Harnessing intellectual property for development: Opportunities and challenges for Latin America and the Caribbean

May 2026

Executive Summary

United Nations

ECLAC

Europäisches Patentamt
European Patent Office
Office européen des brevets

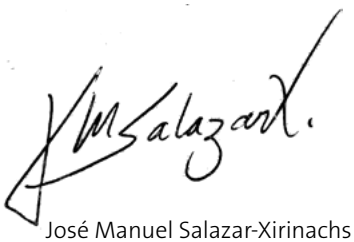
Foreword

Innovation plays a central role in structural transformation, productivity growth, and long-term economic development. A well-functioning and balanced intellectual property (IP) system can incentivise creativity, facilitate knowledge diffusion, and help firms and institutions appropriate returns from innovative activity.

Over the past decade, studies have demonstrated that industries that are using patents and other IP rights intensively form the backbone of European economies, driving a disproportionate share of GDP, high-quality employment, and external trade. Further research has underscored the transformative power of IP at the microeconomic level: for universities, research institutions, small and medium-sized enterprises (SMEs), and dynamic start-ups, patents and trademarks serve as vital instruments for securing risk finance, accelerating growth, and navigating competitive markets.

For Latin America and the Caribbean (LAC), harnessing this dynamic is more complex and context dependent. The region faces persistent productivity gaps and limited productive diversification. To address these challenges, it needs to translate knowledge and research capabilities into broad-based economic upgrading. In this setting, patent systems are instrumental to strike the right balance between incentives for innovation and technology diffusion in order to support production transformation. Achieving this will require aligning IP frameworks with wider productive development policies, as well as strengthening the capabilities needed to make them effective.

Recognising the imperative to equip policymakers with robust, region-specific evidence, the EPO and the Economic Commission for Latin America and the Caribbean (ECLAC) have collaborated with a simple goal of bringing the policy discussion on IPR closer.



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

This partnership bridges the EPO's expertise in patent data analytics with ECLAC's production data and work on productive development. It also builds on the successful collaboration initiated by the EPO and five Latin American IP offices (Brazil, Chile, Colombia, Mexico, Peru) at the occasion of a study on digital agriculture published in September 2025.

The joint study offers new evidence on the relationship between patent and trade mark protection and economic activity in nine countries of Latin America and the Caribbean. By linking IP rights and economic data at a highly disaggregated level, it provides an up-close view of how patents and trademarks connect to economic performance, particularly within the manufacturing sector. The study also helps distinguish between local innovation activity and foreign technological presence.

The central message of the joint study is that IP policy cannot operate in isolation. To unlock its full economic benefit, and to minimize frictions, IP must be integrated into broader productive development policies. The strategic advantages of IP are most fully realised when supported by strong research capabilities, effective technology transfer mechanisms, access to scale-up finance, deep university-industry linkages and broader policies aimed at production transformation.

This study is designed to serve as a resource for decision-makers, business leaders, and researchers alike. It is our shared hope that the insights provided herein will elevate IP awareness, foster stronger regional cooperation, and inspire evidence-based policies that empower Latin America and the Caribbean countries to harness the power of innovation for productive and sustainable development.

António Campinos
President,
European Patent Office (EPO)

Executive summary

The countries of Latin America and the Caribbean (LAC) face complex development challenges, characterised by a low capacity for growth and structural productivity gaps (ECLAC, 2024a; ECLAC, 2025). Addressing this productivity imperative through productive development policy aimed at diversification, technological sophistication and positive structural change is central to the region's economic agenda and critical for tapping regional potential for innovation, sustainable and productive development. The manufacturing sector occupies a central place in this process due to its historically demonstrated role as a locus for dynamic increasing returns, capability-building, technological diffusion and dense intersectoral linkages. Although the region has experienced shifts in its productive structure over the past half century – notably a decline in manufacturing value added as a share of gross domestic product (GDP) – manufacturing remains a critical engine for sustained economic catch-up and the development of industries capable of competing in international value chains.

In a region where research and development (R&D) investment remains comparatively low and is financed primarily by the public sector and executed in academia, intellectual property rights (IPR) can support innovation and bring new technologies to the market, especially when complementary capabilities are in place. Because almost all patent applications filed in the LAC region target the manufacturing sector, patenting activity provides a reliable signal of both domestic technological capabilities and cross-border knowledge flows. While IP matters across the wider economy, this study focuses on manufacturing because it covers most patenting activity in LAC and offers the most comparable cross-country data on employment, value added, wages and trade.

By examining how patents and trade marks are distributed across manufacturing industries, this study connects IP utilisation directly with core economic outcomes, including employment, value added, wages and trade performance. Ultimately, applying a patent lens clarifies the distinction between local innovation, foreign technological presence and the region's position in global networks, identifying the region's underlying potential for innovation and technology-led development.

Recognising the need to co-ordinate productive development policy[1] and innovation policy, the European Patent Office (EPO), with its specialised knowledge of patent data and analytics, and the Economic Commission for Latin America and the Caribbean (ECLAC), with expertise in regional macroeconomic and productive development policies, have partnered to investigate and provide evidence on the role of IPR in the region's economic development. Drawing on a novel and comprehensive range of IP and economic data collected and merged across nine different countries, this study assesses the economic impact of manufacturing industries and their exposure to innovation and IP. It offers evidence at country and regional levels, making it possible to derive relevant policy insights at the same level while also comparing specific national patterns against the regional benchmark.

1 ECLAC tends to refer to productive development policy rather than industrial policy because the former better reflects its current approach. It covers a broader set of sectors, not only manufacturing, it places more weight on governance, coordination, and implementation, and it relies on a wider mix of policy instruments than the more traditional view of industrial policy (see Salazar-Xirinachs and Llinás, 2023).

Key message 1: IPR-intensive industries show disproportionate value added and wage premiums in LAC manufacturing

Out of 136 manufacturing classes analysed across nine LAC countries,[2] 44 are IPR-intensive (31 patent-intensive, 24 trade mark-intensive and 11 intensive in both). Despite their modest employment footprint, these industries deliver outsized economic value and offer significantly higher wages than non-IPR-intensive manufacturing sectors.

During the period 2016-2020, IPR-intensive manufacturing industries employed roughly 1.68 million workers (12.4% of formal manufacturing employment) and generated 13.0% of manufacturing value added (over USD 68.2 billion). This productivity advantage translates directly to the workforce: workers in IPR-intensive industries earned a 32.1% wage premium over their peers in non-IPR sectors, an advantage that surges to 56.2% in purely patent-intensive industries.

Figure E1

Economic contribution of IPR-intensive manufacturing industries in nine LAC countries (2016-2020 averages)

IPR-intensive category	Employment (absolute)	Share of total employment	Value added (USD million)	Share of total value added	Wage per employee (USD)	Wage premium	Value added per employee (USD)	Value added per employee premium
Patent intensity	961 426	7.1%	42 971	8.2%	18 396	56.2%	44 695	16.0%
Trade mark intensity	1 107 530	8.2%	42 518	8.1%	14 385	22.1%	38 390	-0.4%
All IPR-intensive	1 679 116	12.4%	68 240	13.0%	15 563	32.1%	40 641	5.4%

Source: ECLAC, EPO

2 Based on ISIC Rev.4. Due to data availability, this study focuses on Argentina, Brazil, Chile, Colombia, Ecuador, El Salvador, Mexico, Peru and Uruguay (LAC9) for most of the analysis linking IPR to economic outcome variables.

Key message 2: Patent-intensive industries-intensive industries are associated with higher labour productivity

Patent intensity is correlated with economic performance across manufacturing classes. While trade mark intensity shows near-zero correlation with productivity and wages, patent intensity positively and significantly correlates with higher wage intensity regionally (LAC9).

At the country level, this strong, statistically significant relationship with both domestic labour productivity and wage premiums is primarily concentrated in Brazil, Chile, Ecuador and Mexico. Only in Argentina does patent intensity show a significant negative correlation with wage intensity.

Figure E2

Correlation of patent and trade mark intensity with labour productivity and wage intensity by LAC country

Source: ECLAC, EPO

Note: Numbers display correlation coefficients between variables. Significance levels: *** p < 0.01; ** p < 0.05; * p < 0.1.

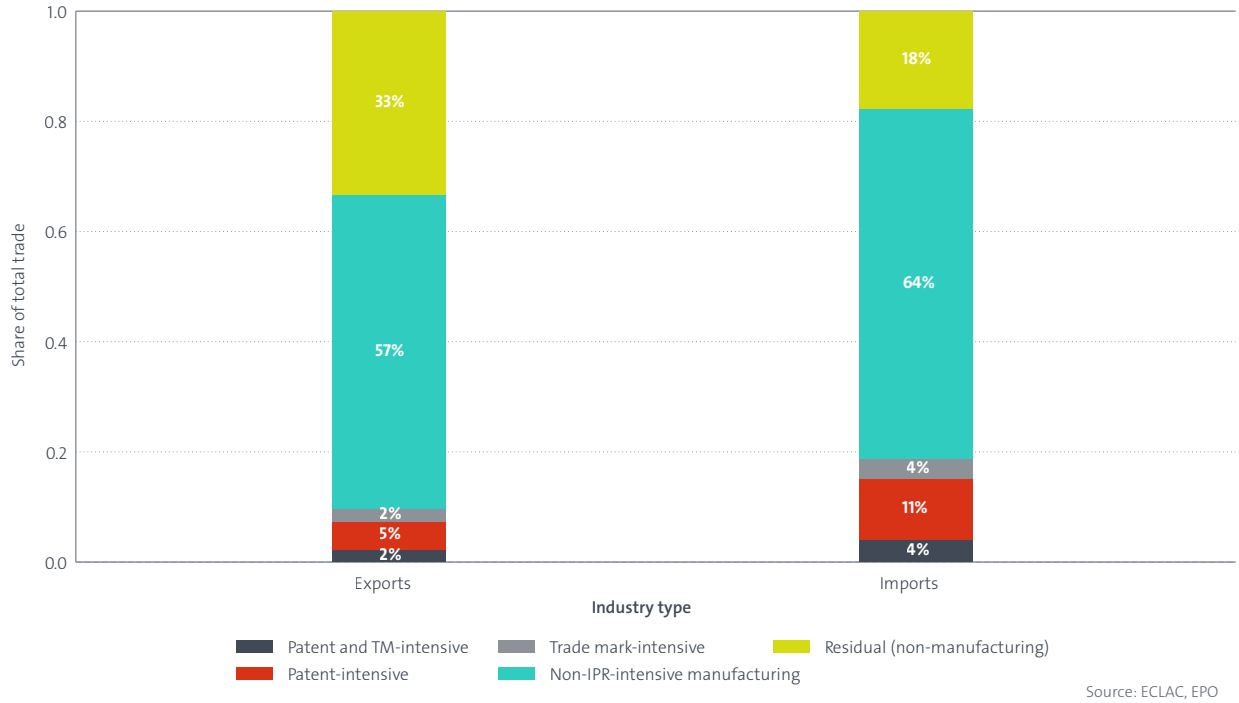
Key message 3: LAC is a net importer in IPR-intensive manufacturing

Manufacturing represents two-thirds of regional goods exports and over 80% of goods imports (2016-2020). However, IPR-intensive industries generate only 9% of regional exports, while manufacturing accounts for 57%. On the import side, this dynamic is reversed: IPR-intensive industries make up 19% of total imports, with patent-intensive sectors alone accounting for 15%.

This structural imbalance is confirmed by correlation analysis across all nine LAC countries, which shows that patent intensity correlates positively with both export and import intensities, but its correlation with import intensity is systematically and significantly stronger. Ultimately, the region relies heavily on imported IPR-intensive goods while exporting primarily non-IPR-intensive products. This physical trade imbalance is consistent with the region's financial flows associated with intellectual property.

Figure E3

Composition of LAC9 trade by industry type: exports vs. imports



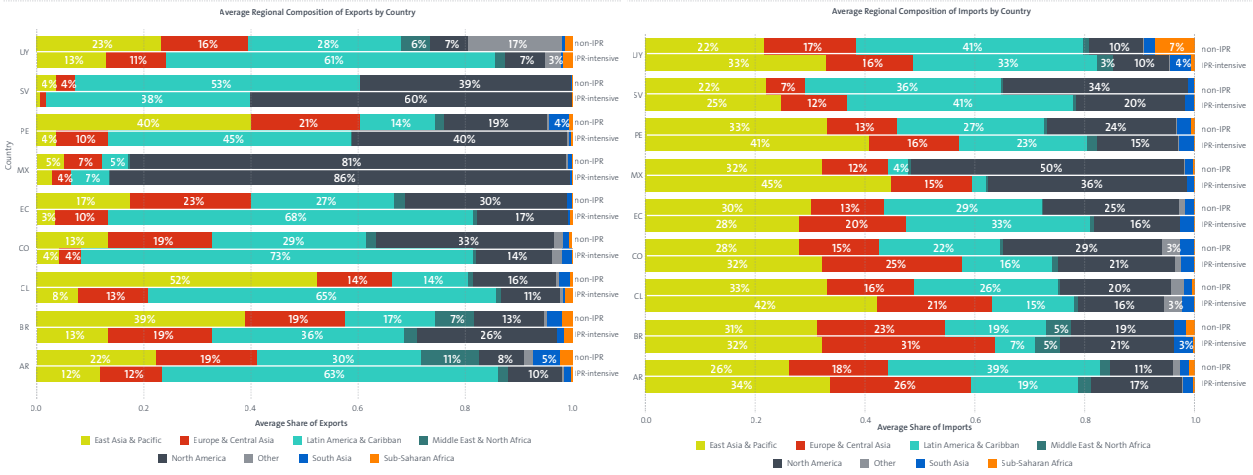
Source: ECLAC, EPO

Geographic trade flows divide the LAC region into distinct profiles. Mexico functions as a highly integrated near-shored assembly node: it relies heavily on East Asia for imports into IPR-intensive industries (45%), and exports 86% of its output in IPR-intensive industries almost exclusively to North America. In contrast, South American economies display other structural asymmetries in their geographic trade flows. Across Brazil, Argentina, Chile and Peru there is a deep reliance on the East Asia and Pacific region and Europe for imports in IPR-intensive sectors, while exports to these areas remain overwhelmingly concentrated in non-IPR sectors. This indicates South America successfully exports primary-processed, non-IPR dependent goods globally, but remains structurally dependent on foreign hubs for advanced proprietary technologies.

While aggregate LAC data suggest intra-regional trade is relatively low, this is heavily distorted by Mexico's trade volume with North America. When isolating South American nations, the Latin American market emerges as the single most vital destination for their IPR-intensive manufacturing output. Colombia directs 73% of its exports in IPR-intensive manufacturing to regional neighbours. In stark contrast, intra-regional trade is much less significant in non-IPR-intensive industries. This suggests that South America's non-IPR sectors are globally integrated, whereas its IPR-intensive industries (like basic chemicals, plastics and pharmaceuticals) rely on the localised demand, geographic proximity and regulatory alignment provided by the Latin American market.

Figure E4

Regional composition of trade by LAC country: IPR-intensive vs. non-IPR-intensive sectors



Source: ECLAC, EPO

Note: The IPR category includes trade flows from trade mark-intensive, patent-intensive and jointly IPR-intensive industries.
The non-IPR-intensive category combines manufacturing only industries and residual (non-manufacturing) industries.

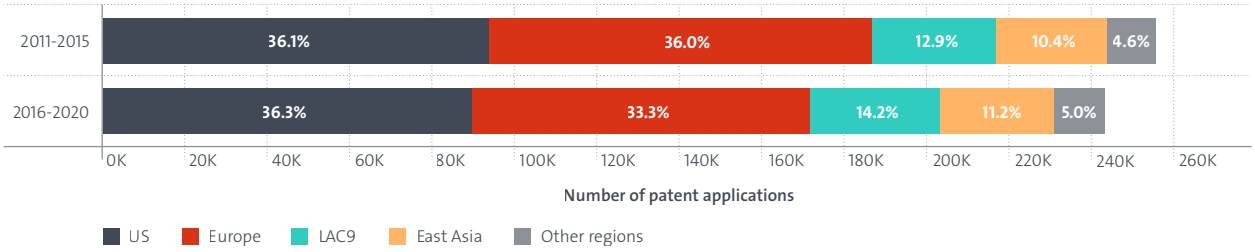
Key message 4: Latin America is a destination for foreign innovation

Latin America functions primarily as a destination for protecting inventions generated abroad, mirroring the trade dynamics of the region's reliance on imports in IPR-intensive sectors. Between 2011 and 2020, over 500 000 patent applications were filed across the nine LAC countries. More than 85% of these originated from outside the region, specifically from the USA (36.2%) and Europe (34.7%). By contrast, domestic LAC applicants accounted for only 13.5% of all filings, while East Asia (primarily Japan, P.R.China and the Republic of Korea) contributed approximately 10.8%.

Comparing the periods 2011-2015 and 2016-2020 reveals a changing landscape of patent origins. Total foreign filings dropped due to declining demand for protection from the USA (-4.5%) and Europe (-11.9%). Simultaneously, patenting activity from local LAC applicants increased by 4.8%, raising their overall share from 12.9% to 14.2%—a trend largely driven by domestic filings from Brazil. East Asia's overall volume remained stable, but underwent a major compositional shift: applications from Japan declined by 21.2%, while filings from China surged by nearly 80%.

Figure E5

Breakdown of patent applications in LAC by applicant origin (2011-2015 vs. 2016-2020)



Source: ECLAC, EPO

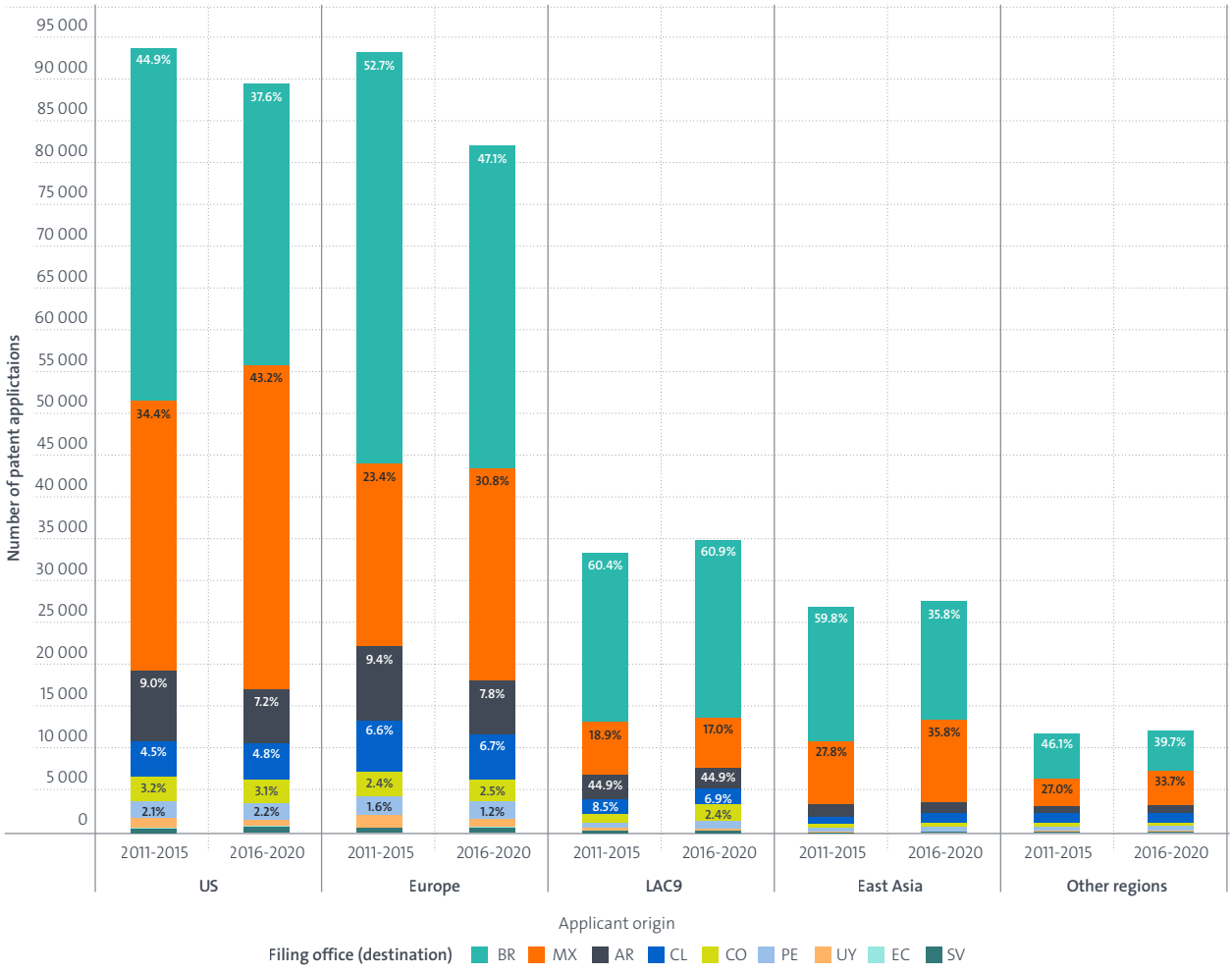
Note: East Asia (CN, JP, KR, TW); Europe (EPO member states).

Foreign and domestic demand for patent protection is not evenly distributed but heavily centralised in the region's two largest economies. Over the decade, Brazil accounted for 48.4% of all filings, and Mexico captured 30.6%. Together, these two countries host nearly four out of every five patent applications in the region. Argentina follows at a considerable distance (7.9%), ahead of Chile (5.6%) and Colombia (3.3%).

However, destination preferences shifted between the two periods: Mexico has grown in importance as a filing destination, while Brazil's overall share has diminished, an effect driven particularly by changing filing behaviour among US and European applicants.

Figure E6

Patent applications in LAC by applicant origin and filing destination (2011-2015 vs. 2016-2020)



Note: East Asia (CN, JP, KR, TW); Europe (EPO member states).

Source: ECLAC, EPO

Key finding 5: LAC research institutions drive patenting in patent-intensive sectors

Within LAC9, public research institutions—like universities and national labs—are the primary drivers of patenting towards IPR-intensive industries. Across both periods, these institutions directed roughly half of their patenting activity toward patent-intensive manufacturing (51.8% in 2011-2015, shifting to 49.9% in 2016-2020). The critical role of LAC universities and public research organisations (PROs) is also reflected in their growing share of overall domestic patenting.

Filings by universities and PROs (Research institutions) rose from 22.4% to 29.1% over the two periods. In contrast, domestic private companies and individual inventors predominantly focus on non-patent-intensive sectors, indicating that domestic corporate innovation remains geared toward traditional, less complex manufacturing, leaving the public sector to generate more foundational innovations. The share of private companies among domestic patent filings is remarkably low and fell from 32.1% in 2011-2015 to just 25.9% in 2016-2020, underscoring a possible structural weakness in corporate R&D commercialisation.

Figure E7

Composition of patent applications in LAC by origin, applicant and industry type (2011-2015 vs. 2016-2020)

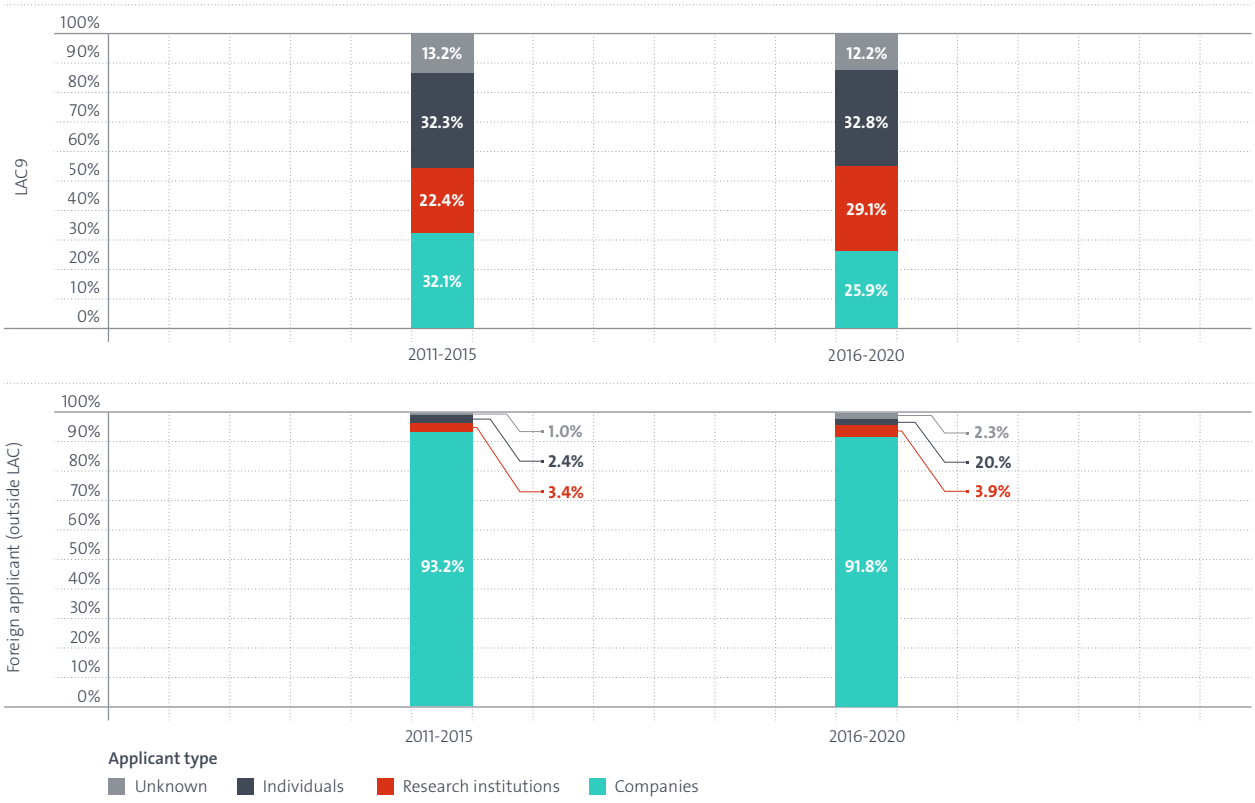
Source: ECLAC, EPO

Foreign applicants exhibit a structurally different filing pattern compared to domestic entities. Among patent filings from foreign applicants, the contribution to patent-intensive sectors is significantly higher across all actor types. For instance, foreign research institutions directed 62.2% of their filings to patent-intensive manufacturing in 2011-2015, rising to 67.2% in 2016-2020.

Crucially, this high concentration is especially pronounced for foreign private companies, which dominate the total volume of external filings. These consistently allocate their largest share of patenting activity to patent-intensive industries, underscoring the gap between local industrial capabilities and imported corporate technology.

Figure E8

Composition of patent applications in LAC by applicant type and origin (2011-2015 vs. 2016-2020)



Source: ECLAC, EPO

Note: East Asia (CN, JP, KR, TW); Europe (EPO member states).

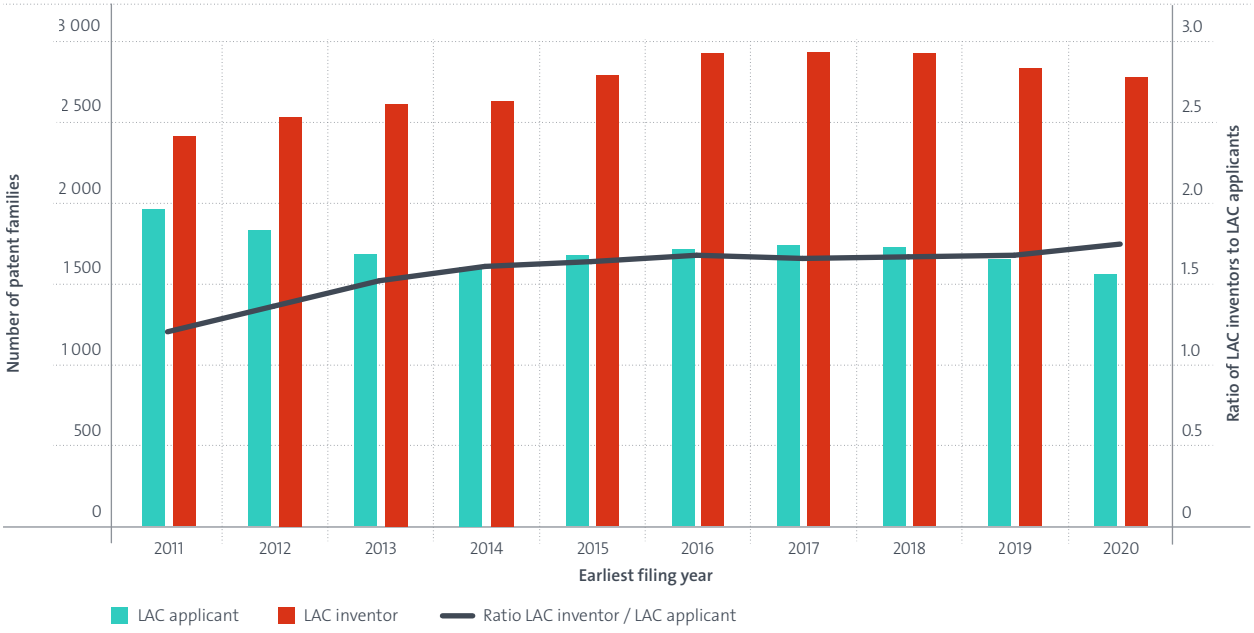
Key finding 6: The gap between LAC inventorship and ownership of patent families with global impact is expanding, especially in ICT

A comparison between the number of patent families targeting foreign markets featuring a LAC inventor versus those with a LAC applicant reveals a significant and widening gap. The absolute volume of patent families with contributions from LAC inventors is substantially larger than those owned by domestic applicants, indicating that LAC-based talent generate a much larger global technological impact than local institutions can capture. Furthermore, the trajectories of these two metrics have diverged over the last decade.

Consequently, the ratio of LAC-invented to LAC-applicant patent families with patent filings outside LAC has grown steadily, from 1.2 in 2011 to 1.8 in 2020. This rising ratio indicates an increasing structural dynamic across almost all LAC9 countries; LAC-based researchers are successfully integrated into international innovation ecosystems, but the resulting IPR are captured by foreign entities.

Figure E9

Volume of patent families targeting foreign markets with LAC inventors vs. LAC applicants (2011-2020)



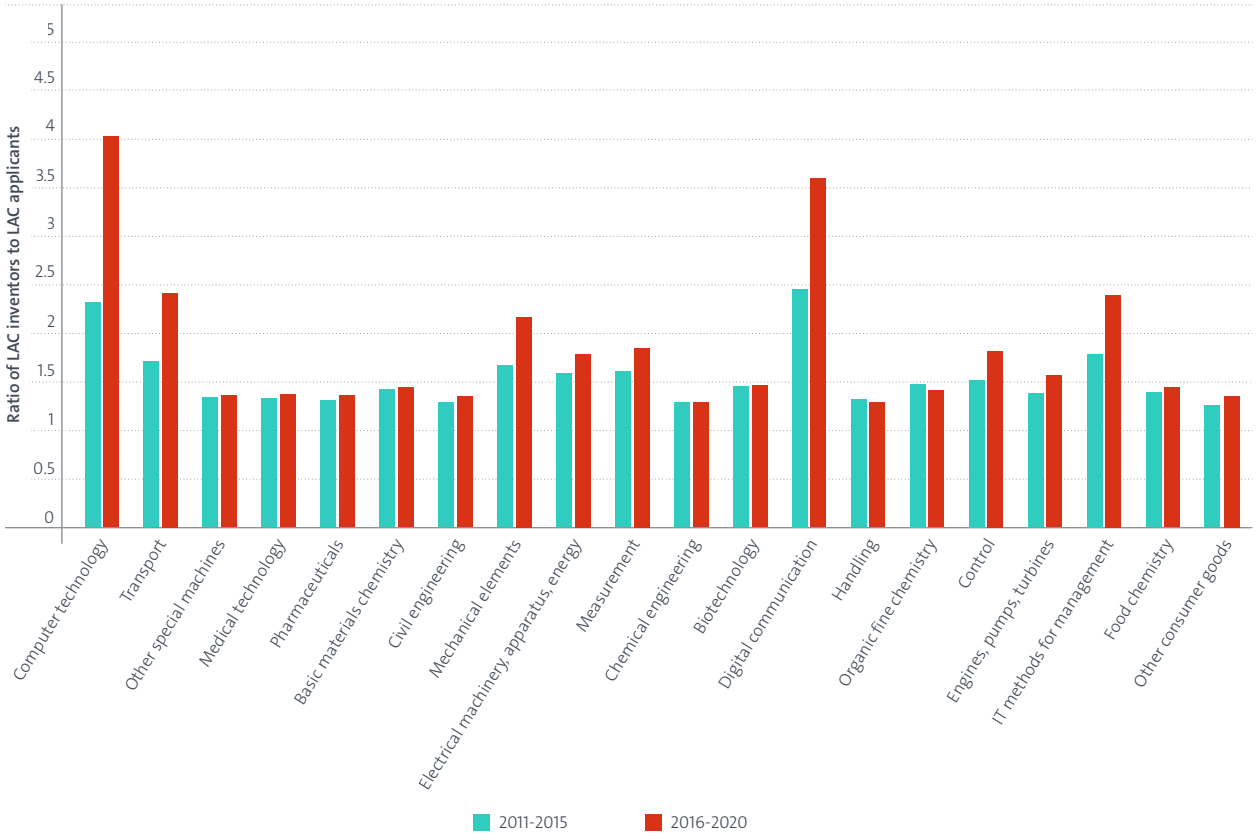
Source: ECLAC, EPO

Analysing this inventor-to-applicant ratio across technology fields exposes stark sector-specific disparities. While traditional industrial sectors (such as other special machines, pharmaceuticals and civil engineering) maintain relatively low and stable ratios (between 1.3 and 1.4), ICT fields exhibit a profound disconnect. By the 2016-2020 period, the ratios for computer technology and digital communication surged to over 4 and 3.6 respectively.

This means that for every foreign patent family in computer technology owned by a LAC entity, there are more than four families generated by LAC researchers but owned by foreign corporations. A similar, though less pronounced, pattern is also visible in transport, where the ratio increased to 2.42 in the later period, largely driven by patent families with inventors based in Mexico's deeply integrated automotive supply chain.

Figure E10

Ratio of LAC-invented to LAC-owned patent families targeting foreign markets by top technology field (2011-2015 vs. 2016-2020)



Source: ECLAC, EPO

Note: Technology fields are sorted by number of patent families targeting foreign markets. Only the top 20 technology fields are shown.

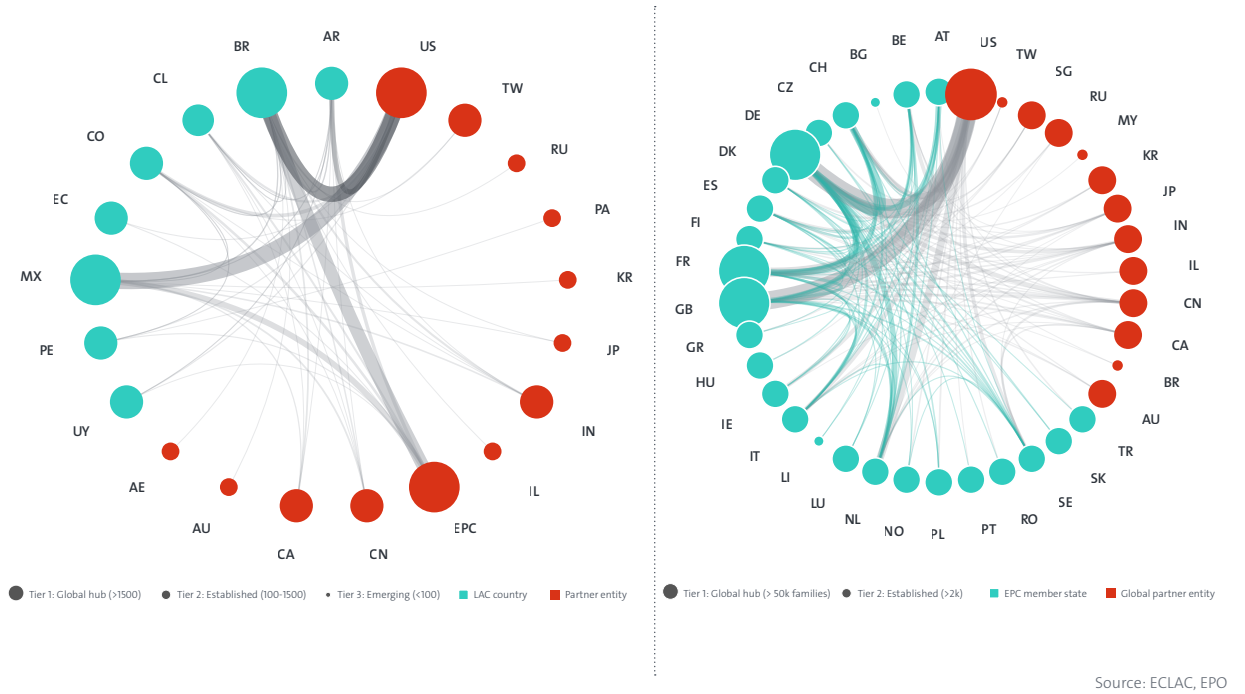
Key finding 7: LAC inventor networks are highly fragmented and dependent on extra-regional hubs

Evaluating co-inventorship networks—created by linking the countries of all inventors within a single patent family between 2015 and 2020—reveals a profound structural dependency on extra-regional partners. The USA acts as the dominant collaborative hub for almost every LAC nation, with Europe serving as the secondary global pole. Strikingly, despite geographic proximity and shared trade agreements, LAC inventors rarely co-invent with their neighbours.

This stands in stark contrast to the highly integrated European innovation network, which features a massive, self-sustaining intra-regional core where countries collaborate multilaterally. In the LAC region, domestic R&D ecosystems remain structurally disconnected from one another, functioning primarily as peripheral extensions of foreign innovation hubs.

Figure E11

Global co-inventorship network for LAC countries (left) and for European countries (right), 2015-2020



Source: ECLAC, EPO

Note: The thickness of the lines connecting two countries represents the volume of collaboration (number of patent families) between that specific pair. The size of the nodes represents the total cumulative collaboration (the sum of total patent families) of that country across the entire dataset.

The technological focus of LAC co-inventorship aligns directly with the region's physical trade imbalances. For example, the massive Mexico-USA collaboration is overwhelmingly concentrated in electrical machinery and transport, reflecting Mexico's role as a near-shored assembly node for North American automotive and electronic value chains.

Conversely, R&D links between South America and Europe place a heavy emphasis on pharmaceuticals and biotechnology, corroborating earlier findings that Europe is the primary supplier of advanced healthcare technologies to the region. Meanwhile, although LAC relies heavily on East Asia for importing complex digital goods, joint knowledge creation remains marginal, indicating this relationship is strictly commercial rather than collaborative.

Conclusions and policy perspective

Intellectual property matters for development in Latin America and the Caribbean, but in a nuanced way. IPR-intensive manufacturing industries account for a modest but economically significant share of the region's productive structure: about 12.4% of manufacturing employment and 13.0% of manufacturing value added, and they display a substantial wage premium relative to other manufacturing activities. Patent-intensive segments (as opposed to trade mark-intensive segments) stand out in particular, suggesting that some forms of IP are more closely associated with productivity, value added and higher-quality employment than others.

At the same time, the region remains much more a consumer than a producer of IPR-intensive goods. IPR-intensive industries account for only 9% of exports, compared with 19% of imports, while patenting activity remains overwhelmingly driven by foreign applicants and internationally extended patent families. Key elements of a local knowledge base are already present in the region, including academic innovation in industry-relevant domains and a significant pool of inventors in digital technologies, providing opportunities for regional economic development. However, they remain fragmented within the region, with closer ties to the innovation networks in the USA and Europe. This points to a pattern in which IP is economically relevant in the region, but still only weakly connected to domestic capability formation, local ownership of knowledge and deeper forms of productive upgrading.

The main policy implication is that IP policy should be treated as part of productive development policy, not a self-contained legal domain. Stronger protection alone is unlikely to deliver much upgrading if innovation systems remain weak. What matters is whether countries have the domestic conditions that make IP economically productive: engineering skills, R&D capacity, university-firm linkages, scale-up finance, standards and quality infrastructure, and supplier-development capabilities. This broader perspective is consistent with ECLAC's wider diagnosis that the region's main development constraints lie in weak productivity growth, limited structural transformation and fragmented innovation capabilities (ECLAC, 2025).

Policy should be differentiated by the maturity of the innovation system and consider sector and firm specific gaps from the technological frontier. In countries with incipient systems, the priority is to build basic capabilities and connect imported technology to learning, adaptation and supplier development. In countries with intermediate systems, the central challenge is to move from fragmented support measures toward a more coherent mix that links research, innovation finance, commercialisation, technology transfer and productive priorities. In countries with advanced systems, the priority is to use IP more strategically to deepen domestic participation in science-based sectors, support diversification into adjacent technologies, and strengthen the region's position in higher-value segments of trade and innovation networks. The maturity logic should be understood as cumulative; more advanced systems should also consolidate the foundations required at earlier stages.

One critical lever lies in leveraging public research. LAC already possesses an important base of domestic patent applications originating from universities and other public research institutions. Policy must ensure that such technologies can be efficiently transferred from the laboratory to the market. This transition requires a dual approach: building robust commercialisation and technology transfer capabilities within the innovation ecosystem, while simultaneously enhancing the technological absorption capacity of domestic industry so that local firms are actually equipped to adopt, scale and profit from these innovations.

The study also points to a second, related policy challenge: the region is not only underrepresented in the ownership of internationally protected inventions, but often participates in their creation without capturing a proportional share of the resulting intellectual assets. This suggests that an important part of the region's scientific and technical capabilities is being harnessed through extra-regional firms and innovation networks. The policy response should not be to weaken international integration, but rather to improve the region's capacity to anchor more of the resulting value locally.

That requires stronger translational infrastructure, better financing for early-stage commercialisation and scale-up, more effective interfaces between universities and firms, and policy instruments that support domestic co-development, co-ownership, licensing and firm formation in areas where capabilities already exist.

A further priority is to make firms more aware of IP systems and better able to use them. In many cases, the issue is not only limited innovation, but also limited knowledge of how IP works, why it matters, and how it can be accessed. Policy should therefore focus on awareness, guidance and simpler access, especially for small and medium-sized enterprises.

Finally, regional integration should play a more explicit role in innovation strategy. For many countries the Latin American market is an important outlet for IPR-intensive manufacturing, yet intra-regional trade and innovation connectivity remain weak. Stronger regional co-operation in standards, regulation, public procurement, technology transfer and research collaboration could help firms scale within the region and reduce the gap between local innovation efforts and the economic use of IP.

Published and edited by

European Patent Office (EPO)
Munich, Germany

Economic Commission for Latin America
and the Caribbean (ECLAC)
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The full report can be downloaded from
epo.org/ ipr-latin-america

ISBN: 978-3-89605-423-4
DOI: doi.org/10.65216/20260519-0001
ECLAC Reference Number: LC/TS.2026/40