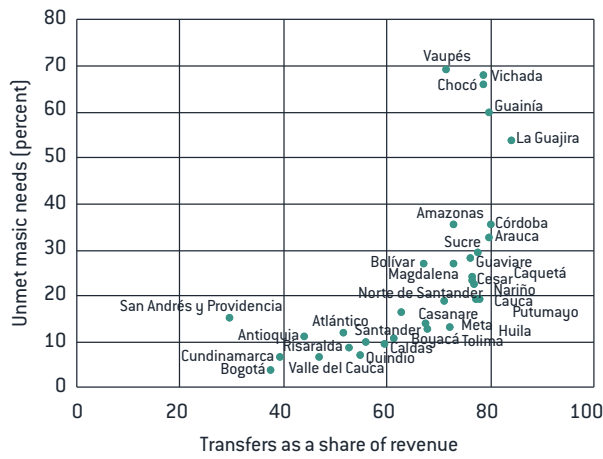


Source: Authors' elaboration using data from Ministry of Finance and Public Credit and DANE

44 Similarly, Al-Samarrai and Lewis (2021) documented the effects of transfers aimed at equalizing per student spending in favor of poorer municipalities. They found that a highly regressive allocation of own-source revenues per student became only mildly regressive when transfers were included in the estimation.

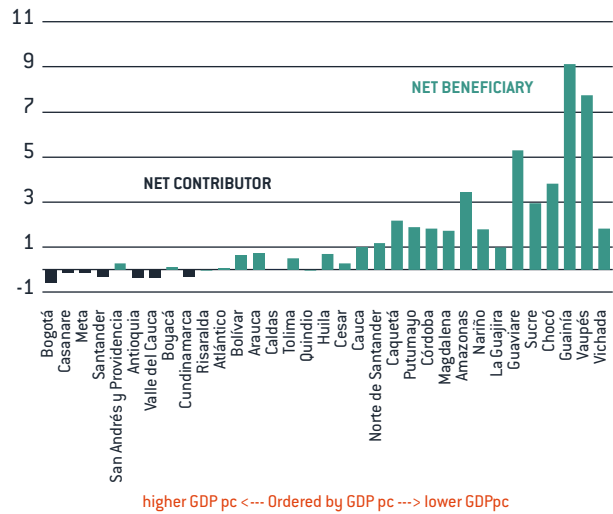
The redistribution mainly occurs between Colombia's high-income, populous urban departments as net contributors and the other departments as net recipients. As shown in Figure 57, high-income departments receive the lowest share of their revenues as transfers. To identify redistribution patterns, Figure 58 compares each department's contribution to the national GDP (as a proxy for its share of national revenue collection) with its share of transfers. Departments with a higher contribution to the national GDP than the share of transfers that they receive are net contributors, while those receiving more than they contribute are net beneficiaries. Not surprisingly, the results show that wealthy departments in Region 1 tend to be net contributors, while the other departments are net recipients. Based on this metric, Bogotá is the largest net contributor, contributing over half of the revenues collected within its boundaries (proxied by its share of national GDP) to the fiscal transfer system. At the other extreme, Guainía and Vaupés receive over nine times as much revenue in transfers as the amount of revenues collected within their boundaries.

FIGURE 57. TRANSFERS AS A SHARE OF REVENUES AND UNMET BASIC NEEDS



Source: Authors' elaboration using data from Ministry of Finance and Public Credit and DANE

FIGURE 58. DEPARTMENTS' NET BENEFIT FROM SGP AS A RATIO OF THEIR CONTRIBUTION TO GDP



Source: Authors' elaboration using data from Ministry of Finance and Public Credit and DANE

Note: Y-axis depicts the ratio of the difference between the share of SGP transfers received by a department and its contribution to GDP.

Significant fiscal disparities still exist between municipalities. Colombia's municipalities are classified into seven categories based on their population size and municipal revenue levels, with category 6 comprising the smallest municipalities with the lowest revenues. The revenues of the decile of municipalities with the highest per capita revenues (COP 4 million) are about four times higher than the revenues of municipalities in the lowest decile (COP 1 million) (Figure 59). Further analysis is needed to explore the reason behind these disparities. Unequalized differences in own-source revenues clearly play an important role. The highest revenue decile of municipalities clearly benefits from high per capita SGR transfers. The certification status of municipalities also matters. For example, municipalities certified for education have significantly higher revenues (Figure 60) than those who are not, largely because they receive transfers to cover the teacher payroll. Disparities do not occur so much between Colombia's seven types of municipalities (Figure 61) but rather within these categories, especially within the smaller municipalities. These disparities are only partially explained, if at all, by economic indicators (value added or measures of poverty such as unmet basic needs (UBN), Figure 62).

FIGURE 59. TOTAL MUNICIPAL REVENUES BY REVENUE DECILE, 2022

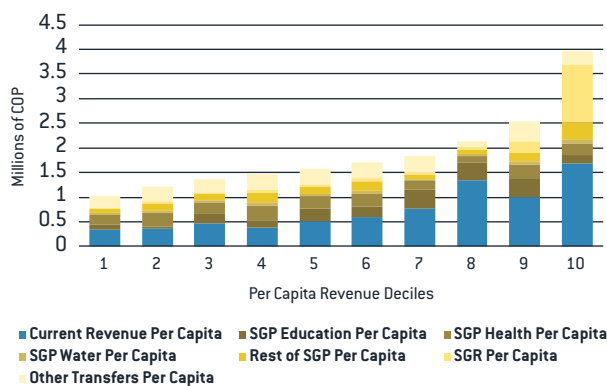


FIGURE 60. DISTRIBUTION OF PER CAPITA REVENUES BY EDUCATION CERTIFICATION STATUS, 2022

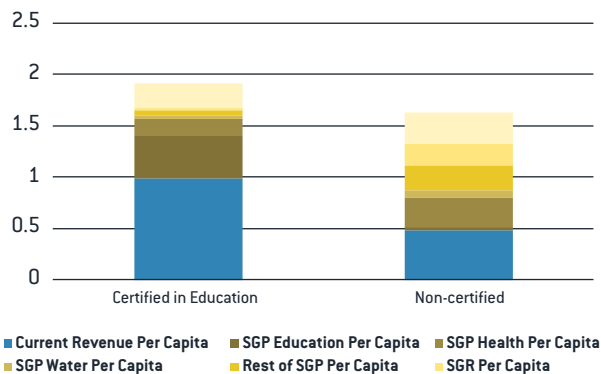


FIGURE 61. DISTRIBUTION OF PER CAPITA REVENUES BY MUNICIPAL CATEGORY, 2022

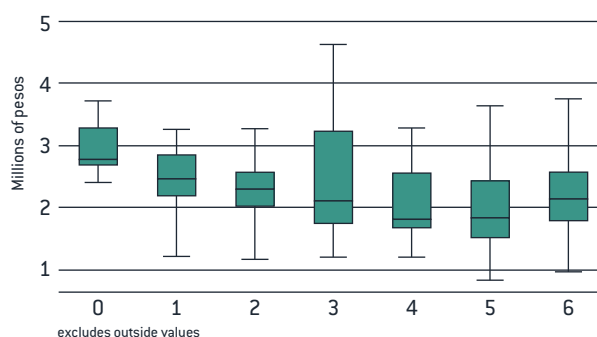
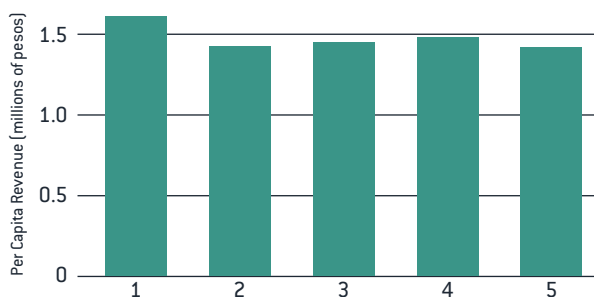


FIGURE 62. TOTAL MUNICIPAL REVENUES BY QUINTILE OF UNMET BASIC NEEDS, 2022



Source: Authors' elaboration using data from Ministry of Finance and Public Credit and DANE

While the SGP helps to equalize departments' total per capita revenues, policymakers could strengthen its design as an equalization grant by taking a fiscal gap approach. Several analyses have recommended allocating part of the SGP based on a fiscal gap formula, which allocates transfers in proportion to the size of the gap between each jurisdiction's estimated spending needs and its fiscal capacity, which would be in line with international practice.⁴⁵ To do this, it would be necessary to calculate both SNGs' expenditure needs and their fiscal capacity.

When estimating SNGs' expenditure needs, it could be important to sufficiently account for differences in the per capita costs of delivering services. For example, the per capita costs of delivering health and education typically vary between densely populated urban centers and remote rural areas because the former benefit from economies of scale (more students per teacher/school), and lower transportation costs (for example, for public health outreach activities). Because of these differences, several countries include cost adjustment factors or remoteness indexes in their equalization grants, such as the Accessibility/Remoteness Index of Australia (ARIA). Some of the SGP formulas include a rurality index or define dedicated pools for municipalities with less than 25,000 inhabitants (Figure 53). Nevertheless, total per capita municipal transfers seem largely equal across the most and least remote municipalities calling into question whether actual cost differences are sufficiently accounted for.

Including estimates of SNGs' potential fiscal capacity in the equalization formula could strengthen equalization and encourage SNGs to collect more own-source revenues. A common critique of the SGP allocation rule has been that it equalizes for "expenditure

⁴⁵ See Boex and Martinez-Vazquez (2007) whether as the result of the introduction of a new transfer scheme or as part of the revision of an existing one, is a key element of local government finance reform around the world. While the basic elements and principles of designing intergovernmental fiscal transfer schemes apply universally, less developed and transition countries (LDTCs for an overview of options for designing equalization grants.

needs” but not for “revenue raising capacity.” This means that SNGs, especially high-income urban departments and municipalities with strong own tax bases, have little incentive to enhance their own-source revenue efforts.⁴⁶ The key challenge in devising such a fiscal gap formula will be how to fairly proxy an SNG’s fiscal capacity. Options include using an SNG’s share in the national tax base or revenue as a proxy for its own revenue potential in an estimation model.⁴⁷

For simplicity transparency and to enhance the autonomy of SNGs, the Government of Colombia could consider amalgamating all sectoral conditional grants into a single equalization grant allocated based on a single fiscal gap formula. This formula could combine an estimate of each SNG’s spending needs for education, health, water and sanitation, and general purposes with a measure of its fiscal capacity.⁴⁸ Such a single formula would simplify the SGP system and make it more transparent. If necessary, the sectoral earmarks could be preserved by dividing each SNG’s overall allocation into separate sectoral grants in a second step. Alternatively, the formula could open the door to granting SNGs greater autonomy over their own spending by eliminating sectoral earmarks entirely. One way to introduce the fiscal gap approach incrementally would be to apply the formula only to an enlarged version of the general purpose part of the SGP as recommended in DNP (2024).

In reforming the SGP system, it will also be critical to remove perverse incentives to hire more teachers to avoid crowding out spending for quality improvements. The SGP allocations for teacher salaries (“provision of service” and “complement”) have consistently represented over 90 percent of the SGP’s education transfers. As a result, they have crowded out other allocations for recurrent and capital investments in the sector (“quality” and “gratuity”). As Al-Samarrai and Lewis (2021) have showed, this crowding out occurs because the SGP formula is designed to ensure sufficient funding for the teacher payroll (“complement”) before funding any capital expenditures.

Removing these incentives could correct for the current situation where the most qualified teachers tend to be employed in high-income urban SNGs. Good teachers not only self-select into urban areas with high living standards, but they have better opportunities there to obtain advanced degrees, which then entitle them to be promoted to better-paid positions (Alvarez et al, 2018).⁴⁹ The “complement” provides funds to SNGs to cover these higher payroll costs. This kind of incentive problem with input-based payroll financing is not uncommon internationally. Austria, Mexico (Korczyk and Martinez-Vazquez, 2020), and Indonesia (World Bank, 2020b) for example, have faced similar issues. These perverse fiscal incentives could be corrected at least for SNGs (if not for teachers) by removing the input-based formula from the SGP system and relying solely on a per student output-based formula to allocate transfers. This would provide SNGs with an incentive to reap efficiency gains by containing their wage spending. Such a reform would need to be carefully aligned with Colombia’s existing teacher recruitment, career, and pay policies.

While the sectoral SGP formulas include performance indicators, these do not seem well-suited to effectively incentivizing SNGs’ behavior. In education, for instance, the “quality” and “gratuity” allocations are partly conditional on the achievement of performance indicators, such as the performance of the SNG’s students’ on the SABER tests. Complex allocation formulas that mix exogenous needs indicators (such as rurality) with performance metrics make it difficult for municipalities to understand and respond to these incentives (Al-Samarrai and Lewis, 2021). Additionally, SNGs have little influence over metrics such as learning outcomes, which are strongly influenced by parents’ levels of income and education. As SNGs with positive socioeconomic outcomes also tend to have higher fiscal capacity and better teachers, rewarding absolute performance levels can exacerbate an existing regressive transfer allocation in their favor. Also, using such indicators may distort SNG behavior in unintended ways, if not carefully balanced across performance dimensions (Levitas, 2017).

46 As noted by Bousquet et al (2015, 5), the SGP “does not compensate for the better ability of well-off departments and municipalities to raise their own revenues from local and departmental taxes compared to poorer ones.”

47 See Martinez-Vazquez (2020) for a detailed discussion of approaches for estimating expenditure needs and fiscal capacity.

48 Indonesia, for example, uses this approach for its general equalization grant, the *Dana Alokasi Umum*.

49 According to Law 1278 of 2002

Rather than bundling performance incentives into the grant formula, the Government of Colombia could consider establishing dedicated sectoral performance-based grants. Selecting performance indicators that effectively incentivize the desired behavioral change becomes key in this context. Colombia can draw on rich international experiences in working through these design challenges, as discussed in Box 6 above.

Another kind of performance incentive that the government might consider introducing would be ecological fiscal transfers (EFTs) that compensate and reward SNGs for reducing deforestation, particularly those SNGs in Region 4 with large forest areas.

If Colombia is to achieve its ambitious climate commitments, this will crucially depend on addressing the drivers of deforestation, including livestock and the expansion of agricultural land. As World Bank (2023) notes, SNGs have an important role to play in addressing the complex governance challenges that are hindering effective deforestation control. Well-designed EFTs would compensate Colombia's SNGs for their forgone revenues and for the management costs of conserving ecosystems, thus incentivizing them to reduce deforestation. Colombia could draw on international experiences with EFTs, including with Brazil's ICMS Ecológico⁵⁰ program and with the inclusion of forest coverage in India's horizontal devolution formula to state governments.⁵¹ Emerging evidence (for example, in Brazil) suggests that EFTs have effectively encouraged the expansion of protected areas, but their effects in terms of slowing deforestation are much less clear. To design effective EFTs in the Colombian context, it will therefore be critical to carefully choose suitable indicators (such as the deforestation rate) and to draw on a detailed understanding of the current incentives that SNGs have to curb deforestation.⁵²

The SGP is not designed to address interregional infrastructure disparities. Closing such disparities can be critical both for equalizing opportunities (through investments in school and health infrastructure, for example) and for promoting regional development and economic convergence. However, while the SGR represents the main source of capital funding for SNGs, it is not designed to reduce such gaps. Therefore, the Government of Colombia might consider including a capital equalization grant in the SGP.

4.5. EFFICIENCY OF SUBNATIONAL SPENDING

Overall, the association between SNG spending and human capital outcomes appears to be weak. At the municipal level, there is no positive association between per capita revenues and the performance metrics for education (Figure 63) and health (Figure 64) from Colombia's municipal performance measurement system (*Medición Desempeño Municipal* or MDM). Whereas the largest municipalities are generally among the better performers, smaller municipalities vary much more, especially in category 6. While certified municipalities on average outperform uncertified municipalities, there is a large variance even among certified municipalities. Consistent with these patterns, Al-Samarrai and Lewis (2021) found no positive association between total expenditures per student and mathematics and reading learning outcomes as measured by SABER scores.⁵³

50 Since 1991, Brazil's states have included ecological indicators in their formulas for sharing the Tax on Commerce and Services (*Imposto sobre Circulação de Mercadorias e Serviços*, ICMS) with municipalities. These indicators include the size of Protected Areas in most states, but in some states also deforestation reduction, for example in the state of Pará.

51 For an overview of international experiences with EFTs, see Busch et al (2021). For specific design issues, see Martinez-Vazquez (2021).

52 Ecological fiscal transfers could also be designed to equalize capacity to provide ecosystem services and to incentivize interjurisdictional efforts to effectively reduce deforestation.

53 They also found no positive association between changes in per student quality and gratuity transfers to municipalities and changes in the Synthetic Index of Education Quality (SIEQ).

FIGURE 63. MUNICIPALITIES' EDUCATIONAL PERFORMANCE COMPARED WITH TOTAL PER CAPITA MUNICIPAL REVENUES, 2021

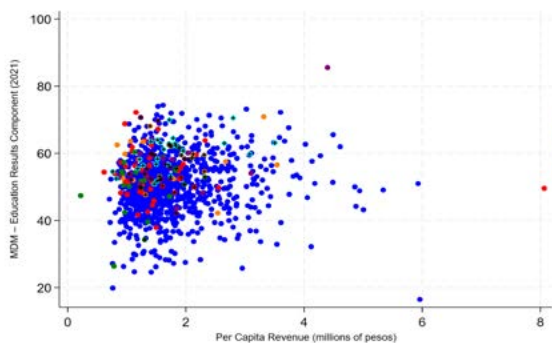
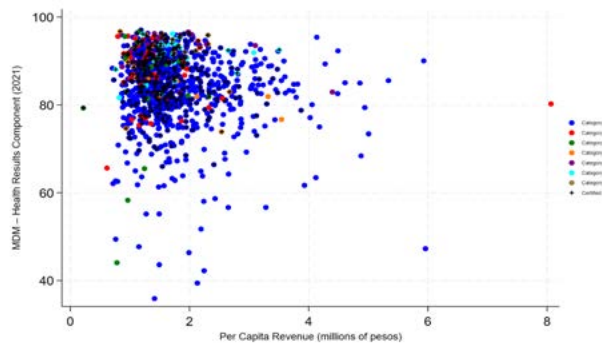


FIGURE 64. MUNICIPALITIES' HEALTH PERFORMANCE COMPARED WITH TOTAL MUNICIPAL PER CAPITA REVENUES, 2021



Source: Authors' elaboration using MDM data from the DNP and Davalos et al [2024].

Similarly, initial analysis this study suggests that SNG spending and positive outcomes on selected education and health output indicators are only weakly associated. Whereas SNGs have limited influence over outcome indicators, output indicators such as net enrollment rates (Figure 65) and vaccination coverage (Figure 66) ought to be more responsive to municipal spending. However, there is still no clear association between total per capita spending and positive output indicators.⁵⁴ As in the case of outcomes, output indicators vary widely among smaller municipalities. However, in a more rigorous regression analysis that controlled for a range of municipal characteristics,⁵⁵ Al-Samarrai and Lewis (2021) found that a 1 percent increase in per capita expenditure increased net school enrollment by 5.9 percent. This association may be attributable to SGP transfers for education being allocated on a per student basis.

FIGURE 65. NET TOTAL ENROLLMENT COMPARED WITH TOTAL PER CAPITA MUNICIPAL REVENUES, 2022

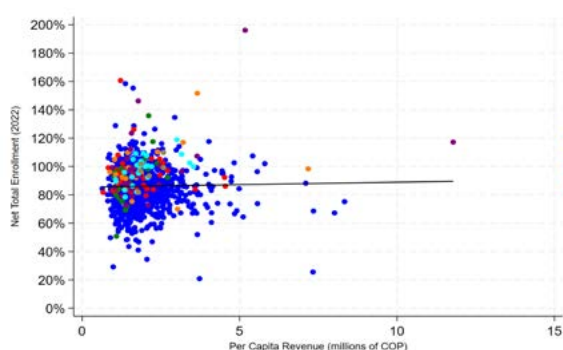
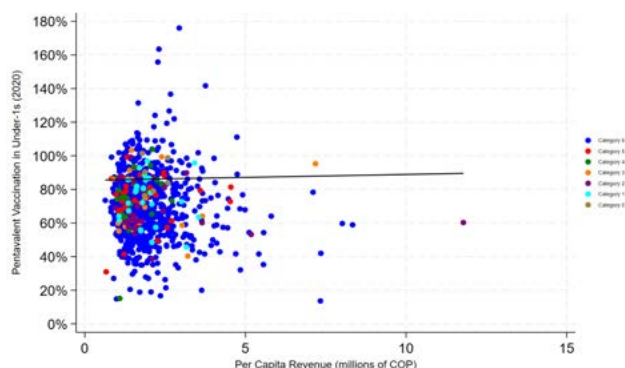


FIGURE 66. PENTAVALENT VACCINATION COVERAGE COMPARED WITH TOTAL PER CAPITA MUNICIPAL REVENUES, 2020



Source: Authors' elaboration using data from Ministry of Finance and Public Credit, DANE and DNP.

Note: Per capita revenue data are for 2022.

Overall, these patterns indicate that regional disparities in human capital outcomes can mostly be attributed to variations in the quality of spending (efficiency) rather than to differences in fiscal capacity (equity). While the efficiency of SNGs' spending is influenced by a broad range of factors, including political and administrative aspects of decentralization and disparities in capacity and accountability, certain elements of the SGP system itself, particularly the limited autonomy in SNG spending, might

54 There was also no clear association with the earmarked SGP per capita transfers for education and health.

55 The logarithms of total population, municipal value-added, and rural public teachers as well as the mortality rates of children under the age of 1, water coverage, the size of the displaced population, a poverty index, a dummy for municipal certification, and rurality were used as controls.

be contributing to these inefficiencies. Exploring these differences in efficiency in the performance of SNGs and identifying the fundamental reasons behind what works and what does not should be a priority for future analysis.

4.6. GUIDELINES FOR REFORM

As a heterogeneous country with wide gaps between regions in people's opportunities to develop their human capital, a well-designed transfer system is crucial to ensure that opportunities are available more equally across the country. It can also help regions to untap their growth potential while respecting their unique strengths and capabilities. Judging by the outcomes of Colombia's current decentralization model, it is only partially achieving these goals, with mixed results in terms of regional equality, spending efficiency, and economic development and convergence.

Reducing regional disparities in human capital outcomes will require strengthening SNGs' capacity and accountability, which is far beyond the scope of the SGP. As this chapter has shown, while fiscal disparities play an important role, most of the variance in outcomes is explained by other factors. Building the capacity of small and rural municipalities is likely to be critical as these municipalities often lack qualified personnel and effective systems for delivering public services.⁵⁶ Perhaps the main challenge for Colombia is to strengthen the accountability of SNGs both to citizens and to the central government for effectively delivering public services.

While the SGP can provide only a part of the answer, it has a central role to play. One of its strengths is its equalizing effect. The system is strongly redistributive, ensuring that poorer regions receive more transfers relative to their contributions to the national GDP while wealthier regions like Bogotá are net contributors. As a result, disparities in per capita revenues across departments are relatively modest, though there are more significant disparities across municipalities. The SGP as Colombia's main transfer system is the main driver of this equalization.

The primary challenge with the SGP is that its reliance on conditional transfers provides SNGs with insufficient spending autonomy, which undermines their spending efficiency and accountability. The central government's guidelines for how exactly SNGs should spend the transfers run against the principles of subsidiarity and the core reason for decentralization. It is likely that it undermines allocative efficiency and horizontal accountability to citizens, as governors and mayors have few ways to respond to citizens' preferences and can legitimately shift blame for poor services to the central government, which has tied their hands. As most of the SGP transfers to SNGs are absorbed by salary expenditures, other important recurrent inputs and capital expenditures are largely underfunded.

Furthermore, the SGP system tries to meet too many objectives with its sectoral conditional transfers, contrary to the principle of using "one separate instrument per objective." The conditional grant for education, for example, is meant to fund teacher payrolls, to equalize, and set performance incentives. As the comparison to international practice has highlighted, it has no dedicated instruments aimed at meeting other objectives such as revenue sharing. These challenges are compounded by unclear, overlapping, and, in some cases, suboptimal assignments of functions across levels of government. The lack of clear delineation of fiscal responsibilities can blur accountability, lead to the mismanagement of funds and an overall lack of efficiency.

The following recommendations are intended as general suggestions for how to reform Colombia's SGP system within the context of a broader strategy. The most important goal should be to enable and incentivize SNGs to effectively deliver the services for which they are responsible, which are typically education, health, and water and sanitation, and to reduce persistent disparities

⁵⁶ The Government of Colombia could deploy a range of tools to this end, including reviewing how subnational civil servants' careers are managed, encouraging regional cooperation, considering the reassignment of some municipal functions to the departmental level, and providing SNGs with user-friendly tools to facilitate their tasks (such as property tax collection).

in people's opportunities to develop their productive assets and human capital. To this end, this report provides the following preliminary proposals:

(1) Review and clarify who is responsible for functions and expenditure. While such a move is likely to be politically sensitive in any country, the revision of the Competition Law (*ley de competencias*) in Colombia may be a good opportunity to address longstanding issues with overlapping, misassigned, or unassigned functions. It would be advisable to select an intergovernmental reform commission to lead and implement this reform process because it would be able to rise above the interests of specific government agencies and to engage with the relevant central ministries and SNGs to ensure their cooperation and consent. Martinez and Timofeev (2009) offered a step-by-step guide for reforming expenditure assignments based on general principles, including that the assignment of functions should promote the efficient delivery of public services, that each function should be devolved to the lowest level of government consistent with its efficient performance (the decentralization theorem), and that the assignments should foster externalities and economies of scale (Bahl and Bird, 2018).

A useful first step could be to carry out a thorough inventory of the current *de jure* and *de facto* expenditure assignments. This can be done by identifying typical service delivery problems within the education, health, and water and sanitation sectors that might be associated with coordination failures between levels of government or mismatches between functional and expenditure assignments. One such problem is when two different levels of SNG have overlapping responsibilities as, for example, in education quality spending.⁵⁷ Clarifying the assignment of expenditure responsibilities will require identifying each separate subfunction within each major area of responsibility and the level of government that is ultimately responsible for the policy guidelines, financing, and implementation and delivery.

Those conducting will need to take into account the current and potential future capacity of municipalities and departments to perform their assigned functions. Where the review team consider the capacity of a municipality to be consistently insufficient, they should consider reassigning the function to the departmental level, in part because building the capacity of 32 departments is easier than that of 1,104 very heterogeneous municipalities. An alternative strategy might be to build the capacity of associations of municipalities to deliver certain services, such as water and sanitation, to take advantage of economies of scale.

To protect fiscal stability, the central government could consider reassigning the responsibility for national expenditures that fund functions that are already carried out by SNGs. The envisaged increase in the SGP vertical share will put more pressure on the national budget, potentially threatening fiscal stability. Therefore, a healthy starting point for reducing central spending could be to review central programs that fund functions that are already assigned to SNGs. In many countries, such “vertical programs” run by central ministries persist, even when they do not align with functional assignments.

(2) Review Colombia's model of asymmetric decentralization. Colombia's current municipal certification system has been criticized for being overly focused on ensuring compliance with bureaucratic standards, while insufficiently reflecting the actual capabilities of municipalities for delivering the service in question. The planned increase in the SGP vertical share will likely raise the question of whether new functions should get delegated to SNGs in a phased approach, starting with those with the highest capacity. It would also be useful to review the certification system to ensure that it is focusing on the actual capabilities of SNGs.

(3) Protect and strengthen SNGs' revenue autonomy and consider introducing revenue sharing to foster economic development in high-income urban centers. To these ends, the Government of Colombia might consider: (i) granting departments greater discretion over setting their local tax rates; (ii) introducing a derivation-based revenue-sharing instrument for the VAT and/or the PIT; and (iii) allowing departments to define a surcharge to (or piggyback on) the central tax rates within centrally set bounds to give them autonomy over more revenue. As these reforms would privilege high-income SNGs, it will be critical to complement them with a reformed fiscal equalization formula that accounts for differences between SNGs in terms of their potential fiscal capacity.

⁵⁷ See Articles 6, 7, and 8 of Law 715, which outline the roles of departments, high-capacity municipalities, and low-capacity municipalities in education spending but do so in a way that is nearly identical across all three types of SNG.

(4) Strengthen and simplify the current equalization system to increase SNG spending autonomy. This could be achieved by: (i) moving towards a fiscal gap formula, in line with international practice; (ii) amalgamating the present sectoral conditional grants into a single equalization grant, allocated based on a single fiscal gap formula; (iii) ensuring that expenditure needs estimates fairly account for regional cost differences in delivering services per capita, such as the costs of education per student,⁵⁸ and contain estimates of SNGs' potential fiscal capacity rather than their actual revenues; and (iv) strengthening incentives for SNGs to collect more own-source revenues. This would prevent the current situation where SNGs have no incentive to increase their own-source revenue effort because they rely on getting an increased allocation from the SGP. Such fiscal capacity metrics ought to include shared revenues (see above) to reduce the revenue inequities that arise from revenue sharing.

(5) Strengthen the fiscal autonomy of SNGs. Removing excessive earmarks in the SGP system will be essential to empowering SNGs to respond to local priorities and be accountable to citizens. The Government of Colombia could achieve this either by merging all conditional grants into a single equalization grant or, more incrementally, by increasing the general-purpose pool within the SGP (DNP, 2024) and allocating part of this pool to those departments that have the least spending discretion. There should also be a review of the effectiveness of earmarks within the education and health SGP formulas. One option might be to pilot this initiative by granting greater spending autonomy to higher-capacity or better performing SNGs first.⁵⁹

(6) Ensure incentives in the SGP are aimed at increasing spending efficiency. The central government ought to set healthy incentives for SNGs to reap efficiency gains in spending by setting hard budget envelopes for the SGP. For example, in education, this would mean removing teacher payroll costs as an input-based allocation rule and adopting a purely output-based (per student) allocation rule. This reform would need to be carefully aligned with policies on teacher recruitment, pay, and promotion, over which SNGs have limited control. Transition measures could be put into place to avoid funding shortfalls in SNGs with high teacher payrolls.

(7) Consider establishing dedicated performance-based grants. The Government of Colombia might consider removing the existing performance indicators from the SGP system, as these are obscured by complex formulas and are partly outside the SNGs' control. Instead, it might consider piloting separate sectoral performance-based grants⁶⁰ that are simple, transparent, and carefully designed to incentivize desired behavior. Examples of desirable behavior might include encouraging the lowest performing SNGs to improve, fostering municipal cooperation (regionalization) to reap economies of scale in service provision, or promoting forest conservation.

(8) Consider establishing a capital equalization grant. At present, the SGP formula underfunds capital investments because it is designed to equalize current expenditure needs rather than reduce historical infrastructure gaps for service delivery and because high salary expenditures crowd out capital spending. The Government of Colombia might therefore consider using part of the increased SGP resources to design a capital equalization grant aimed at closing strategic infrastructure gaps in lagging regions (Herrero-Alcalde et al 2012). Part of the purpose of this grant could be to fund strategic infrastructure investments that would support the objective of regional convergence.

58 The Government of Colombia could identify proxy measures for these cost differences and include them in the allocation formulas (or increase their weight).

59 The above-mentioned caveats regarding the certification system apply here.

60 There is a rich vein of international experiences with performance-based grant designs, especially for the health sector, such as Argentina's *Plan Nacer* (Gertler and Giovagnoli, 2014), and for capital grants.

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ANNEX 1. REGIONAL COMPUTABLE GENERAL EQUILIBRIUM MODEL

Annex Figure 1.1 illustrates the input-output matrix structure of the regional computable general equilibrium (CGE) model for a case of three regions and two sectors, which can be extended to apply to other regions and sectors. In this representation, subscripts denote sectors, and superscripts denote regions. The first element of both superscripts and subscripts indicates the originating region/sector, while the second indicates the receiving region/sector. The principal diagonal of the intermediate demand matrix contains the domestic intermediate inputs, which are matrices representing inter-industry transactions within each region and are used to calculate the domestic technical coefficients. The off-diagonal blocks represent inputs “imported” from other regions.

ANNEX FIGURE 1.1. INPUT-OUTPUT STRUCTURE FOR REGIONAL COMPUTABLE GENERAL EQUILIBRIUM

		Región r		Región s		Región q		Final demand			Exports	Gross output
		Sector 1	Sector 2	Sector 1	Sector 2	Sector 1	Sector 2	País r	País s	País q		
Región r	Sector 1	Z_{11}^{rr}	Z_{12}^{rr}	Z_{11}^{rs}	Z_{12}^{rs}	Z_{11}^{rq}	Z_{12}^{rq}	f_1^{rr}	f_1^{rs}	f_1^{rq}	e_1^r	x_1^r
	Sector 2	Z_{21}^{rr}	Z_{22}^{rr}	Z_{21}^{rs}	Z_{22}^{rs}	Z_{21}^{rq}	Z_{22}^{rq}	f_2^{rr}	f_2^{rs}	f_2^{rq}	e_2^r	x_2^r
Región s	Sector 1	Z_{11}^{sr}	Z_{12}^{sr}	Z_{11}^{ss}	Z_{12}^{ss}	Z_{11}^{sq}	Z_{12}^{sq}	f_1^{sr}	f_1^{ss}	f_1^{sq}	e_1^s	x_1^s
	Sector 2	Z_{21}^{sr}	Z_{22}^{sr}	Z_{21}^{ss}	Z_{22}^{ss}	Z_{21}^{sq}	Z_{22}^{sq}	f_2^{sr}	f_2^{ss}	f_2^{sq}	e_2^s	x_{12}^s
Región q	Sector 1	Z_{11}^{qr}	Z_{12}^{qr}	Z_{11}^{qs}	Z_{12}^{qs}	Z_{11}^{qq}	Z_{12}^{qq}	f_1^{qr}	f_1^{qs}	f_1^{qq}	e_1^q	x_1^q
	Sector 2	Z_{21}^{qr}	Z_{22}^{qr}	Z_{21}^{qs}	Z_{22}^{qs}	Z_{21}^{qq}	Z_{22}^{qq}	f_2^{qr}	f_2^{qs}	f_2^{qq}	e_2^q	x_2^q
Imports from rest of the world		m_1^r	m_2^r	m_1^s	m_2^s	m_1^q	m_2^q					
Taxes and subsidies		t_1^r	t_2^r	t_1^s	t_2^s	t_1^q	t_2^q					
Domestic value added		va_1^r	va_2^r	va_1^s	va_2^s	va_1^q	va_2^q					
Gross output		x_1^r	x_2^r	x_1^s	x_2^s	x_1^q	x_2^q					

Source: DNP

As in standard input-output matrix representation, the columns detail the cost structure of production, specifically the purchase of intermediate inputs originating within the department, purchases from other departments, and purchases from the rest of the world, as well as taxes and primary factor payments. The rows detail the allocation of outputs (or the sales of intermediate goods within the department) to other departments,⁶¹ sales to final demand including both private and public consumption, investment outlays,⁶² and departmental exports to the rest of the world. In this way, the input-output matrix provides a complete accounting of all origins and uses of each economic commodity, as well as all factors employed in their production.

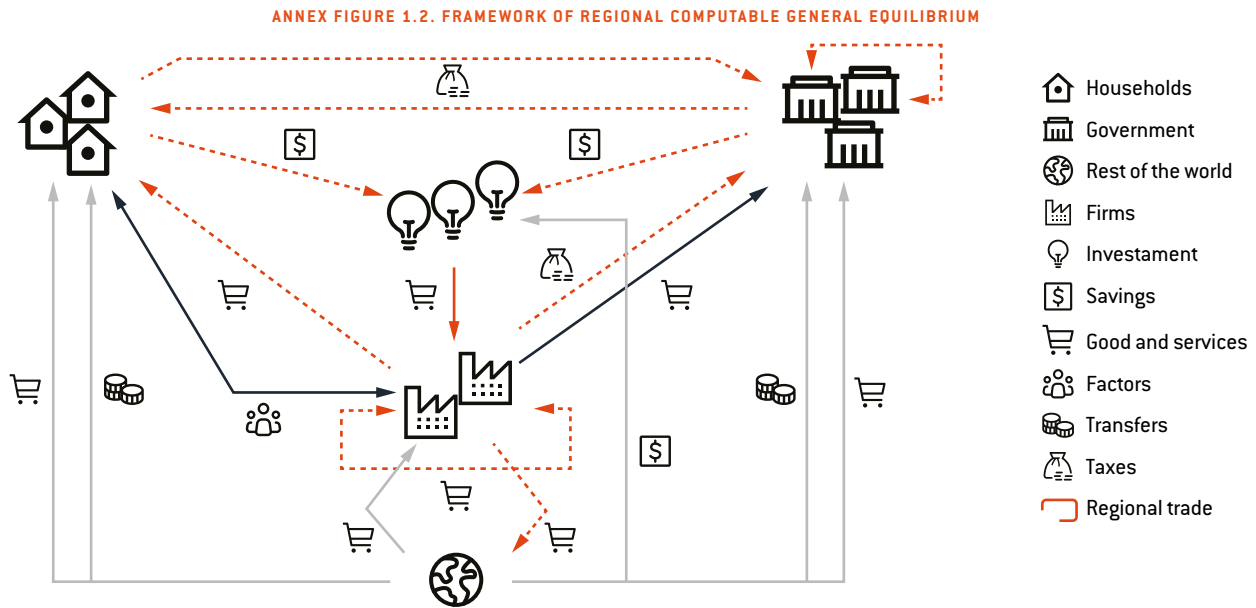
The results are generated using a bottom-up modeling framework, and national results are obtained by aggregating regional outcomes. The model adopts the structure of the GTAP model,⁶³ featuring 59 production/investment sectors for 33 regions [32

61 These may be viewed as departmental exports within the country.

62 It is important to acknowledge that all components of domestic final demand (private and public consumption and investment) can be allocated to expenditure within the department in question as well as other departments.

63 The GTAP model is a global, multisectoral, and multiregional general equilibrium model that encompasses the modeling of bilateral trade relations between countries, supply chains within national economies, and the complex interactions between these international trade flows

departments plus Bogotá), each producing 59 goods. The model incorporates a representative household in each region, regional and central government entities, and a single foreign trading partner (rest of the world) interacting with each domestic region. Two local primary factors of production (capital and labor), based on regional factor endowments, are used in the production process and are assumed to be immobile across regions (Annex Figure 1.2).



Source: DNP

The core structure of the regional CGE model consists of three principal blocks, which determine the supply and demand relationships and market equilibrium conditions. Furthermore, several regional and national aggregate variables are defined, including aggregate employment, the aggregate price level, and the trade balance. The model uses nested production functions and household demand functions to represent economic behavior. Regarding production, it is assumed that firms combine intermediate inputs and primary factors of production in fixed proportions. However, substitution is allowed between the primary factors of capital and labor.

The specification of household demand is based on a Linear Expenditure System (LES) preference function. The demand equations are obtained by solving a utility maximization problem using a hierarchical approach. The household demand structure is characterized by a nested form that allows for the application of different substitution elasticities. At the lower stage of the optimization process, substitution occurs between different domestic suppliers. The utility derived from the consumption of domestically produced composite goods is maximized. In the subsequent upper stage, substitution occurs between domestically produced and imported composite goods.

and domestic supply and demand dynamics. For a comprehensive overview of the model, see Corong et al (2017).

ANNEX 2. THE ALLOCATION STRUCTURE OF THE GENERAL PARTICIPATION SYSTEM

Transfers provided by the General Participation System (SGP) to subnational governments (SNG) are made on the basis of the following considerations:

- **Education:** Resource allocation in education follows a complex structure with two main components: service provision and quality. The portion allocated to education is divided between these aspects, but no specific distribution between them is specified. Service provision covers pre-defined costs, such as teacher salaries, mainly agreed upon in government accords with FECODE. Over 95 percent of the education portion of the SGP is allocated to the salaries of teachers and is provided to 97 certified territorial entities. The remaining funds for quality improvements, which are allocated to all municipal administrations, are used for infrastructure development, transportation, school meals, and educational materials. However, these resources, being a residual part of the total allocation, have not had the expected impact in terms of improving quality.
- **Health:** The distribution of SGP resources in healthcare is aimed at supporting three components:
 - ◇ *Subsidized Regime* (87 percent): Financing the unit costs of capitation payments to poor populations in municipalities who receive subsidies.
 - ◇ *Public Health* (10 percent): Funds for preventive health and promotion activities managed by departmental and local administrations.
 - ◇ *Supply Subsidy* (3 percent): Financing the provision of care to uninsured poor populations through state-owned social enterprises.
- **Water Supply:** For municipalities and the National Water Authority (ANM), 85 percent of the funds go toward financing all of the necessary factors for providing water, sewage, and waste collection services, based on criteria such as coverage deficits, population served, solidarity schemes, poverty levels, and fiscal efficiency. For departments and Bogotá (the Capital District), 15 percent of the funds are earmarked for coordination processes, studies, and technical assistance and are allocated based on the municipalities' participation in these first three categories.
- **General Purpose:** The general purpose allocation is specifically for municipalities, including districts and the Department of San Andrés, which has a special regime. It is intended to finance local competencies, including, at the discretion of the municipality, education, health, and water supply services. This allocation is split into two parts: 83 percent is distributed across all municipalities, while 17 percent targets municipalities with fewer than 25,000 inhabitants (approximately 770 municipalities), with lower levels of resources and capacity. The distribution of the 83 percent follows criteria such as population, poverty (as measured by UBN) fiscal efficiency, and administrative efficiency, while the special 17 percent allocation considers only poverty and population levels, with the aim of compensating poorer municipalities and incentivizing good management.

ANNEX 3. DEPARTMENT GROUPS AND DESCRIPTIVE STATISTICS

Department Code	Department Name	Department Group (Region)	2023 GDP (constant 2015 bn \$ COP)	2023 Per capita GDP (constant 2015 bn \$ COP)	Land area (sq. km)	Population	Population Density (people per sq. km of land area)	Unsatisfied Basic Needs (UBN) (as % of households)	Forest area (% of land area)
5	Antioquia	1	146,562	21.6	63,612	6,787,846	106.7	10.7	34.4
8	Atlántico	1	44,397	16.0	3,388	2,774,958		11.4	1.4
11	Bogotá D.C.	1	260,095	33.0	1,587	7,873,316	4,961.1	3.5	5.8
15	Boyacá	1	24,772	19.3	23,189	1,285,035	55.4	10.2	10.9
17	Caldas	1	15,346	14.8	7,888	1,034,151	131.1	9.0	6.4
25	Cundinamarca	1	59,629	17.9	24,210	3,334,637	137.7	6.4	12.8
63	Quindío	1	7,765	13.9	1,845	559,810	303.4	6.8	27.6
66	Risaralda	1	15,954	16.4	4,140	970,138	234.3	8.2	16.4
68	Santander	1	60,776	26.0	30,537	2,335,238	76.5	9.6	27.4
76	Valle del Cauca	1	97,131	21.0	22,140	4,626,064	208.9	6.3	38.5
88	San Andrés	1	1,536	24.7	52	62,255		14.9	0.0
20	Cesar	2	15,498	11.5	22,905	1,349,162	58.9	23.0	8.6
50	Meta	2	30,222	27.1	82,805	1,113,810	13.5	13.5	37.2
81	Arauca	2	4,815	15.7	23,818	307,628	12.9	32.5	10.0
85	Casanare	2	12,872	28.0	44,640	459,973	10.3	16.1	12.6
86	Putumayo	2	3,360	8.9	24,885	377,095	15.2	19.0	71.6
13	Bolívar	3	35,495	15.9	25,978	2,227,184	85.7	26.7	6.9
18	Caquetá	3	3,762	8.9	88,965	421,797	4.7	23.6	73.3
19	Cauca	3	16,986	11.0	29,308	1,541,265	52.6	18.8	48.4
23	Córdoba	3	16,364	8.7	25,020	1,882,211	75.2	35.1	4.4
41	Huila	3	14,766	12.7	19,890	1,164,463	58.5	12.9	23.5
47	Magdalena	3	12,768	8.6	23,188	1,476,366	63.7	26.7	14.5
52	Nariño	3	14,326	8.5	33,268	1,689,002	50.8	22.0	13.4
54	Norte de Santander	3	15,168	9.0	21,658	1,678,975	77.5	18.4	42.9
70	Sucre	3	8,023	8.2	10,917	980,942	89.9	29.1	1.1
73	Tolima	3	19,552	14.3	23,562	1,367,802	58.1	12.2	17.7
27	Chocó	4	3,620	6.2	46,530	584,521	12.6	65.5	80.6
44	La Guajira	4	8,450	8.3	20,848	1,017,121	48.8	53.3	8.5
91	Amazonas	4	712	8.5	109,665	83,690	0.8	35.2	96.9
94	Guainía	4	336	6.1	72,238	55,091	0.8	59.5	91.8
95	Guaviare	4	775	8.2	53,460	94,625	1.8	27.9	90.0
97	Vaupés	4	270	5.9	54,135	45,579	0.8	68.9	95.3
99	Vichada	4	613	5.1	100,242	120,942	1.2	67.8	41.1

ANNEX 4. DEFINITION OF THE EXPORT MARKET SWITCHING INDEX

The BACI (Basis for International Trade Analysis) dataset on international trade flows in around 200 countries is produced by the French research center CEPII and is built from raw data in the UN COMTRADE database.

Using the BACI dataset for Colombia from 2009 onwards, we built an indicator of exporter, year, and product specific market volatility (MV), which is defined as:

$$MV_{y,x,i} = \sum_m^{1-n} \left(\text{Max}(0; ES_{y,x,m,i} - ES_{y-1,x,m,i}) \right)$$

Where y=year, x=exporting country, m=importing country, and i=product at the HS6 digit level and ES is the share of a country's exports of i in y that go to trading partner m.

This is the sum of all positive changes in market share that a country experiences from one year to the next for a product, which by definition has to be between 0 and 1 (for example, if a country has only two trading partners and all exports go to partner 1 in one year and then completely switch to partner 2 in the next, it is 1, and if the market share remains exactly the same, it is 0).

We hypothesized that the degree to which an exporter can “switch” from one import market to another is a function of its export market concentration for the product as well as a product-specific component. The two determinants interact in the sense that initial diversification might matter more for some products than for others.

To approximate these components, we estimated:

$$MV_{y,x,i} = \beta_0 + \beta_1 * ESmax_{y,x,i} + \beta_2 * FE_y + \beta_3 * FE_x + \beta_4 * FE_i + \beta_5 * FE_i * ESmax_{y,x,i}$$

Where ESmax is the share of exports of product i in year y that go to the exporter's largest trading partner for this product and year (as a measure of diversification), and FE is the year, the exporter, and the product fixed effects. In our interpretation, β_1 captures the non-specific importance of initial diversification, β_2 captures time-specific changes, and β_3 captures country specifics. For the question at hand, β_4 should give us the product-specific “market volatility” or how readily an exporter can switch markets for a given product, and β_5 tells us something about the role of initial market diversification.