

GLOBAL FUTURE OF WORK REPORT

SERIES 2

EMPOWERING LATIN AMERICA
THROUGH TECHNOLOGY AND
TALENT TRANSFORMATION

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PREFACE

FIIS DELIGHTED to launch the second edition of the Global Future of Work Report, which examines the state of labor markets around the world and the potential impact of advanced technologies on the future of work.

The first edition, *Preparing Labor Markets in MENA for a New Technological Era*, identified significant economic differences and opportunities between the Global North and Global South, with a particular focus on countries in the Middle East and North Africa (MENA).

This second edition looks at the economies of 19 Latin American and Caribbean¹ countries (Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, and Uruguay) and their American neighbors to the north, the United States and Canada, including primary research in six Latin American countries, the United States, and Canada. It explores Latin America's loss of economic momentum relative to the US and Canada, including the increasing gap in productivity growth and human capital development. It also examines the readiness of Latin American countries to adopt modern technologies, including automation and AI, that have the potential to restore their competitiveness. It concludes by exploring ways in which Latin America could overcome the identified challenges, based on international best practices; identifying case examples from the region itself that illustrate ongoing efforts toward recovery; and making tangible recommendations for the region to leverage the opportunities provided by AI and emerging technologies.

Two surveys informed the insights of the Report: a survey of more than 1,200 business executives, and a separate survey of about 800 young people in six Latin American countries (Argentina, Brazil, Chile, Colombia, Mexico, and Peru), as well as Canada and the United

States. Respondents gave their perspectives on macroeconomic trends, technology adoption, the education system, skills, and job preparedness. The research used automation scenarios that estimated the potential labor force and productivity implications for six Latin American countries and compared those estimates with equivalent ones for the United States. Various demographic and macroeconomic parameters for the region complemented the research.

A comparison of the insights on Latin America with insights on MENA from the previous publication shows that the two economies face similar challenges in terms of productivity, labor force, and automation adoption. In particular, they both have high levels of economic inactivity and lagging adoption of technology, with the exception of Saudi Arabia and other Gulf Cooperation Council countries. Both regions could enhance competitiveness and improve productivity through investments in skilling and technology. At the same time, they differ in their ability to create jobs. Latin America is able to create jobs, but mostly informal jobs and in low-value sectors. In contrast, MENA faces a large job creation challenge, with the exception of Saudi Arabia, which aims to create a significant number of high-quality job opportunities under the Vision 2030 blueprint.² Moreover, MENA's working-age population is growing, with a rising number of unengaged youth, while Latin America's demographic dividend is fading, and its working-age population is expected to start shrinking by 2042.

The findings from both efforts highlight the critical role of productivity, human capital, and technological readiness as drivers of economic growth and prosperity at the start of a new epoch of technology-led disruption. These publications aim to serve as a guide to policymakers and other leaders seeking to harness their countries' talents and energy to build a more prosperous future. This work is done together with McKinsey & Company as a knowledge partner.

¹ The report examines the broader emerging economies in Latin America and the Caribbean. For simplicity, these regions are collectively referred to as "Latin America" throughout the report.

² "Saudi Arabia's new economic development model is empowering our people to capture their true potential," Vision 2030, accessed February 3, 2025.

EXECUTIVE SUMMARY

IN THE PAST 25 YEARS, the economic disparity between Latin America and its northern neighbors, the United States and Canada, has widened. Latin America today faces a dual challenge: productivity growth and employment growth, the two main drivers of economic growth. Further, a large share of Latin American youth is inactive, underemployed, or employed in informal low-value-add sectors. The demographic advantage Latin America once had in terms of a growing labor force that could compensate for weak productivity is ebbing.

To kick-start its economy, Latin America could focus on technology adoption and human capital development to revive economic momentum and adjust to changing demographics. Latin America has shown some strides in embracing digital transformation, with internet penetration increasing from 10 percent two decades ago to over 75 percent today, comparable to levels seen in China. The pandemic further accelerated this digital shift, driving widespread adoption of technologies such as digital payments and e-commerce. Mobile payments have been a key enabler in driving bancarization across the region. Between 2017 and 2023, Latin America's fintech ecosystem grew by an impressive 340 percent.

Latin America also boasts a dynamic and rapidly growing entrepreneurial ecosystem, particularly in fintech and e-commerce, which account for four-fifths of the unicorns in the region. Brazil, after China and India, is the largest emerging economy in terms of unicorns, with around 20, and countries like Mexico, Colombia, and Argentina are also seeing significant growth. Over the past five years, the

region has nearly tripled its number of unicorns, even during the pandemic. This entrepreneurial boom highlights Latin America's potential to scale digital technologies rapidly, surpassing regions with more mature value chains and creating substantial opportunities for both innovation and economic growth.

The growth in digital adoption could translate into substantial productivity gains for the broader economy. Scaling investments in emerging sectors such as medtech (for example, telemedicine platforms and smart devices), edtech (for example, remote-learning platforms and VR classrooms), and agritech (for instance, precision farming or drones for crop management) could help gain momentum. These emerging sectors have the potential to drive a new wave of growth and inclusivity in the region. Latin America is also endowed with the resources to power the net-zero transition. This includes renewables, critical minerals, green hydrogen, carbon markets, and a unique biodiversity. Macroeconomic efforts would also be required, such as boosting investment, research, and innovation; reducing the informal economy; and upgrading the skills of the workforce, especially the large cohort of young people eager to find gainful employment.

This Report looks at Latin American economies and examines what they could do to rekindle economic dynamism and bring new vitality to their labor markets in this era of automation and AI. Acknowledging that Latin America is not a homogenous region, the research analyzes the region across three segments: "leading," "decelerating," and "challenged" economies.

AN ECONOMIC GAP HAS WIDENED BETWEEN LATIN AMERICA AND THE UNITED STATES AND CANADA IN THE PAST 25 YEARS

The 19 Latin American economies included in this research have a combined population of 600 million, or approximately 1.5 times the population of the United States and Canada.¹ Yet the 2023 GDP of those two economies was more than four times larger than that of Latin America (\$23.8 trillion versus \$5.4 trillion).² The disparity is even greater in per capita terms: In 2023, the GDP per capita of the United States and Canada was \$63,600—seven times higher than Latin America’s \$9,000—and the gap continues to grow.

Underpinning this divide are sharply different productivity growth trajectories. In the past 25 years, Latin America’s productivity growth has been the slowest globally, growing at an average of just 0.7 percent annually, and further declining to negative growth of 0.4 percent per year in the five years between 2018 and 2023. In the US and Canada, by contrast, productivity has continued to grow by 1.4 percent per year in the past five years and by 1.6 percent per year over the past 25 years, growing more than two times faster than in Latin America in the past quarter century. If Latin America fails to address key challenges, it risks further economic marginalization. The region must invest in sectors such as technology, infrastructure, and education; implement reforms to boost innovation and efficiency; and reduce inequality. Without these actions, disparities could widen, development opportunities could shrink, and the region may fall further behind globally.

Limited investment and constrained human capital development characterize Latin America’s low productivity today. The level of gross fixed capital formation in the region is among the lowest globally, at about 19 percent

of GDP, or about \$1 trillion in 2023, well below the 21.4 percent of GDP, or \$5 trillion, in the US and Canada.³ In Latin America, this level has stayed relatively consistent for the past 10 years; in 2013, it represented 20 percent of GDP. In the US and Canada, these investments have been growing; in 2013, they represented 1.1 percentage points less of its GDP than its current levels.

Notably, investments in high-productivity sectors such as information and communications technology (ICT) are lacking. For example, Latin America increased its internet penetration from 10 percent two decades ago to over 75 percent today; however, it took the region nine additional years than the US and Canada—and six additional years than the EU—marking a missed opportunity during the early days of the internet. There is a risk of repeating this trend in the age of AI, with potentially similar consequences.

The focus on innovation and R&D investment points to another stark difference. Latin America spends 0.62 percent of GDP on R&D on a GDP base of \$5.4 trillion, whereas the US and Canada spend about 3.0 percent of GDP on R&D on a base of almost \$24 trillion. That is about five times the R&D investment rate of Latin America, and the level has remained largely unchanged in the past decade. This may be the result of a limited business environment that lacks the necessary conditions to accumulate physical, human, and knowledge capital, in part because of the high cost of doing business, lack of competition policies and frameworks, and a limited skilled workforce.⁴

Another critical driver of growth is human capital development—and for this, Latin America is losing its demographic advantage relatively fast. An estimated 80 percent of Latin America’s GDP growth between 2000 and 2023 was due to employment growth, and only 20 percent was attributable to productivity gains.⁵ However, the region may not be able to count on workforce growth to the same

1 The 19 are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, and Uruguay. Jamaica and Trinidad and Tobago were included to ensure representation of the main emerging economies in the region, given their economic and cultural ties to Latin America.

2 GDP measured in constant 2015 US dollars.

3 World Development Indicators, World Bank, gross fixed capital formation in constant 2015 US dollars, 2023.

4 “Competition: The Missing Ingredient for Growth?,” *Latin America and the Caribbean Economic Review*, April 2024; World Bank.

5 Total Economy Database – Output, Labor and Labor Productivity, Conference Board, 2024.

degree for much longer: Population growth of 0.8 percent over the past 10 years is well below the 1.1 percent and 1.5 percent in the previous 10 and 20 years, respectively. Since 2000, the working-age population has grown at less than 2.0 percent per year, compared with 2.3 percent growth annually between 1990 and 2000.⁶ Moreover, while Latin America's working-age population has increased by 42 million people since 2013, only 32 million jobs have been added.⁷ This trend is consistent with the Global South, where there were 179 million too few jobs between 2012 and 2022 for the increasing working-age population.

The overall workforce appears relatively less prepared for the labor markets of the future. First, Latin America has a large informal sector, with about half of the employed population in the region estimated to work informally.⁸ This goes in hand with a limited number of students opting for advanced education. For example, in Latin America, school enrollment in tertiary education is at 58 percent of the total population of the corresponding age group,⁹ whereas the US and Canada have an enrollment ratio close to 20 percentage points above that, at 79 percent and 77 percent, respectively. Moreover, when looking at secondary education attainment, only 52 percent of people over 25 years of age in Latin America have completed upper secondary studies, far below the rates of 90 percent in the US and 95 percent in Canada. As a result, most of Latin America's informal workers have lower income levels, as they mainly work in low-value sectors such as agriculture and construction, which reflect the region's limited industrial and service sector development. The unemployment rate of 6 percent of the labor force is down from about 10 percent in 2020, but given the size of the informal economy, it could be a slightly misleading metric.

Moreover, as is the case in the Middle East and North Africa (MENA) and throughout the Global South, education and skills are essential to a strong future. While Latin America has

some well-respected universities, by several measures of worker skills and quality, the region's workforce is considerably behind that of the US and Canada. The region also has developed fewer viable alternatives to university education—such as technical and vocational schools and community colleges, which provide practical skills and workforce-ready training—thus exacerbating the challenges even further.

Latin American is not a monolith, and countries vary widely in their economic, demographic, and social dynamics. Accordingly, for this research, we have segmented the 19 economies into three categories: “leading” economies, “decelerating” economies, and “challenged” economies. This segmentation was based on an analysis of each country through four lenses: political and social stability, human capital, productivity and competitiveness, and tech preparedness.

Leading economies (eight countries including Brazil, Chile, Colombia, Mexico, and Uruguay) represent 73 percent of the region's total population. Their productivity growth is mostly positive, unlike the region as a whole. Their informal employment rates (45 percent, or approximately 90 million people) are below the average in the region, and their talent is among the best educated.

Decelerating economies (seven countries including Argentina, Ecuador, and Peru) represent 23 percent of the region's population. In the past decade, these countries have experienced a slowdown in growth and, partly as a result, are lacking investments. Their informal employment rate of 66 percent (approximately 42 million people) is close to 1.5 times higher than that of the leading economies (although the absolute numbers are close to half of the leading economies).

The third group, **challenged economies** (four countries including El Salvador and Nicaragua), represent the remaining 4 percent of the population. As reported by the World Bank's Political Stability and Absence of Violence/

6 “World Population Prospects 2024,” United Nations Department of Economic and Social Affairs, Population Division, 2024.

7 Ibid.; World Development Indicators, World Bank.

8 International Labour Organization database on proportion of informal employment by total employment, accessed January 13, 2025.

9 According to UNESCO, this age group corresponds to the five-year age group immediately following upper secondary education.

Terrorism Index, these areas have historical or ongoing political instability that has crimped economic growth and development. Their informal employment rate is 70 percent (approximately eight million people), the highest among all regions (though their total number of informal workers is about one-fifth that of decelerating economies and more than one-tenth that of leading economies).

Leading economies, with stronger human capital and competitiveness indicators, could propel regional progress. Decelerating economies, which have lost growth momentum, could reignite it by learning from the leaders. Together, these two segments could act as catalysts to support challenged economies, helping them overcome structural barriers and contribute to shared regional growth.

All the economic concerns noted above could become exacerbated in the future as Latin America's demographic advantage falls away. Technology adoption can be a critical tool in the effort to regain economic momentum.

TECHNOLOGY COULD BE A TRANSFORMATIVE TIDE, AND PRIMARY RESEARCH SHOWS BOTH BUSINESS AND YOUTH CALL FOR ACTION

The ability to harness advanced technologies such as AI and emerging technologies directly affects business productivity, efficiency, and competitiveness. Regions that fall behind in technology adoption risk losing out on economic growth opportunities. Further, as technology reshapes industries, it also redefines job roles. Ensuring the workforce is prepared for these changes through training and education could be essential to minimize unemployment and foster innovation. The lack of sufficient training in tech-related skills, especially among educated youth, poses a critical challenge.

Addressing this gap could be vital for creating a pipeline of skilled professionals who can drive technological advancement and adapt to future job demands.

Latin America does have some pioneers and trailblazers, including more than 30 “unicorns”—innovative start-ups that reach \$1 billion in revenue—mostly located in Argentina, Brazil, Colombia, and Mexico. Yet Latin America overall has a mixed record of technology adoption and digital infrastructure, leaving it sometimes unable to make use of the opportunities technologies bring. By comparison with the US and Canada, its technology adoption is at a nascent stage. For example, the region scores poorly on both the International Monetary Fund's AI Preparedness Index (0.43) and the Digital Infrastructure Index (0.1)—much lower than the US and Canada (0.74 for AI preparedness and 0.19 for digital infrastructure). Latin America's technology adoption story is similar to that of the MENA region, based on the previously published Report: MENA has an overall AI preparedness score of 0.45 and digital infrastructure score of 0.1, with Gulf Cooperation Council countries leading the rest.¹⁰

The findings from the two primary research surveys with more than 1,200 business executives and roughly 800 young people in the Americas highlight further lags in tech preparedness,¹¹ providing important insights into the challenges for lifting productivity growth through the adoption of technology.

Approximately 40 percent of respondents to the business survey identified the scaled usage of advanced technologies as an important trend. The impact of technology adoption on the workforce is widely acknowledged; more than 60 percent of respondents in Latin America, the US, and Canada believe it will lead to job creation or transformation. However, disparities in adoption rates persist; for instance, AI adoption, as reported by survey respondents,

¹⁰ International Monetary Fund. The AI Preparedness Index assesses the level of AI preparedness as of 2023 across 174 countries, based on a rich set of macro-structural indicators that cover the countries' digital infrastructure, human capital and labor market policies, innovation and economic integration, and regulation and ethics, on a scale from 0 to 1, with higher values representing more favorable AI preparedness. The Digital Infrastructure Index scores economies on a scale from 0 to 0.2.

¹¹ The survey was conducted by Dynata as part of a Future of Work research project through December 2024. In all, it gathered responses from 1,261 participants in eight countries, of whom 951 were from Latin American countries and 310 from the US and Canada. Participants ranged across various industries and senior leadership roles.



is higher in the US (82 percent) than in Latin America (74 percent),¹² a trend mirrored in cloud computing adoption (60 percent in the US versus 46 percent in Latin America).

Adoption is not only dependent on infrastructure and investments; it also requires a skilled workforce able to integrate and operate the technologies. Based on the survey findings, workforce preparedness remains a concern in the Americas, with 67 percent of Latin American executives—66 percent in the leading economies of Latin America—and 60 percent of their US counterparts reporting that educated youth lack adequate training in tech-related skills. Advanced IT and programming are deemed the most critical skills for university students to acquire, according to 52 percent of Latin American and 60 percent of US respondents. To bridge these gaps, 67 percent of US executives and 58 percent of those in Latin America provide on-the-job training, but more than half the executives in both regions stress the need for increased government support to fund workforce training initiatives. They also say that a collaborative effort between the public and private sectors is needed to fund training programs, ensure inclusivity, and drive economic resilience.

The youth survey similarly reveals an urgent need for better alignment between education and job market demands in the evolving nature of work due to AI and emerging technologies.

First, the survey suggests there is a mismatch between education and employment preparedness: Some 90 percent of youth respondents in Latin America and 85 percent in the US perceive a gap between what schools teach and what employers require, emphasizing this potential interest in curriculum reform and skills-focused training. Young people want further government support to address these gaps and ensure they are job ready.

Second, young people have a growing interest in AI and emerging technologies. This interest is significantly high in Latin America (42 percent), while in the US it is 19 percent. About 93 percent in Latin America express interest in using technology to start or grow their own business opportunities. Nonetheless, concerns about automation eliminating jobs resonate with 36 percent of youth in Latin America and 29 percent in the US.

Finally, flexibility is a priority, with 52 percent of Latin American youth and 49 percent in the US preferring flexible hours. Compensation is the most valued job attribute for 64 percent of youth in Latin America and 50 percent in the US.

¹² These percentages were calculated using the unique count of respondents who reported adopting AI or machine learning, ensuring no double counting by applying the inclusion–exclusion principle.

TECHNOLOGICAL ADVANCES COULD OFFER A PATHWAY TO HIGHER PRODUCTIVITY AND GREATER COMPETITIVENESS

Latin America has an opportunity to boost productivity, competitiveness, and innovation by embracing technological adoption. While this transition may bring short-term challenges like job displacement, it also offers significant opportunities for job creation and economic growth. However, this transformation won't happen on its own—strategic investments in upskilling, digital infrastructure, and innovation, alongside efforts to formalize the economy, are essential to unlocking its potential.

The research analyzed the impact of automation on job activities for six economies in the region—Argentina, Brazil, Chile, Colombia, Mexico, and Peru—which, together, represent up to about 80 percent of total employment in the countries in this research.

The analysis indicates that as much as 20 percent of work hours in Latin America could be automated, in a midpoint scenario. Automation potential will vary within countries, depending on the occupation mix and industrial structure. Among the three segments, leading economies could automate faster due to their relatively more established industries and lower informal employment. While this may risk displacing jobs, reskilling and upskilling these workers could also generate new opportunities and boost economic growth.

The analysis further indicates that Latin America could capture a productivity boost ranging from 1.9 to 2.3 percent annually by 2030—although delayed adoption could lead to productivity increases of just 0.01 percent. The size of the productivity boost will depend in part on the ability of the region to reskill its workforce and redeploy automated work hours into the economy. A productivity boost of 1.9 percent would be possible if 80 percent of work hours were redeployed; a boost of 2.3 percent would require 100 percent redeployment.

While technology adoption could help propel future economic growth, increase job creation, and boost productivity gains, none of this will happen on its own. The region may need

to improve investment, focus on research and innovation, and reduce the informal economy, while upgrading the skills of its workforce.

SEVERAL PATHS POINT THE WAY TO A MORE PRODUCTIVE ERA IN LATIN AMERICA

While technology adoption can disrupt labor markets, it also creates opportunities in both tech and nontech sectors, driving demand for roles such as AI product managers, machine learning engineers, software developers, data analysts, and systems administrators. Though automation could potentially affect a significant number of jobs, the greater challenge lies in failing to invest in future industries, potentially missing out on creating new opportunities. Automation adoption could create new industries and jobs in new occupations, as well as broader opportunities.

The report concludes with a look at some paths the region could take to develop human capital and improve business competitiveness so that the workforce acquires new and needed skills for this time of automation and AI. The paths outlined have proved effective in other regions.

Human capital initiatives focus on four sets of actions to prepare the workforce, foster innovation, and ensure sustainable economic growth in an evolving technological landscape. First is the need to reskill and upskill the workforce, particularly in AI and emerging technologies. Second, to engage young people in Latin America and help them improve their skills, a range of initiatives including scholarships, apprenticeships, and internships could build a pipeline of skilled talent and address workforce gaps. Third, job-matching systems and platforms could help align the skills of the workforce with market needs. Finally, monitoring, advocacy, and policymaking could help develop and promote policies that foster technological innovation while addressing evolving needs of society.

Best practice examples include skilling programs in Ireland and Saudi Arabia. The Future Skills Training Initiative in Saudi Arabia targeted 55,000 trainees and supported the

employment of 25,000 individuals through more than 3,500 employment partners in its first edition, addressing the digital-skill gaps critical for a modern workforce.¹³ In Ireland, Skillnet Ireland provides funding for upskilling programs to enhance the competitiveness and productivity of businesses. In 2023, the program trained almost 100,000 people.

Examples of job-matching platforms include the House of Skills in the Netherlands, which has supported more than 1,000 individuals with coaching. More than 3,400 have built skills profiles, which help identify relevant career paths and improve workforce adaptability and supply and demand in the labor market. In the European Union, the Europass policy initiative receives about 20 million visits a year, helping individuals present personal information and document their skills, qualifications, and learning outcomes in a standardized format.

Some Latin American countries have also adopted initiatives, including Chile's *Talento Digital para Chile* (Digital Talent for Chile), a public-private initiative that aims to develop digital skills in the Chilean workforce.¹⁴ In Brazil, the One Million Opportunities initiative, led by UNICEF in partnership with more than 2,000 companies, likewise aims to create skilling opportunities for young people.¹⁵ Mexico has an employment portal, *Portal del Empleo*, that offers job-matching and career advice, while Argentina has a national initiative to provide free training in programming, software testing, and digital skills.¹⁶

Paths to improving business competitiveness include investing in digital infrastructure such as nationwide broadband networks, fostering innovation ecosystems and entrepreneurship; promoting innovation and investments through government incentives; and promoting

awareness and cultural adoption of technology. International best practice examples include a Polish digital innovation hub in Kraków and the US CHIPS and Science Act. Saudi Arabia's Vision 2030 initiative is another example that is reshaping the economy through significant investments in technology, tourism, renewable energy, and more,¹⁷ with a primary focus on creating jobs and opening opportunities for skilled professionals, particularly youth, both locally and globally. Foreign workers, who currently make up 75 percent of the Saudi workforce, remain integral to this strategy, fostering cross-pollination of talent and expertise. Combined with targeted investments in high-growth sectors, these efforts aim to stimulate innovation, diversify the economy, and accelerate sustainable growth.

To drive sustainable growth and innovation, Latin American countries could work together to address topics related to competitiveness and the future of work. Four pillars would underpin such efforts. First, regional collaboration would leverage the diversity of these nations, allowing economies to share resources, expertise, and infrastructure. Second, scalability and adaptability would ensure initiatives reach all corners of the region, from urban centers to rural areas, while remaining flexible enough to address local contexts and evolving needs. Third, sector specificity would focus efforts on industries with the greatest potential for impact, enabling efficient allocation of resources and faster results. Finally, public-private partnerships would bring together the innovation and agility of the private sector with the oversight and strategic vision of public entities, ensuring sustainable, inclusive, and effective outcomes.

13 "Future Skills Training Initiative," Saudipedia, accessed January 30, 2025, <https://saudipedia.com/en/article/1528/government-and-politics/education-and-training/future-skills-training-initiative.com>.

14 *Talento Digital para Chile* (Talento Digital para Chile), 2025. Retrieved from <https://talentodigitalparachile.cl/>.

15 "UNICEF's 1Mio initiative generates over 500,000 opportunities for youth in Brazil in four years," Generation Unlimited, August 22, 2024, <https://www.generationunlimited.org/stories/unicefs-1mio-initiative-generates-over-500000-opportunities-youth-brazil-four-years-0>.

16 *Se presentó Argentina Programa 4.0 con mayor alcance federal y oferta académica para generar empleo tecnológico* (Argentina Program 4.0 was presented, with greater federal scope and academic offerings to generate more technological employment), Gobierno de Argentina, October 12, 2022, <https://www.argentina.gob.ar/noticias/se-presento-argentina-programa-40-con-mayor-alcance-federal-y-oferta-academica-para-generar>.

17 *Vision 2030 Annual Report 2023*, Saudi Arabia, 2023. Retrieved from <https://www.vision2030.gov.sa/en/annual-reports>.



PRODUCTIVITY, TECHNOLOGY, AND THE FUTURE OF WORK IN THE GLOBAL NORTH AND SOUTH



THIS CHAPTER outlines the critical role of productivity in driving economic progress and describes how technologies can affect productivity and the labor market. It provides essential context for the analyses of Latin America and comparisons with the United States and Canada that are the heart of this research and the focus of chapter 2.

PRODUCTIVITY GROWTH HAS LOST MOMENTUM GLOBALLY

The world needs productivity growth today more than ever.¹ Higher productivity, as measured by real GDP per hour worked, means getting more from work and investments and raising living standards.² It can lead to higher wages, because workers produce more value in the same amount of time.³ For businesses, improving productivity increases their competitiveness and allows them to scale up

and create new jobs.⁴ Ultimately, all of these factors contribute to improved living standards and greater economic growth.

Global productivity has risen over the past 25 years, with median productivity growing approximately sixfold.⁵ This growth has helped economies become more efficient, leading to higher incomes and greater access to goods and services—all of which have contributed to a rise in living standards. However, momentum has slowed.

Since the 2008 global financial crisis, there has been a near-universal slowdown in productivity growth (Exhibit 1). For the Global North, which includes the US and Canada,⁶ productivity growth was 2.7 percent between 1997 and 2002, slowing to 2.2 percent in the period before the financial crisis from 2002 to 2007. It declined further to 1.2 percent during 2012-17 and remained stagnant at this level from 2017 to 2022.

¹ In this report, “productivity” refers to labor productivity.

² To measure labor productivity, the research uses real GDP at constant prices in 2022 at purchasing-power parity; regional labor productivity is calculated by dividing the aggregated real GDP of the countries within the regions by the aggregate hours worked in the respective countries. For details, see the methodology appendix.

³ Robert Z. Lawrence, *Recent Declines in Labor’s Share in US Income: A Preliminary Neoclassical Account*, NBER Working Paper 21296, 2015.

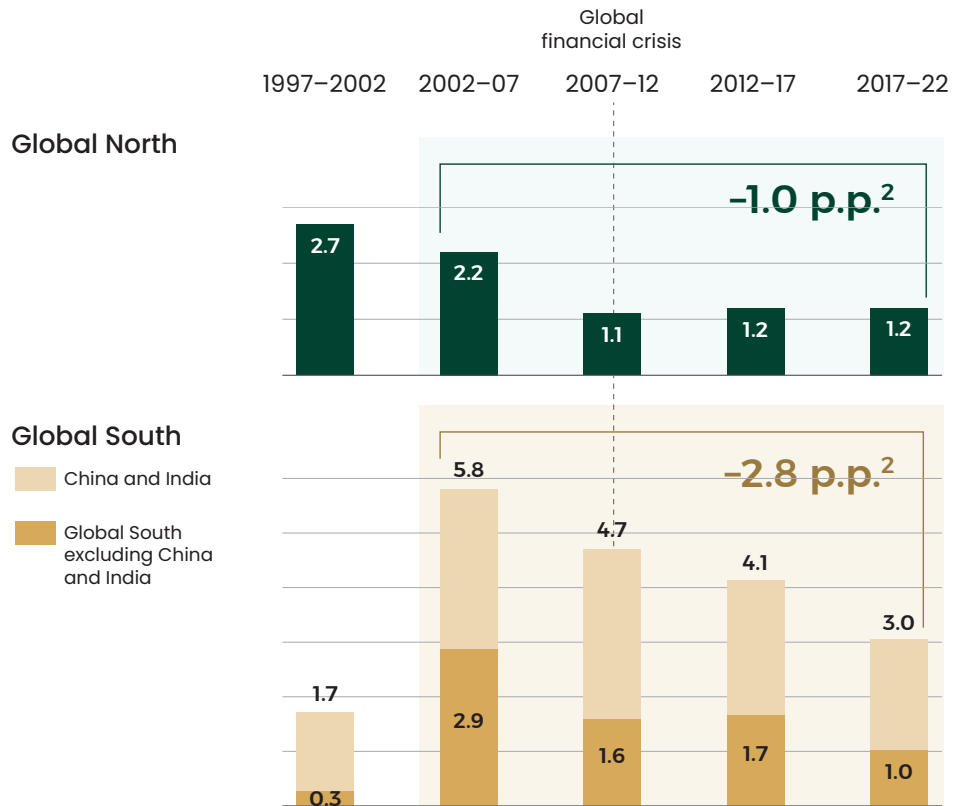
⁴ James Bessen, “Automation and jobs: When technology boosts employment,” *Economic Policy*, October 2019, Volume 34, Issue 100.

⁵ “Investing in productivity growth,” McKinsey Global Institute, March 27, 2024.

⁶ Out of a sample of 49 Global North countries from the Conference Board data set.

PRODUCTIVITY GROWTH IS FADING AND EXPERIENCING A NEAR-UNIVERSAL SLOWDOWN.

Productivity growth per hour, 2022 \$ adjusted for purchasing-power parity, weighted average per region, %¹



Note: According to UN Trade and Development (UNCTAD), the Global North broadly comprises Australia, Europe, Japan, New Zealand, North America, and South Korea, and the Global South broadly comprises Africa, Asia (excluding Japan and South Korea), Latin America and the Caribbean, and Oceania (excluding Australia and New Zealand).

¹ n = 125; excluding Democratic Republic of Congo, Iraq, Syria, Taiwan, Venezuela, and Yemen.

² Percentage points.

Source: Total Economy Database, "Output, labor and labor productivity," The Conference Board, 2023



In the Global South, where the 19 Latin American countries in this study are situated, productivity growth was 1.7 percent from 1997 to 2002 and then increased sharply to 5.8 percent before the financial crisis.⁷ It subsequently declined to 4.1 percent between 2012 and 2017 and to 3.0 percent between 2017 and 2022. China and India have consistently accounted for more than half of the Global South's productivity growth in the past two decades.

From 2002 to 2012, the Global South was on track to converge with the Global North in terms of productivity, but between 2017 and 2022, this trend reversed. Given the current pace of productivity growth, the Global South could take more than 80 years to catch up with the Global North's labor productivity levels—and if

India and China are excluded, convergence will never happen (Exhibit 2).⁸

THE GLOBAL NORTH FACES LABOR SHORTAGES, WHILE THE GLOBAL SOUTH STRUGGLES WITH LOW JOB CREATION

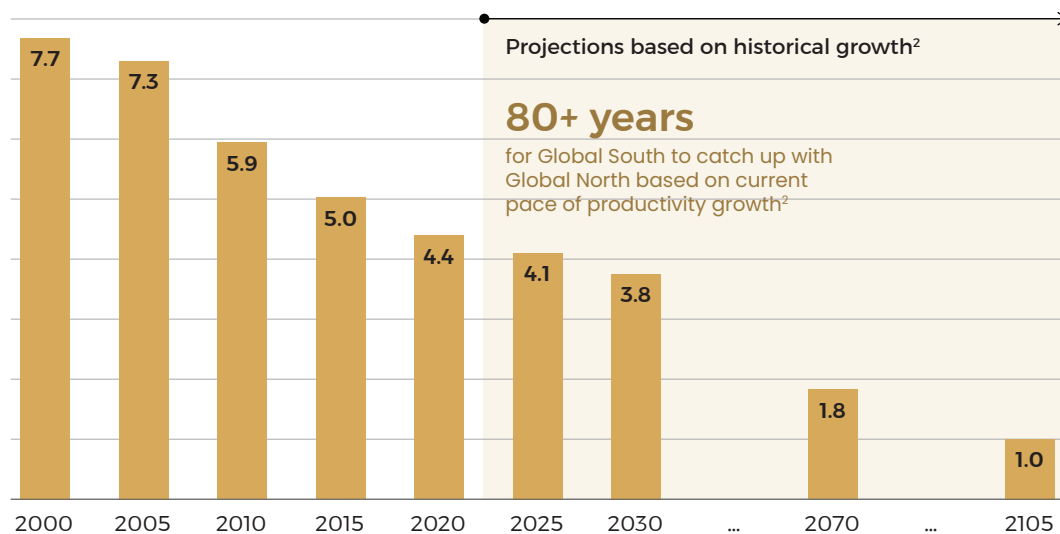
Labor markets are on very different trajectories in the Global North and South.

In the Global North, decelerating population growth and aging demographics are leading to labor shortages and a slow-growing workforce. By 2030, nearly half of the working-age population in Germany, Italy, Japan, and the United Kingdom will be over age 55, and almost one-third will be over 65.⁹

Exhibit 2

GIVEN THE CURRENT PACE OF LABOR PRODUCTIVITY GROWTH, IT COULD TAKE MORE THAN 80 YEARS FOR THE GLOBAL SOUTH TO CATCH UP WITH THE GLOBAL NORTH.

Labor productivity ratio of Global North to Global South¹



¹ Labor productivity is measured as the aggregate real GDP over the total hours worked in the given region at a specified year; the labor productivity ratio is calculated as labor productivity level in Global North divided by level in Global South.

² The projected growth is based on 5-year CAGR of productivity between 2017 and 2022.

Source: Total Economy Database, "Output, labor and labor productivity," The Conference Board, 2023



⁷ Out of the sample of 76 Global South economies from the Conference Board data set.

⁸ The projection is based on the historical annual average growth of the past five years.

⁹ Anu Madgavkar et al., "Help wanted: Charting the challenge of tight labor markets in advanced economies," McKinsey Global Institute, June 26, 2024.

While immigration could alleviate some of these pressures, it has not been sufficient to reverse the trend. For example, in Australia, Canada, Germany, the United Kingdom, and the United States, immigration levels would need to be 1.5 to 3.0 times higher than they are to compensate for the population decline since 2015.

These structural challenges are constraining economic development, making it difficult to meet labor demand. With fewer workers available, countries must find alternative ways

to sustain economic growth. In this context, accelerating productivity growth is essential.

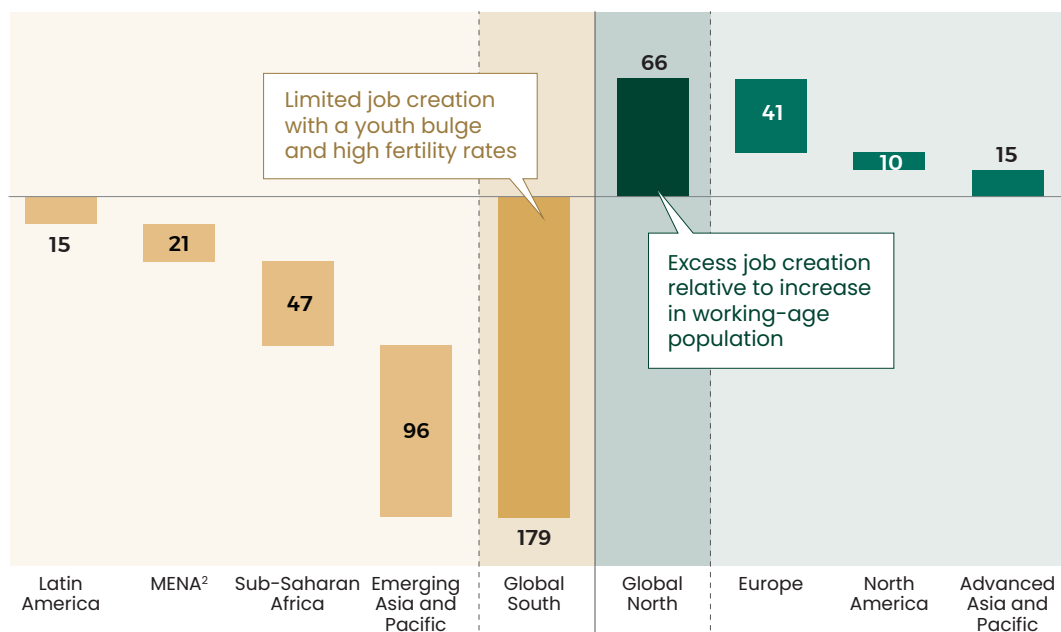
While labor supply in the Global North grew in the past decade, its pace slowed notably because of an aging population and lower immigration. A growing participation rate has partially compensated for that slowing pace.

In the Global South, by contrast, population growth has expanded the labor force, but job creation has not kept pace in many countries (Exhibit 3).

Exhibit 3

THE GLOBAL SOUTH IS UNABLE TO CREATE ENOUGH JOBS TO CATER TO ITS INCREASING WORKING-AGE POPULATION.

Difference between jobs created and increase in the working-age population, 2012–22,¹ million



¹ All regions are aggregated based on comparable country set with full records for both employment number and working-age population for 2012 and 2022. The exhibit considers 112 countries: 42 European countries, 17 Emerging Asia countries (including China and India), 17 sub-Saharan African countries, 15 Latin American countries, 14 Middle East and North Africa countries, 5 Advanced Asian and Pacific countries, and 2 North American countries.

² Middle East and North Africa.

Source: International Labour Organization; World Bank



Between 2012 and 2022, the Global South had 179 million too few jobs for the increasing working-age population, whereas the Global North had 66 million more jobs available than workers to fill them. Young people in the Global South are especially affected by insufficient job creation, with millions neither employed nor in education or training.

In this context, the Global South needs to identify new competitive edges to drive economic growth and job creation in the next decade and catch up with the Global North.

For several decades, as trade globalization spread, many Global South countries followed the classic development model in which jobs are created either by local entrepreneurs or by multinational corporations establishing local manufacturing to use lower-cost labor. However,

the globalization trend has slowed and even reversed as the world shifts focus to building local supply chains; the share of trade to GDP in the Global South declined by four percentage points in the decade from 2013 to 2023.¹⁰

Entrepreneurship, an important contributor to economic growth and job creation. While Latin America has some highly successful companies, it also has a long tail of smaller firms that are less productive, and in some respects, the region as a whole lags behind in innovation when compared with the United States. For example, only 11 percent of the 18- to 64-year-old population in Latin American countries are either nascent entrepreneurs or owners-managers of a new business, compared with 18 percent in North America, according to the Global Entrepreneurship Monitor.¹¹

¹⁰ Calculated by comparing the differences between the total export of goods and services and the aggregated GDP of the Global South in 2013 and 2023 from World Bank data.

¹¹ The Global Entrepreneurship Monitor Survey in 2023 covers 15 Latin American countries: Trinidad and Tobago, Costa Rica, Peru, Dominican Republic, Chile, Colombia, Uruguay, Bolivia, Paraguay, Guatemala, Jamaica, Ecuador, Argentina, Mexico, and Brazil.



TECHNOLOGICAL ADVANCES ARE TRANSFORMING GLOBAL LABOR MARKET DYNAMICS

Technology adoption could help drive future economic growth and job creation. Technology has always been a transformative force, from steam engines to assembly lines and, more recently, the digital revolution. Today, technological advances including automation and artificial intelligence are influencing global markets. These technologies present significant opportunities to boost growth and increase efficiency, but they also pose challenges that affect the Global North and South in different ways.

Technology is just one of several megatrends playing out in labor markets globally, but it's a critically important one for growth, productivity, and jobs. The creation of jobs in general—and high-productivity jobs in particular—requires deliberate policies that push for business creation and growth in more complex, export-oriented sectors. Specialization in such sectors allows countries to produce goods that are in demand globally. Productivity could be a critical tool to unlocking this export-driven growth.

The Global North faces limited risk of job displacement because its labor market is already tight, with a scarce supply of labor compared with available jobs. Indeed, accelerated deployment of technologies, together with appropriate reskilling efforts, could help ease the labor supply shortage while giving economies a competitive boost. The technologies would thus both complement workers and, to some extent, substitute for them.

In contrast, the Global South, with its slack labor markets and position as a technology follower, confronts a higher risk of job displacement because it already struggles to create enough jobs for its growing workforce. Businesses could continue to grow with additional labor input. However, this could inflate GDP without improving GDP per capita. Additionally, the lower productivity levels in the Global South heighten the risk of widening the competitiveness gap with the Global North (Exhibit 4). The Global South might be able to mitigate this risk, however, by leveraging the opportunity of reskilling its workforce, leveraging the rising demand of technological skills (such as basic digital skills and advanced IT skills) as well as social and emotional skills (such as leadership, advanced communication, and interpersonal skills).¹²

Exhibit 4 **THE TECH REVOLUTION PRESENTS POTENTIAL RISKS, AFFECTING THE GLOBAL NORTH AND GLOBAL SOUTH IN DIFFERENT WAYS.**

	Context		Potential risks of the tech revolution	
	Labor markets	Technology positioning	Job displacement	Loss of competitiveness
Global North	Tightness	Developer	● Limited risk due to labor market tightness	● Low risk due to higher productivity levels compared with the Global North, providing a buffer
Global South	Slackness	Follower	● Elevated risk due to significant challenges in job creation	● High risk due to significantly lower productivity levels compared with the Global North, making it harder to stay competitive

¹² "A new future of work: The race to deploy AI and raise skills in Europe and beyond," McKinsey Global Institute, May 2024.

Automation holds the promise of significant productivity gains in both the Global North and Global South; global productivity has the potential to increase by 2.8 percent annually between 2022 and 2030.¹³ These gains could be pivotal in driving economic growth and maintaining competitiveness, particularly in regions that fully embrace automation technologies. In the recent past, the internet revolution and the proliferation of personal computers enabled economies to develop some of the most successful businesses in the world and create millions of jobs. Today, the AI and automation revolution may give a similar boost to business and the economy, with AI adoption rates in Europe and the United States forecast to reach 25 to 30 percent by 2030.¹⁴ This shift would also change job demands from data collection and processing to more expertise-driven and human-centric tasks, as we describe in more detail in chapter 2.

In both North and South, the pace of adoption will depend on several factors, including the current level of wages, which defines the opportunity cost of automation. The potential productivity gains of accelerating technology adoption are striking. In a midpoint scenario, North America and Europe could boost productivity annually by 3.3 and 3.0 percent, respectively, in the next few years. In the Global South, productivity growth could be slower, with Latin America and the Caribbean, sub-Saharan Africa, the Middle East and North Africa (MENA), and emerging Asia and Pacific countries projected to experience productivity gains between 1.7 and 2.5 percent to 2030, in a midpoint automation adoption scenario.¹⁵ This is partly due to their lower wages, which reduce the incentive for firms to adopt advanced technologies.

Technological advancements tend to be slower in the Global South for two main reasons. First, resource constraints have limited the ability of most Global South countries to invest in new technologies. These capital investments often come with high fixed costs and require up-front financing, which many companies in the region struggle to secure. Second, the low cost of labor means that businesses have little incentive to adopt automation technologies. There are some notable exceptions: India and China, for example, have made significant strides in digitalization by investing in infrastructure, education, and innovation ecosystems. The International Monetary Fund's AI Preparedness Index scores sub-Saharan Africa at 0.34, Latin America at 0.43, MENA at 0.45, and Asia and Pacific at 0.52.

Broadly speaking, in a global economy, opportunities to create tech-related jobs will be contingent on winning the race to adoption. Being better and faster than other countries will give existing businesses and nascent industries a competitive edge that could enable them to create more job opportunities, especially high-value-added ones. Failing to do so could not only result in a failure to create new jobs but also force local companies to scale back and leave larger market shares to more efficient and tech-savvy foreign firms. This could widen the competitiveness gap between the Global North and South.

To be competitive, the Global South could address the digital divide and invest in skills development, although this will address only a portion of the labor market challenges. Businesses could also scale, grow, and create sufficient jobs to absorb the trained talent.

¹³ Based on 50 countries representing more than 80 percent of world employment. See “The economic potential of generative AI: The next productivity frontier,” McKinsey Global Institute, June 2023.

¹⁴ “A new future of work: The race to deploy AI and raise skills in Europe and beyond,” McKinsey Global Institute, May 2024.

¹⁵ Based on 50 countries representing over 80 percent of world employment. See “The economic potential of generative AI: The next productivity frontier,” McKinsey Global Institute, June 2023.



A TALE OF TWO AMERICAS: OPPORTUNITY IN A DISRUPTIVE ERA



TODAY, LATIN AMERICA IS EXPERIENCING

a spark in the digital economy and uptake in its entrepreneurial ecosystem. Further, it also has a relatively young workforce, with 96 million people aged 15–24, and key natural resources. However, these economic bright spots and the youth advantage have not scaled into widespread productivity growth, underscoring the need for improved workforce skills and the expansion of emerging digital and high-value-added sectors. Over the past 25 years, Latin America has faced widening economic disparities with its northern neighbors, the United States and Canada, as productivity and employment growth stagnate. Compounding this, Latin America's demographic advantage is waning, and the region has an economic structure focused on low-value sectors, slower workforce growth, and high levels of informality that undermine economic momentum. Technology adoption, R&D investment, and digital infrastructure remain underdeveloped compared with global leaders, while education systems fail to align with evolving market needs, leaving a skills gap in critical areas such as AI and emerging technologies.

Despite these challenges, automation and AI present transformative opportunities, with the potential to boost productivity. These technologies would also have a significant effect on the labor market, particularly young people, who would need to acquire new skills to adapt to changing business needs and be redeployed in high-value-add sectors.

This chapter delves into the economic disparities between the two Americas, with a detailed examination of 19 Latin American countries. Recognizing the diversity within the region, it analyzes Latin America not as a monolith but in segments, reflecting the varied economic, social, and cultural landscapes. A central theme of the report is the role of technology adoption in boosting productivity, balanced against its potential implications for the labor market.

Insights from American business executives and young people enrich the report, capturing

their perspectives on macroeconomic trends, technology adoption, the education ecosystem, skills development, and job preparedness.

The findings reveal striking parallels between the challenges and opportunities in Latin America and those faced by countries in the Middle East and North Africa. Both regions grapple with issues such as high levels of economic inactivity and lagging technology adoption.

ECONOMIC DISPARITY BETWEEN LATIN AMERICA AND THE US AND CANADA HAS WIDENED IN THE PAST 25 YEARS

To understand the gap that has opened up and continues to widen between Latin America and the US and Canada, it is necessary to look at the main drivers of economic growth—productivity growth and employment growth—along with the structure of Latin American economies. On all of these fronts, Latin America seems to be lagging behind: Its productivity has been declining, the demographic advantage it once had in terms of a growing labor force that could compensate for weak productivity is ebbing, and its economic structure is primarily focused on low-value sectors with limited development of high-value industries and service sectors such as financial and insurance services, information and communication, and professional, scientific, and technical activities.

The analysis of 19 Latin American economies, home to 600 million people¹⁶—approximately 1.5 times the population of the US and Canada—reveals a widening economic divide. In 2023, the combined GDP of the US and Canada was \$23.8 trillion, more than four times the GDP of Latin America (\$5.4 trillion). On a per-capita basis, the disparity is even sharper: \$63,600 in the US and Canada versus \$9,000 in Latin America—a gap that has grown from sixfold to more than sevenfold in the past decade.¹⁷ This underscores the persistent economic challenges facing Latin America despite its demographic scale.

¹⁶ The 19 are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, and Uruguay.

¹⁷ World Development Indicators, World Bank.



Productivity growth has fallen in Latin America, whereas it remained positive in the US and Canada despite losing momentum

Productivity drives economic growth by increasing output with the same resources, boosting GDP, competitiveness, and living standards. It enables businesses to raise wages, lower costs, and invest in innovation while improving profitability. For individuals, productivity fosters career growth, job satisfaction, and professional success. Societally, it ensures efficient resource use, supports sustainability, and strengthens resilience to crises. Productivity can be seen as a cornerstone of progress, creating more opportunities and improving quality of life for all.

However, Latin America's productivity growth has been the slowest globally, growing at an average of just 0.7 percent annually since 1998.¹⁸ Moreover, productivity turned negative, falling by 0.4 percent on average between 2018 and 2023 (Exhibit 5).¹⁹ In 2023, labor productivity per hour worked was \$23.50, on the basis of purchasing-power parity, which was about one-fourth of the \$90.70 level in the US and Canada.

Productivity in the US and Canada combined has grown more than two times faster over the past 25 years than in Latin America—and it has continued to grow by 1.1 percent per year in the past decade. However, there are significant variations between US and Canada as well.

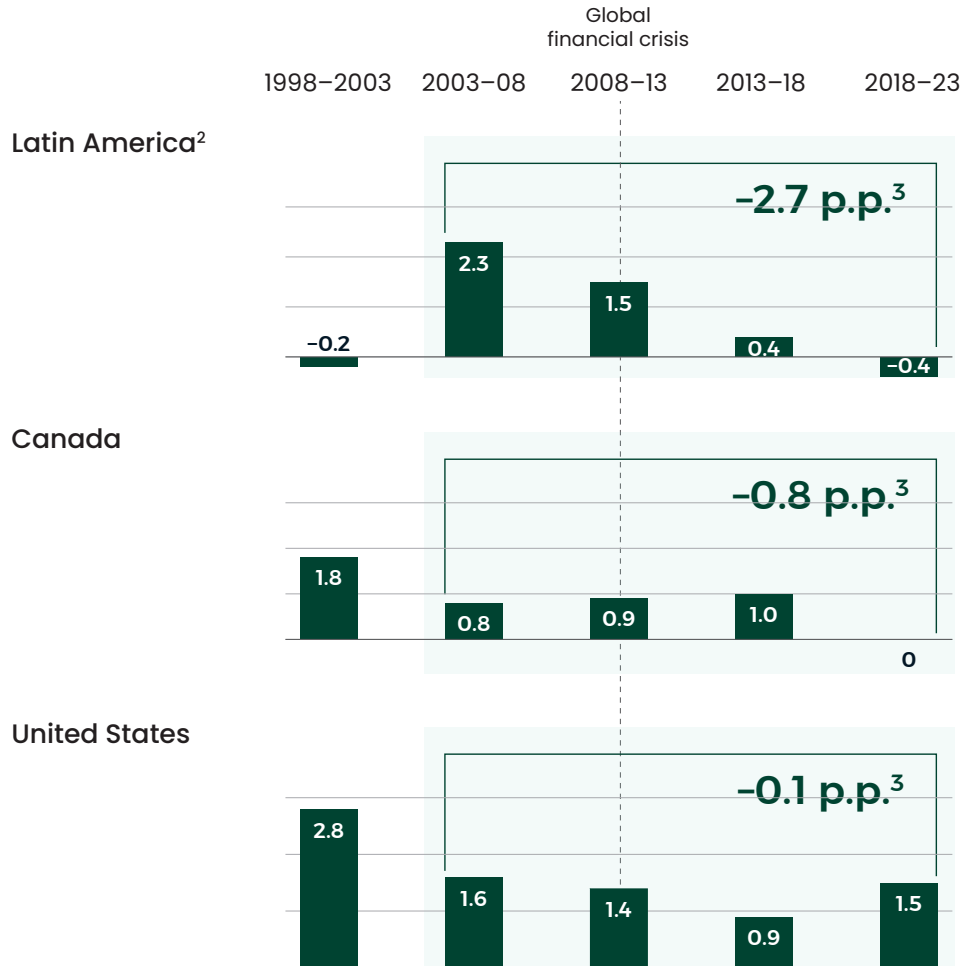
¹⁸ ILOSTAT Modeled Estimates database, International Labour Organization, 2024, <https://ilostat.ilo.org/data/>; Total Economy Database – Output, Labor and Labor Productivity, Conference Board, 2024.

¹⁹ Ibid.

Exhibit 5

PRODUCTIVITY GROWTH HAS BEEN FALLING IN LATIN AMERICA AND CANADA, WHEREAS IT HAS PICKED UP IN THE UNITED STATES IN THE PAST FIVE YEARS, ALTHOUGH IT REMAINS SLOWER THAN IN THE PAST.

Productivity growth per hour, %¹



¹ Measured by GDP per hour worked, 2022 international \$, purchasing-power parity.
² Based on 15 Latin American countries due to data availability: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Jamaica, Mexico, Paraguay, Peru, Trinidad and Tobago, and Uruguay. Weighted average for the region.
³ Percentage points.
 Source: Total Economy Database, "Output, labor and labor productivity," The Conference Board, 2024



Productivity grew by 2.8 and 1.8 percent per year in the US and Canada, respectively, between 1998 and 2003, but that growth declined to 1.6 percent and 0.8 from 2003 to 2008. In the decade between 2013 and 2023, US productivity grew by 1.2 percent annually, while Canada’s productivity grew by only 0.5 percent. That gap has widened in the past five years: The US has seen a surge in productivity, with annual average growth of 1.5 percent,

while Canada’s productivity growth slowed to 0.0 percent a year on average.

Labor productivity growth is driven by two main input factors: capital per worker (the amount of capital available per worker in an economy) and quality of human capital. In the case of Latin America, the data for capital per worker stands out. This has been the main driver of labor productivity per hour, reflecting the lack of human capital improvements in the

region: Between 1997 and 2019, Latin America was only able to enhance its capital stock per worker by 1.3 times, compared to 1.5 times in the US and Canada, which have a much higher base of both GDP and investments.²⁰

This productivity decline highlights significant gaps in investment, research, and innovation.

Investments are a cornerstone for economic growth, jobs, and wages. Over time, they lead to innovation and expanded markets, fostering sustained growth and better living standards.

The level of investments, represented by gross fixed capital formation, in Latin America is among the lowest globally, at about 19 percent of GDP, or about \$1 trillion in 2023.²¹ This has stayed relatively consistent for the past 10 years: in 2013, it represented close to 20 percent of Latin America's GDP. Notably, investments in high-productivity sectors such as information and communications technology (ICT) seem to be lacking. For example, Latin America increased its internet penetration from 10 percent two decades ago to over 75 percent today; however, it took the region nine additional years than the US and Canada—and six additional years than the EU—marking a missed opportunity during the early days of the internet. There is a risk of repeating this trends in the age of AI, with potentially similar consequences. By contrast, gross fixed capital formation has been higher

in the US and Canada, at 21.4 percent, and totaled \$5 trillion in 2023 in the US alone. These investments have been growing: in 2013, they represented 20.3 percent of GDP, 1.1 percentage points lower than today.

Middle-income economies often require higher levels of capital deepening and technology adoption to sustain growth than high-income economies such as the US and Canada, where productivity is primarily driven by innovation at the frontier. This distinction is highlighted in discussions about the “middle-income trap,” where countries struggle to transition to high-income status without significant advancements in technology and innovation.²²

Adoption of advanced technologies also appears to lag. The surveys conducted for this research, based on self-reporting, show that about 82 percent of businesses in the US say they already have adopted AI, whereas in Latin America, the proportion is less—approximately 74 percent (Exhibit 6). This trend continues with other advanced technologies. For example, only 46 percent of Latin American organizations are currently using cloud computing, compared with 60 percent in the US. Big data analytics follows with 33 percent in the US using it versus 27 percent in Latin America, and robotics with 26 percent in the US versus 21 percent in Latin America.

²⁰ Investment and Capital Stock Database, International Monetary Fund.

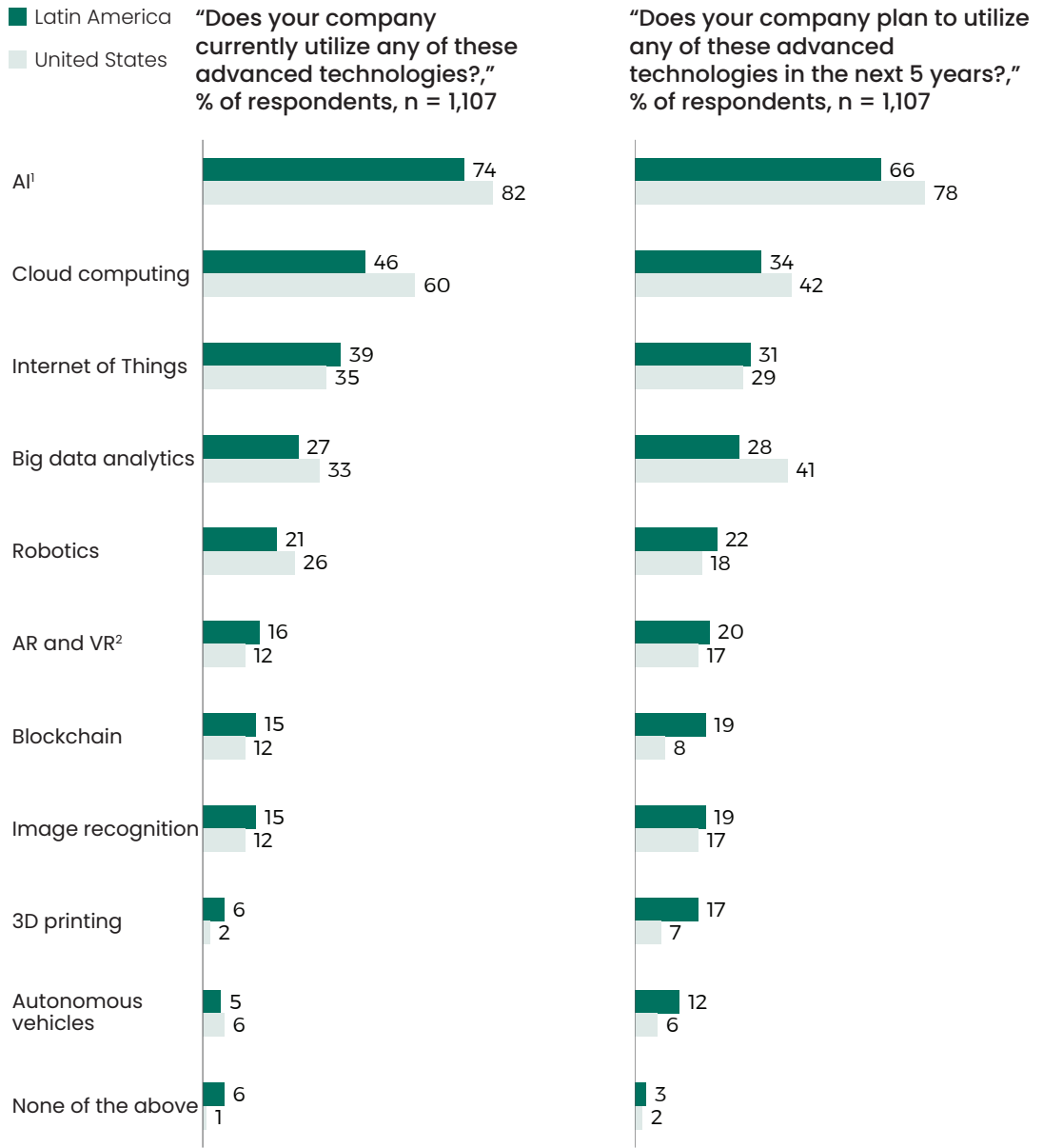
²¹ World Development Indicators, World Bank.

²² Martin Wolf, “Overcoming the ‘middle income’ trap,” *Financial Times*, September 10, 2024.



Exhibit 6

BUSINESS LEADERS IN LATIN AMERICA AND THE UNITED STATES ARE MOVING TO ADOPT AI TECHNOLOGIES AT DIFFERENT SPEEDS.



¹ AI numbers are the sum of total unique respondents to the AI and machine learning categories.
² Augmented reality and virtual reality.
 Source: Future of Work Report Survey 2025



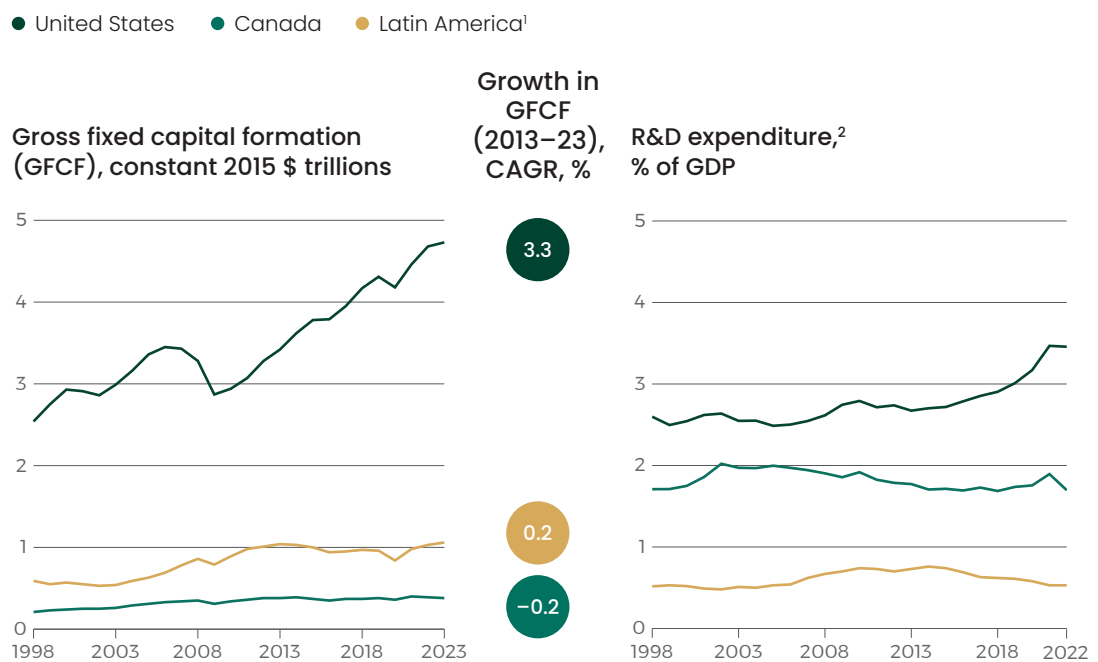
The focus on innovation and R&D investment points to another stark difference. Latin America spends 0.62 percent of GDP on R&D on a GDP base of \$5.4 trillion, whereas the US and Canada spend about 3 percent of GDP on R&D on a base of almost \$24 trillion (Exhibit 7). That is about five times the R&D investment rate of Latin America, and the level has remained largely unchanged in the past decade. This may be the result of a limited business environment that lacks the necessary conditions to accumulate physical, human, and knowledge capital because of the high cost of doing business, a lack of competition policies and frameworks, and a limited skilled workforce.²³ In 2023, capital expenditures in manufacturing of electrical and electronic products were about 19 times larger

in the US than in Brazil and Mexico, the two largest countries in Latin America, combined. Similarly, capital spending in the ICT sector was up to 37 times larger in the US than in Mexico and Brazil together.

In 2020, Latin America submitted 8,305 patent applications, a 31 percent increase compared to 2010, but this is approximately 30 times fewer than the patent applications submitted in the US and Canada, which totaled 274,038.²⁴ Finally, Latin American countries import about eight times more intellectual property than they export, the highest ratio of any region outside Africa.²⁵

These challenges are compounded by the need to better align education systems with the skills required for the future job market.

Exhibit 7 **PRODUCTIVITY GROWTH IN LATIN AMERICA HAS BEEN AFFECTED BY LOW LEVELS OF INVESTMENT IN CAPITAL FORMATION AND R&D.**



¹ Includes Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, and Uruguay.

² Latest data available is 2022.

Source: World Bank World Development Indicators



²³ "Competition: The Missing Ingredient for Growth?," *Latin America and the Caribbean Economic Review*, April 2024; World Bank.

²⁴ World Development Indicators, World Bank.

²⁵ "What could a new era mean for Latin America?," McKinsey Global Institute, July 20, 2023.

Approximately 70 percent of youth in Latin America and the US lack confidence in their education systems to adequately prepare them for future job opportunities, according to the survey. This sentiment is echoed by businesses, with 62 percent of Latin American companies and 67 percent of US businesses expressing a belief that universities fail to equip graduates with the skills required for the job market.

While Latin America has some successful large global companies, it only has about 1 percent of “superstar” firms (the top 10 percent of global companies, each with annual revenues over \$1 billion, which capture 80 percent of total economic profit among peers). That compares with about 38 percent in US and Canada.²⁶

Latin America’s demographic advantage is ebbing, which could put more pressure on economic growth

Latin America has partly compensated for its declining productivity performance over the past 25 years, including the decline in productivity in the past decade, because of its growing population and workforce. An estimated 80 percent of Latin America’s GDP growth between 2000 and 2023 was due to employment growth, and only 20 percent was attributable to productivity gains.²⁷

However, this demographic advantage now appears to be running out in some economies in Latin America. The region’s annual population growth of 0.8 percent in the past 10 years is markedly lower than in the previous 10 and 20 years, when the population increased by 1.1 percent and 1.5 percent,

respectively.²⁸ In addition, the region’s fast-growing youth population could give way to a pronounced older population: In the next 25 years, the number of people aged over 65 years in Latin America will more than double to almost 127 million, or more than 19 percent of the population, up from 10 percent in 2024 (Exhibit 8).²⁹ Some of the biggest countries in the region, such as Brazil and Colombia, have already lost their demographic advantage, with significant consequences for economic growth. As of 2024, the old-age dependency ratio stood at 15 (that is, the number of people aged 65 and over per every 100 working-age people). By 2050, this ratio will double to 30. This could potentially lead to high pressures in public finances because pension systems could be further stretched.³⁰

By comparison, the US and Canada’s combined population has grown at 0.7 percent in the past 10 years, lower than the 1.0 percent in both the previous 10 and 20 years. In the next 25 years, the number of people aged over 65 will grow by 1.4 times to approximately 100 million, or almost 23 percent of the population, up from 18 percent in 2024.

This overall slowing of population growth is feeding through to the workforce: Since 2000, the working-age population has grown at less than 2 percent per year, compared to 2.3 percent growth annually between 1990 and 2000.³¹ Further, according to UN projections, the working-age population is projected to start shrinking by 2042, declining by about 0.2 percent annually until 2050.³²

²⁶ Data from 2018. See “Superstars: The dynamics of firms, sectors, and cities leading the global economy,” McKinsey Global Institute, October 2018.

²⁷ Total Economy Database – Output, Labor and Labor Productivity, Conference Board, 2024

²⁸ “World Population Prospects 2024,” United Nations Department of Economic and Social Affairs, Population Division, 2024.

²⁹ Ibid.

³⁰ “Dependency and depopulation? Confronting the consequences of a new demographic reality,” McKinsey Global Institute, 2025.

³¹ “World Population Prospects 2024,” United Nations Department of Economic and Social Affairs, Population Division, 2024.

³² Ibid.

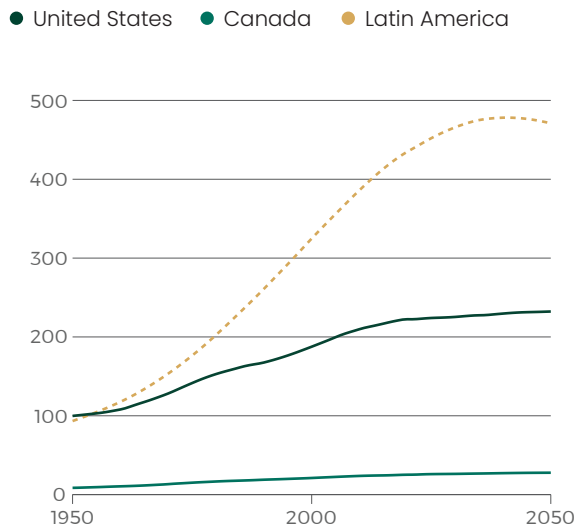
According to recent research from the McKinsey Global Institute, the historical increase in working-age population as a share of total population has added an average of 0.5 percent to GDP per capita over the past quarter

century, but its contribution could fall to zero over the next 25 years. For example, because of the changing age mix, Mexico's real GDP per capita in 2050 could be \$2,600 less than what it would be without the shift.³³

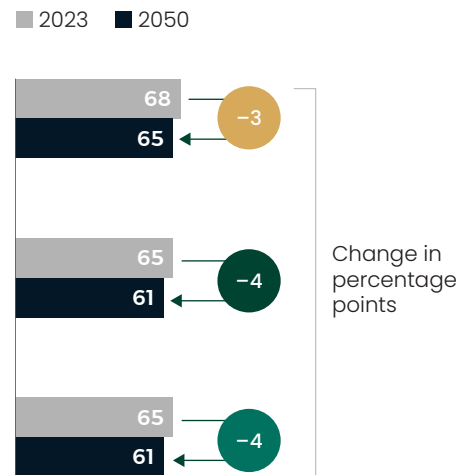
Exhibit 8

LATIN AMERICA'S YOUTHFUL EDGE IS FADING, WITH GROWTH IN WORKING-AGE POPULATION SLOWING SINCE 2000 AND PROJECTED TO DECLINE AFTER 2040.

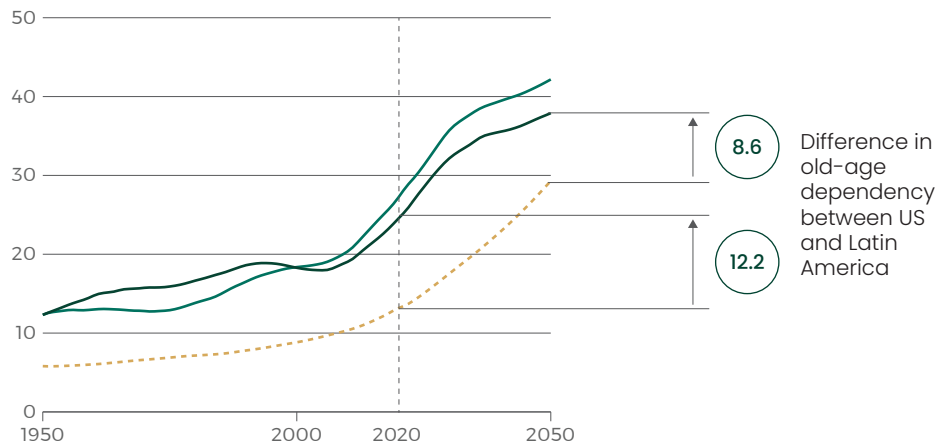
Working-age population, millions



Proportion of total population that is of working age, %



Old-age dependency ratio,¹ number per 100 working-age people



¹ Ratio of people aged 65 or over to every 100 people of working age (ie, 15-64). Based on the definition provided by the UN Department of Economic and Social Affairs. Source: UN World Population Prospects 2024, medium projection



³³ "Dependency and depopulation? Confronting the consequences of a new demographic reality," McKinsey Global Institute, 2025.

Other significant labor trends that may be holding back Latin America or explain the gaps with the US and Canada include the following:

Work in the informal economy. One of the biggest labor issues in Latin America is the sizable number of workers in the informal, or underground economy. The International Labour Organization (ILO) defines informal employment as “working arrangements that are in practice or by law not subject to national labor legislation, income taxation, or entitlement to social protection or other employment guarantees; for example, advance notice of dismissal, severance pay or paid annual or sick leave.” Estimates vary, but about half of the employed population is estimated to work informally, either all or some of the time.³⁴ This contributes to lower income levels, primarily in sectors such as agriculture and construction. In contrast, the US and Canada have an informal employment rate of about 8.8 percent, according to ILO data.³⁵

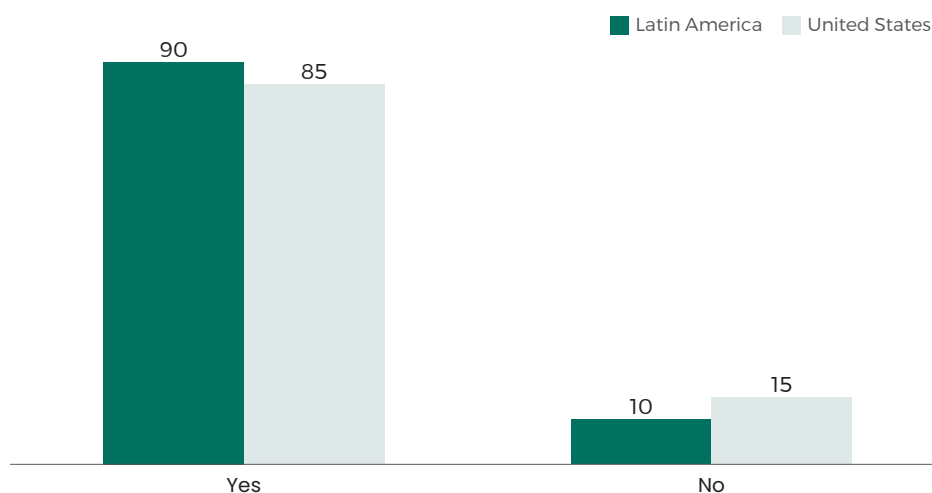
This structural issue is compounded by gaps in the education-to-employment pipeline. The youth survey for this research found that 90 percent of youth in Latin America and 85 percent in North America reported significant mismatches between what employers demand and what they learned in school (Exhibit 9). Moreover, 73 percent of Latin American youth and 65 percent of their North American peers feel that universities underemphasize critical technology skills, potentially leaving them ill prepared for modern job markets. Nearly a quarter (22 percent) of Latin American youth feel they lack access to competitive and attractive job opportunities altogether. These gaps not only exacerbate the prevalence of informal work but also hinder broader economic advancement.

Informal firms are, on average, less productive than formal ones because they tend to employ more low-skilled workers; have more restricted access to funding, services, and markets; and

Exhibit 9

THROUGHOUT LATIN AMERICA AND THE UNITED STATES, YOUNG INDIVIDUALS PERCEIVE A GAP BETWEEN THE SKILLS THEY ACQUIRE IN SCHOOL AND THOSE DEMANDED BY EMPLOYERS.

“Do you believe there’s a gap between what companies demand and what schools teach?,”
% of respondents, n = 706



Source: Future of Work Report Survey 2025



³⁴ ILO data base on proportion of informal employment by total employment, accessed January 13, 2025.

³⁵ Ibid.

lack economies of scale. Informal workers tend to be paid less than formal workers, in part because they are lower-skilled. Female and young workers make up a disproportionate share of workers in the informal sector.³⁶

In Latin America, the creation of formal jobs in large, productive, formal firms has possibly been hindered by a lack of conditions in which business and investment can thrive. For example, the World Bank's Business Entry metric measures the process of registration and start of operations of new limited liability companies across three different dimensions: quality of regulations for business entry, availability of digital public services and transparency of information for business entry, and time and costs required to register new domestic and foreign firms. Latin American economies such as Costa Rica and Mexico are far behind fast-growing economies such as Singapore and Hong Kong. Costa Rica and Mexico score 71 and 61, respectively, on this index, whereas these Asian economies score 94 and 85, respectively.³⁷ This provides insight into how business registration and availability of digital services in the region can get in the way of firms as they seek to form, formalize, and grow. It is important for younger firms to be able to thrive because they are the main agents of capital investment, technical adoption, and building human capital. They also have a role in pulling informal workers into higher productivity jobs.

Unemployment and underemployment.

Since 2013, the region's working-age population has increased by 42 million people, but only 32 million jobs have been added.³⁸ Unemployment rates have fallen but remain relatively higher than in the US and Canada and some other regions. Currently, 6 percent of the labor force

is without work, down from about 10 percent in 2020 but still above the 4 percent rate in the US and Canada. Further, 7 percent of workforce members are underemployed, meaning that they would like to work more hours or worked fewer than a threshold of working hours. In contrast, less than 1 percent of people in the US and Canada are underemployed.³⁹

Insights from the youth survey reveal worker preferences that reflect the evolving nature of labor markets. Flexible hours are working style of choice for 52 percent of Latin American respondents and 55 percent of those in the US and Canada, while 37 percent in Latin America and 33 percent in the US and Canada prefer a traditional nine-to-five schedule. Conversely, only 14 percent in both regions favor juggling multiple part-time jobs, underscoring a clear preference for stability combined with adaptability.

Women in the workplace. The female participation rate in Latin America, at 58 percent of the female working-age population, has increased by six percentage points over the past 20 years, following a global trend of more women in the workforce. Nonetheless, it remains 12 percentage points lower than the female participation rate in the US and Canada.⁴⁰ This could be attributed to cultural barriers in some parts of the region.

Even when women enter the workforce, significant gaps remain, especially in access to critical skills. A notable gender gap exists in tech training, with young women in the survey reporting less university preparation than their male counterparts. In Latin America, only 38 percent of women feel adequately trained in tech skills, compared with 51 percent of men. This disparity is mirrored in North America, where 38 percent of women feel sufficiently trained

³⁶ Franziska Ohnsorge and Shu Yu (eds.), *The Long Shadow of Informality: Challenges and Policies*, World Bank, 2022.

³⁷ *Business Ready*, World Bank. 2024.

³⁸ "World Population Prospects 2024," United Nations Department of Economic and Social Affairs, Population Division, 2024; World Development Indicators, World Bank.

³⁹ ILOSTAT modeled estimates database, International Labour Organization, 2024. ILO defines underemployment as "Persons in time-related underemployment comprise all persons in employment, who satisfy the following three criteria during the reference period: a) are willing to work additional hours; b) are available to work additional hours, that is, are ready, within a specified subsequent period, to work additional hours, given opportunities for additional work; and c) worked less than a threshold relating to working time, that is, persons whose hours actually worked in all jobs during the reference period were below a threshold, to be chosen according to national circumstances."

⁴⁰ World Development Indicators, World Bank.

versus 49 percent of men. This gap is further exacerbated by employer-provided training opportunities. When asked about access to tech skill development in their jobs, 18 percent of male employees in Latin America and 13 percent in the US and Canada reported receiving no training. Among women, these numbers rose to 28 percent and 37 percent, respectively.

Education and skills. Latin America's workforce lags behind that of the US and Canada in several skill and quality measures. The World Bank puts the region's average harmonized test score at 412, compared with 523 in the US and Canada.⁴¹ The Human Capital Index for Latin America was 0.56 in 2020, while the US and Canada scored 0.75.⁴² The region has some respected universities in countries such as Brazil and Chile, and 130 are listed on the Times Higher Education list of top global universities, although none are in the top 100. In contrast, the US and Canada collectively have about 200 universities on the Times Higher Education list, with 40 in the top 100.⁴³ The region also has developed fewer viable non-university tracks—such as technical and vocational schools and community colleges, which provide practical skills and workforce-ready training—thus exacerbating the challenges even further.

Moreover, Latin America faces issues with educational attainment and enrollment in advanced education. In Latin America, school

enrollment in tertiary education is at 58 percent of the total population of the corresponding age group, whereas the US and Canada have an enrollment ratio close to 20 percentage points above that, at 79 and 77 percent, respectively. This goes in hand with secondary education attainment: Only 52 percent of Latin Americans aged 25 and over have completed upper secondary education, far below rates in the United States (90 percent) and Canada (95 percent).⁴⁴

The findings of the surveys also suggest that workforce preparedness remains a concern in the Americas: 67 percent of executives in Latin America and 60 percent in the US report that educated youth lack adequate training in tech-related skills. Advanced IT and programming are the most critical skills for university students to acquire, according to 52 percent of respondents in Latin America and 60 percent in the US (Exhibit 10). Similarly, the youth survey suggests an urgent need for better alignment between education and job market demands, with 52 percent of youth in Latin America, and a similar percentage in the US, feeling unprepared for employment after university. A significant majority—90 percent in Latin America and 85 percent in the US—perceive a mismatch between what schools teach and what employers require, suggesting the necessity for curriculum reform and skills-focused training.

⁴¹ Ibid. Harmonized test scores include the results of major international student achievement testing programs such as the OECD's PISA program and the TIMSS and PIRLS surveys by the International Association for the Evaluation of Educational Achievement.

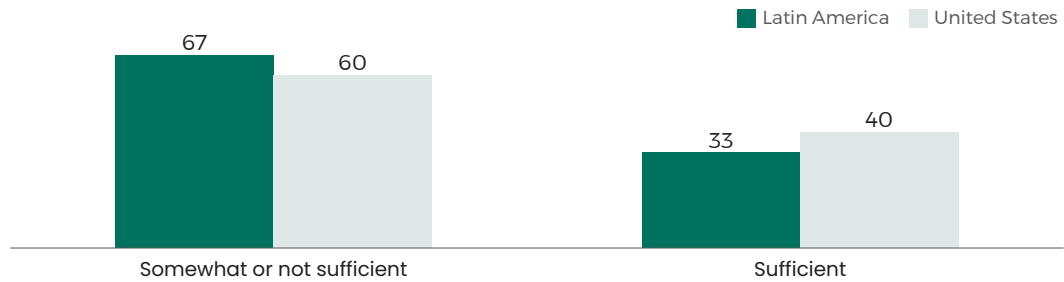
⁴² World Development Indicators, World Bank. The Human Capital Index measures the amount of human capital that a child born today can expect to attain by age 18, given the risks of poor health and poor education that prevail in the country where they live. It is designed to highlight how improvements in current health and education outcomes shape the productivity of the next generation of workers, assuming that children born today experience over the next 18 years the educational opportunities and health risks that children in this age range currently face.

⁴³ "World University Rankings," Times Higher Education, 2023.

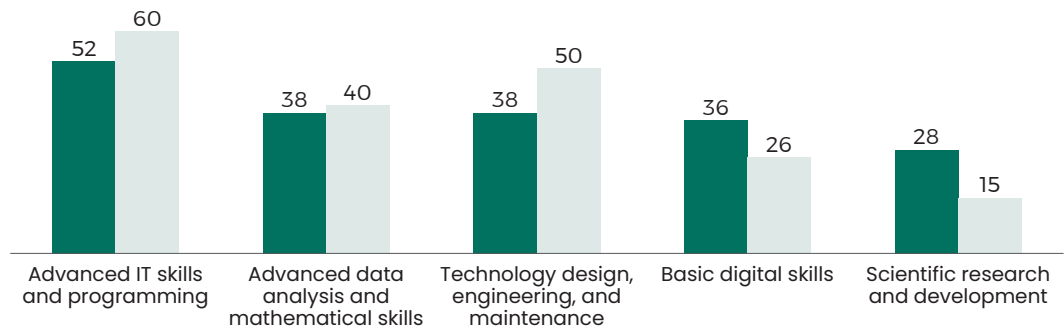
⁴⁴ World Development Indicators, World Bank; UNESCO Institute for Statistics. Upper secondary education are programs designed to complete secondary education in preparation for tertiary education or provide skills relevant to employment, or both.

BUSINESS LEADERS IN LATIN AMERICA AND THE UNITED STATES SEE GAPS IN THE TECHNOLOGY SKILLS OF YOUNG INDIVIDUALS.

“Do you think the educated youth has sufficient training in technology-related skills?,” % of respondents, n = 1,107



“What are the top technology skills youth needs to learn in schools and colleges and universities?,” % of respondents, n = 1,107



Source: Future of Work Report Survey 2025



Latin America’s economy is characterized by low-value-add sectors and natural resources, with less focus on industrial and service sectors

Latin America relies disproportionately on sectors with low added value. For example, agriculture employs 14.0 percent of the workforce but contributes only 6.8 percent of GDP. By contrast, in the US and Canada, agriculture employs only about 1.7 percent of the workforce and generates about 1.0 percent of GDP.⁴⁵ Similarly, in the United States, industries such as financial and insurance services, information and communication, and professional, scientific, and technical activities account for almost 15 percent of

total employment, compared with just over 6 percent in Latin America. This significant gap highlights the underrepresentation in Latin America of sectors that are critical for spurring economic growth and innovation.

There are pockets of variation across Latin American countries: Brazil, for example, has a highly developed industrial agricultural sector that is more efficient and productive than smallholder farms in some other Latin American countries.⁴⁶ Copper and silver mining in Peru, likewise, is more productive than some other mineral resources in other neighboring countries.⁴⁷ Nonetheless, overall, Latin American countries tend to over-rely on natural resource

⁴⁵ Comparative Industry Service Rev.4, S&P. International Labour Organization. (2024). ILOSTAT Modeled Estimates Database, International Labour Organization, 2024.

⁴⁶ Mikael Djanian and Nelson Ferreira, “Why Brazilian farmers are doubling down on productivity,” McKinsey, January 8, 2025.

⁴⁷ “In pursuit of productivity: How Minsur mined a rich seam of operational excellence,” McKinsey, December 10, 2024.

endowments, which can result in a workforce with limited skills and an unstable economy prone to volatility.

A key to raising productivity and prosperity in the region lies in economic diversification. Some countries have already led the way, including Mexico. In 1990, mineral fuels represented about 40 percent of the country's total exports, according to UN Comtrade data. By 2023, that share had shrunk to less than 5 percent of total exports because the country had shifted to a more industrialized structure, becoming a leading exporter of products higher in the value chain including manufacturing vehicles and electrical machinery.⁴⁸

Overall, the business landscape in Latin America is contrasting. On the one hand, it has some highly productive companies that have successfully expanded from their strong local base to become global companies or “multilatinas”—regional powerhouses operating across Latin America. They include America Movil, Arcor, Bimbo, CEMEX, and FEMSA. Compared with large firms in other regions, such companies are fewer in number and less diversified beyond energy, materials, and utilities. On the other hand, Latin America also has a long tail of small, often informal companies that collectively provide large-scale employment, and, with the right support, have the potential to boost productivity and drive economic growth. Missing is a cohort of vibrant midsize companies that could bring dynamism and competitive pressure to expand the number of productive and well-paying jobs in Latin America, much as these firms do in many high-performing emerging regions.

McKinsey research identified barriers to finance, a challenging regulatory environment, and insufficient competitive dynamism as the main factors hindering the development of midsize enterprises and a burgeoning middle class, which are crucial for sustainable economic growth and broad-based prosperity in the region. The research shows that such factors apply across the three largest economies in the region: Brazil, Colombia, and Mexico.⁴⁹

LATIN AMERICA IS NOT A MONOLITH, AND COUNTRIES VARY IN THEIR ECONOMIC, DEMOGRAPHIC, AND SOCIAL DYNAMICS

Latin America's economies vary widely in strengths and challenges, with some emerging as regional leaders in productivity, innovation, and tech adoption, while others have room to accelerate. By building on shared strengths and adapting successful models, the entire region can drive sustainable growth and enhance its global competitiveness.

A closer look at the 19 countries in the research sample suggests that they can be classified into three distinct segments: “leading” economies, “decelerating” economies, and “challenged” economies.

This segmentation was based on an analysis of each country through four lenses that collectively provide a view of readiness for a more automated future of work: human capital (and youth-oriented human capital), political and social stability, productivity and attractiveness, and tech preparedness (Exhibit 11).⁵⁰

⁴⁸ UN Comtrade database.

⁴⁹ See “Latin America's missing middle of midsize firms and middle-class spending power,” McKinsey Global Institute, May 13, 2019.

⁵⁰ See technical appendix for details on the methodology.

LATIN AMERICAN COUNTRIES VARY WIDELY IN THEIR ECONOMIC, DEMOGRAPHIC, AND SOCIAL DYNAMICS.

Better  Worse		Leading economies ¹	Decelerating economies ²	Challenged economies ³
Human capital	Labor force participation rate, 2023, %	68.4	70.1	65.9
	Informal employment rate, 2023, %	45.0	66.0	70.0
	Share of youth NEET, ⁴ 2023, %	19.4	18.6	25.7
Political and social stability	Political stability index, 2023, score	0.1	-0.1	-0.2
	Population below societal poverty line, ⁵ 2022, %	24.9	26.3	29.4
	GDP per capita, 2023, constant 2015 \$ thousands	9.7	8.1	3.2
Productivity and attractiveness	Output per hour worked, 2023, international 2021 \$	22.0	19.1	9.2
	Gross fixed capital formation, 2023, constant 2015 \$ billions	847.0	197.1	19.2
	Foreign direct investment net inflows, 2018-23 average, % of GDP	3.2	1.8	3.1
Tech preparedness	R&D expenditure, 2022, % of GDP	0.7	0.4	0.1
	AI Preparedness Index, ⁶ 2023, score	0.52	0.43	0.37
	Individuals using the internet, 2022, % of total population	78.7	74.8	54.9

¹ Includes Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Mexico, Panama, and Uruguay.

² Includes Argentina, Bolivia, Ecuador, Guatemala, Paraguay, Peru, and Trinidad and Tobago.

³ Includes El Salvador, Honduras, Jamaica, and Nicaragua.

⁴ NEET = "Not in employment, education, or training." Youth is defined as individuals between the ages of 15 and 24.

⁵ The societal poverty line is expressed in purchasing power-adjusted 2017 \$ and is defined as max(\$215, \$115 + 0.5*Median). This means that when the national median is sufficiently low, the societal poverty line is equivalent to the extreme poverty line (\$215). For countries with a sufficiently high national median, the societal poverty line grows as countries' median income grows.

⁶ Simple average by country in each segment.

Source: International Labour Organization; International Monetary Fund; The Conference Board Total Economy Database; World Bank



Leading economies are Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Mexico, Panama, and Uruguay. Brazil, Colombia, and Mexico are among the region's largest economies. They are growing relatively slowly but make a significant contribution to the overall region and have robust foundations for implementing new technologies. Smaller nations in this group—including Chile, Costa Rica, Dominican Republic, Panama, and Uruguay—have sustained economic growth through investment and stable political environments, although the growth levels are below those of other emerging regions in the world, notably in Asia. Together, these countries represent 73 percent of the region's total population, with 437 million people. Their combined GDP in 2023 was \$4.2 trillion (in constant 2015 US dollars). GDP per capita amounts to \$9,700.⁵¹ The GDP of this segment has grown by 2.3 percent over the past 25 years on average and 1.2 percent in the past decade.⁵²

These economies have overall labor productivity of \$22 per hour, on a purchasing-power-parity basis. Panama leads this group with a productivity rate of \$42 per hour worked, followed by Uruguay (\$37) and Chile (\$33). These rates are still well below those of the United States and Canada.

Their productivity growth is also positive across most economies—unlike the region as a whole. Over the five years from 2018 to 2023, Costa Rica has been the top-performing economy among these leading economies, with productivity growth of 3.1 percent on average, followed by Panama (2.7 percent) and Dominican Republic (2.1 percent).⁵³ Costa Rica and Dominican Republic have attracted foreign

direct investment in recent years, boosting their productivity growth.⁵⁴ Panama's productivity growth has stayed positive over the past two decades on the back of unique contributing factors, including its strategic location and the role of the Panama Canal in global logistics and trade. By comparison, the United States had productivity growth of 1.5 percent in the past five years.⁵⁵

The largest economies in this grouping, including Brazil and Mexico, have had a different productivity growth trajectory. Brazil's productivity has grown at just 0.1 percent yearly; the Development Bank of Latin America cites low competitiveness in high-value supply chains and low innovation as factors in this relatively weak growth.⁵⁶ In Mexico, productivity has declined by 0.9 percent in this period, surrounded by challenges including limited investment in technology and low quality of education.

The working-age population, as a share of total population, in economies including Brazil, Chile, and Colombia has already peaked and is now falling. Mexico could reach this tipping point within a decade.⁵⁷

These countries share additional relevant characteristics, including the following:

Informal employment. Informal employment rates among these leading economies are well below the average for the region; at the segment level, 45 percent of workers are in the informal economy (approximately 90 million people). From a country-level perspective, estimated rates are 27 percent for Chile and Costa Rica, and 32 percent for Uruguay.⁵⁸ Looking at specific sectors, agriculture and construction are the top contributors to the informal sector. In Brazil, for

⁵¹ World Development Indicators, World Bank.

⁵² Ibid.

⁵³ ILOSTAT Modeled Estimates Database, International Labour Organization, 2024; Total Economy Database – Output, Labor and Labor Productivity, Conference Board, 2024.

⁵⁴ “Foreign Direct Investment in Latin America and the Caribbean Rose by 55.2% in 2022, Reaching a Historic High,” ECLAC – United Nations, July 10, 2023.

⁵⁵ ILOSTAT Modeled Estimates Database, International Labour Organization, 2024; Total Economy Database – Output, Labor and Labor Productivity, Conference Board, 2024.

⁵⁶ *Nota de Productividad Brasil El desafío de aumentar la productividad de la economía brasileña* (Brazil Productivity Note: The challenge of increasing the productivity of the Brazilian economy), CAF Development Bank of Latin America and the Caribbean, April 29, 2022.

⁵⁷ “World Population Prospects 2024,” United Nations Department of Economic and Social Affairs, Population Division, 2024.

⁵⁸ ILOSTAT Modeled Estimates Database, International Labour Organization, 2024.

example, where the informal employment rate is about 37 percent, the informal sector accounts for about three in four agriculture workers and two in three construction workers, according to estimates by the International Labour Organization and national household surveys.⁵⁹ The relatively lower rates in these countries may reflect the large proportion of advanced-degree holders, who prefer formal employment. Youth survey respondents in leading economies were less likely to cite limited job opportunities as a challenge in finding employment (44 percent) than their counterparts in decelerating economies (more than 51 percent).

Education and skills. The leading economies have the most-educated talent in the region. A significant portion of workers—just over one in five—have obtained an advanced education, and in Chile and Colombia, more than one-quarter have.⁶⁰ Brazil alone has 62 universities among the top 1,800 globally.⁶¹ By comparison, more than half of the workforce in the US and more than 70 percent in Canada have advanced education.⁶² Survey results show that 86 percent of youth in these leading Latin American economies feel confident they are acquiring or have acquired the skills necessary to succeed in their future careers.

Political stability. According to the World Development Indicators from the World Bank, which measure political stability and the likelihood of politically motivated violence, the countries in this segment are relatively stable politically compared with others in the region. With an average political stability index of 0.14

(improved from 0.06 in 2015),⁶³ they are suitable for employment and investment. Uruguay (1.10) and Costa Rica (0.95) lead in stability scores, thanks to their steady economic growth and the overall economic stability and strength of their institutions.

Decelerating economies comprise Argentina, Bolivia, Ecuador, Guatemala, Paraguay, Peru, and Trinidad and Tobago. They have experienced a slowdown in growth in the past decade, in part because of political instability and the related lack of investment growth. These countries represent 23 percent of the region's total population, with approximately 136 million people.⁶⁴ Their combined GDP in 2023 is \$1.1 trillion with a GDP per capita of about \$8,200.⁶⁵ The GDP of this segment has grown by 0.9 percent annually on average over the past decade, significantly lower than the 2.3 percent growth rate over the past 25 years.⁶⁶

Their labor productivity is \$19.1 per hour, on purchasing-power-parity basis, which is about 1.2 times lower than the average of the region's leading economies. Argentina leads this segment with \$32 per hour worked, but Bolivia falls significantly behind, with productivity below \$10 per hour.⁶⁷ Productivity has declined by 0.6 percent annually in the past decade, with Argentina and Bolivia experiencing the steepest declines at -2.1 percent and -1.3 percent, respectively.⁶⁸

Guatemala, also classified as a decelerating economy, has a GDP per capita of roughly \$4,500 in real dollars.⁶⁹ While challenges remain, the country has demonstrated resilience, achieving

⁵⁹ Ibid.

⁶⁰ The International Standard Classification of Education defines advanced education as short-cycle tertiary education, a bachelor's degree or equivalent education level, a master's degree or equivalent, or a doctoral degree or equivalent.

⁶¹ "World University Rankings," Times Higher Education, 2023.

⁶² ILOSTAT Modeled Estimates Database, International Labour Organization, 2024.

⁶³ World Development Indicators, World Bank. The index measures perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution—that is, ranging from approximately -2.5 to 2.5.

⁶⁴ "World Population Prospects 2024," United Nations Department of Economic and Social Affairs, Population Division, 2024.

⁶⁵ World Development Indicators, World Bank.

⁶⁶ Ibid.

⁶⁷ ILOSTAT Modeled Estimates Database, International Labour Organization, 2024; Total Economy Database – Output, Labor and Labor Productivity, Conference Board, 2024.

⁶⁸ Ibid.

⁶⁹ Constant 2015 US dollars. World Development Indicators, World Bank.

3.6 percent and 0.7 percent annual growth in GDP and productivity respectively, over the past five years.⁷⁰ With the right investments, Guatemala has significant potential to accelerate its economic trajectory.

Informal employment. For this segment of countries, the informal employment rate is estimated to be as high as 66 percent (equivalent to approximately 42 million people), 1.5 times higher than that of the leading economies.⁷¹ Bolivia's informal economy is even higher, above 80 percent, given that its agriculture and construction sectors are almost entirely informal.⁷² Similarly, Ecuador has a large informal sector that accounts for almost 70 percent of employment, with agriculture again a primary factor.⁷³

Education and skills. The segment has a total of 14 universities in Times Higher Education's global list of the top 1,800; Guatemala, Paraguay, and Trinidad and Tobago have none at all in the list, possibly a reflection of their governments' limited resources for tertiary education.⁷⁴

Political stability. According to the World Bank's Political Stability Index, this segment has a lower level of political stability than the leading economies of the region: its political stability index score is -0.13, compared with 0.14 for leading economies, which has stayed

relatively similar since 2015, when it was -0.16.⁷⁵ Peru (-0.45), Guatemala (-0.30), Bolivia (-0.28), and Ecuador (-0.24) have the lowest scores. These low scores could be the result of political leadership changes and polarization between rural and urban populations. Social disparities are also prevalent: Bolivia has one of the lowest levels of GDP per capita in the region, at just \$3,200 in real dollars.⁷⁶

Challenged economies. This group comprises El Salvador, Honduras, Jamaica, and Nicaragua. These countries have historical or ongoing political instability that has crimped economic growth and development. These nations account for only 4 percent of the region's total population, with 26.6 million people, and their combined GDP in 2023 amounted to about \$86 billion.⁷⁷ GDP per capita was \$3,200 on average. The GDP of this segment has grown by 2.4 percent annually over the past 10 years, following the same growth rate of the past 25 years.⁷⁸

All of these countries have low labor productivity, equal to \$9.2 per hour worked. El Salvador has the highest rate at \$12 per hour, while Honduras (\$8 per hour), Jamaica (\$9 per hour), and Nicaragua (\$9 per hour) report the lowest rates.

70 World Development Indicators, World Bank; ILOSTAT Modeled Estimates Database, International Labour Organization, 2024; Total Economy Database – Output, Labor and Labor Productivity, Conference Board, 2024.

71 ILOSTAT Modeled Estimates Database, International Labour Organization, 2024.

72 Ibid.

73 Ibid.

74 "World University Rankings," Times Higher Education, 2023.

75 World Development Indicators, World Bank. The index measures perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution—that is, ranging from approximately -2.5 to 2.5.

76 Constant 2015 US dollars. World Development Indicators, World Bank.

77 Ibid.

78 Ibid.

Informal employment. All the countries in this segment have informal employment rates above 60 percent, with the overall segment's rate standing at 70 percent (approximately eight million people). Out of the four economies, Honduras is estimated to have the highest informal rate, above 80 percent.⁷⁹ It has a substantial number of workers in agriculture and low-skilled manufacturing, sectors that have very limited formal employment. Jamaica is the exception, with an informal rate estimated at below 60 percent.

Education and skills. This segment has only one university in the Times Higher Education global top 1,800, in Jamaica. This may indicate that governments have limited resources available for tertiary education.

Political stability. According to the World Bank's Political Stability Index, these countries score -0.17, considerably behind the other segments—a rate that has remained largely unchanged since 2015.⁸⁰ Honduras is the least stable at -0.55, followed by Nicaragua at -0.35 and El Salvador at -0.15. Underlying these scores could be significant social disparities and high poverty rates (29.4 percent).⁸¹

Leading economies, with stronger human capital and competitiveness indicators, could help propel regional progress. Decelerating economies, which have lost growth momentum, could restore their momentum by learning from the leaders. Together, these two segments can act as catalysts to support challenged economies, helping them overcome structural barriers and contribute to shared regional growth.

All the economic concerns noted above could be exacerbated in the future as the demographic advantage in Latin America falls away. Productivity through capital investment and more-developed human capital may be needed to compensate for the lack of growth, and that investment may need to start now. Technology adoption can be a critical tool in the effort to regain economic momentum.

AUTOMATION AND OTHER TECHNOLOGIES COULD RAISE PRODUCTIVITY AND COMPETITIVENESS IN LATIN AMERICA

A recent report by the McKinsey Global Institute states that AI could add up to \$17 trillion to \$25 trillion to the world economy.⁸² Latin America too has a unique opportunity to leapfrog traditional development paths by embracing automation and advanced technologies. With the right investments in innovation and workforce transformation, the region can accelerate productivity growth and unlock new economic potential.

To catch up with the current (2023) productivity levels of the United States and Canada in the next 65 years, Latin America would need to increase annual average productivity growth by a multiple of 2.1 from its level of the past 20 years. For leading economies, this would mean increasing average productivity growth by a multiple of 1.85. Decelerating economies would have to increase average growth by a multiple of 2.3, and challenged economies would need to increase it by a multiple of 9.8.⁸³

Whether that is even feasible is moot. Any substantial increase in productivity growth would likely depend on large-scale adoption of automation and other advanced technologies. Moreover, the technologies themselves would only be the starting point: countries and companies across the region could make substantial efforts to be able to absorb and integrate these technologies. This would require both accelerating technology adoption and investing in job creation in high-value sectors. The business community in the region is looking to adapt to automation's disruptive potential (see Box 1, "Businesses in Latin America expect to invest in automation, seeing it as both disruptive and positive for the economy").

79 ILOSTAT Modeled Estimates Database, International Labour Organization, 2024.

80 World Development Indicators, World Bank. The index measures perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution—that is, ranging from approximately -2.5 to 2.5.

81 Ibid.

82 "The economic potential of generative AI: The next productivity frontier," McKinsey Global Institute, June 2023.

83 Analysis based on data from ILOSTAT Modeled Estimates Database, International Labour Organization, 2024; Total Economy Database – Output, Labor and Labor Productivity, Conference Board, 2024.



Automation adoption could boost productivity growth to as much as 2.3 percent

The analysis of automation's potential impact on work and productivity in the region is based on scenarios of early, late, and midpoint adoption of AI and automation technology by 2030. The range of scenarios represents uncertainty regarding the availability of technical capabilities, based on interviews with experts and survey responses. Several factors could affect the timing and pace of adoption. For example, ease of integration can vary for solutions requiring different technologies. It also takes time to integrate capabilities into current technical platforms and combine them.

The parameters for the research model are the technical potential for automation, the integration timeline, the economic feasibility, and regulatory and public adoption. For these parameters, the early scenario makes more aggressive assumptions. The midpoint adoption scenario is the average between the early and late scenarios. A faster scenario of adoption could be unlikely for Latin America, where investment in technology has lagged behind that of more developed economies. To enable automation adoption, significant work is required on investments, policy, job creation, and worker training.

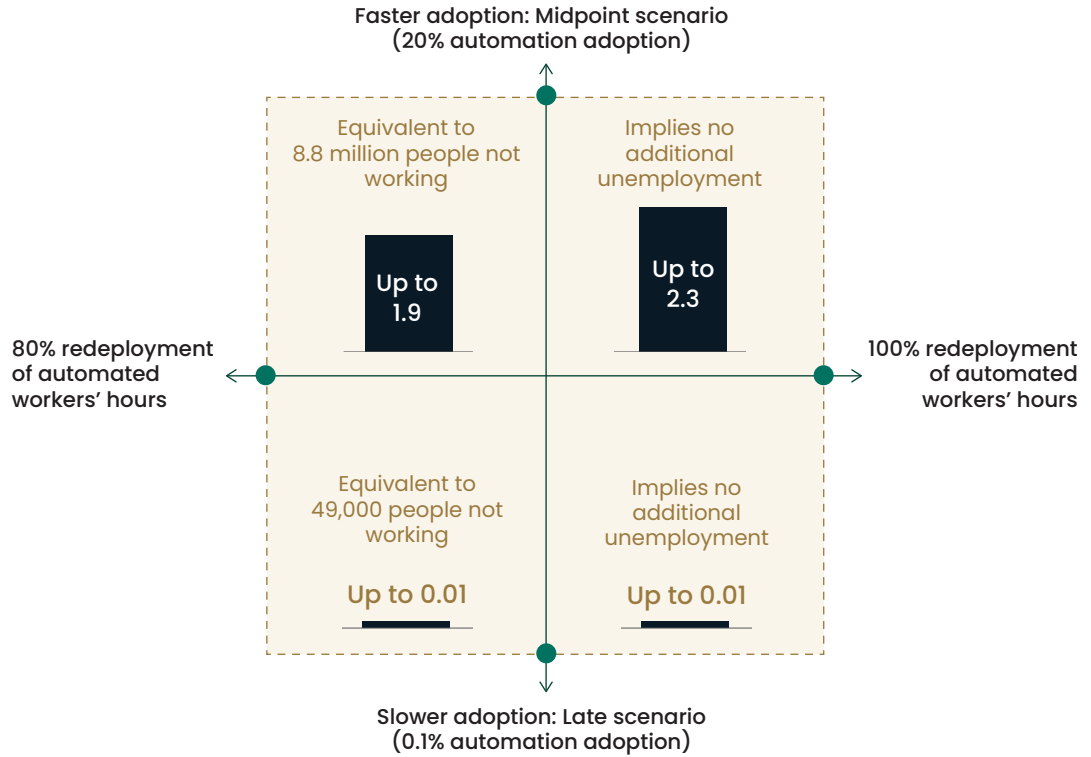
This analysis further indicates that up to 20 percent of work hours in Latin America could be automated, in a midpoint scenario.

This potential automation rate is significantly lower than EU and US averages of 27 percent and 29 percent respectively, according to the analysis. Automation potential will vary within countries depending on their occupation mix and industrial structure. Of the three segments, leading economies could automate faster because of their more-established industries and lower informal employment. While this may risk displacing a lot of jobs, reskilling and upskilling these workers could also generate new opportunities and boost economic growth.

The analysis indicates that Latin America region could capture a productivity boost ranging from 1.9 to 2.3 percent annually, but delayed adoption could lead to productivity increases of just 0.01 percent annually by 2030 (Exhibit 12). The size of the productivity boost could depend in part on the ability of the region to reskill its workforce and redeploy the automated work hours into the economy. A productivity boost of 1.9 percent would be possible if 80 percent of work hours were redeployed; a boost of 2.3 percent would require 100 percent redeployment. This productivity potential, while significant, is lower than in the United States (see Box 2, "The automation potential in the United States is higher than in Latin America and could lift productivity growth substantially if skills gaps are filled").

IF IT ACTS SWIFTLY, LATIN AMERICA COULD IMPROVE COMPETITIVENESS BY ACCELERATING TECHNOLOGY ADOPTION, ALONG WITH RESKILLING AND UPSKILLING, TO CAPTURE PRODUCTIVITY GAINS.

Potential annual productivity CAGR in Latin America, 2022–30, %¹



¹ Based on 6 countries in Latin America that provide a good representation across the region: Argentina, Brazil, Chile, Colombia, Mexico, and Peru. Uses number of employed and unemployed population from Q2 2024. Adoption scenarios are midpoint scenario for faster adoption and late scenario for slower adoption. Source: Internal Labour Organization; International Monetary Fund; McKinsey analysis



The analysis finds that Argentina, Chile, and Mexico are among the better positioned economies in the region for automation adoption. They have the opportunity to significantly enhance productivity growth, by between 2.0 and 2.5 percent annually, for all three countries. Other countries such as Brazil and Colombia, could achieve productivity boosts that would range between 1.8 to 2.2 percent annually. Peru’s productivity increase could range between 1.7 to 2.1 percent annually.

Research on automation’s impact globally suggests that certain sectors are more susceptible than others, with office support,

production jobs, and food service among the most susceptible. Latin America countries largely follow this trend.

For example, in Argentina, about 33 percent of the hours currently worked in food services and office support have the potential to be automated by 2030. For Chile, the figures are similar—35 percent of hours in food services and 30 percent in office support. For Mexico, automation potential is among the highest for production work (32 percent) and food services (31 percent). Exhibit 13 shows the automation potential of major occupational groups in the region, based on analysis using the midpoint adoption scenario.

The analysis outlines two scenarios: one that factors in the impact of an acceleration of generative AI and one that doesn't. For details

on the methodology and assumptions, see the technical appendix.

Exhibit 13

OFFICE SUPPORT AND PRODUCTION WORK HAVE THE HIGHEST RISK OF AUTOMATION.

Automation adoption and expected hours displaced for Latin America,¹ midpoint scenario

Occupational category	Total number FTEs, 2022, million	Expected hours displaced, for full-time equivalents (FTEs), 2030		Total, million
		Without generative AI	Additional with generative AI acceleration	
Office support	27.8	22%	6%	7.8
Production work	27.7	23%	3%	7.1
Customer service and sales	25.2	10%	3%	3.1
Food services	20.4	27%	1%	5.9
Agriculture	19.3	15%	2%	3.3
Builders	14.9	19%	2%	3.2
Managers	11.7	8%	5%	1.5
Educator and workforce training	10.4	5%	12%	1.8
Business or legal professionals	10.3	13%	9%	2.2
Transportation services	9.8	12%	1%	1.3
Property maintenance	9.7	10%	3%	1.3
STEM professionals	8.8	11%	8%	1.7
Health aides, technicians, and wellness	7.5	6%	2%	0.6
Mechanical installation and repair	6.8	22%	2%	1.7
Community services	6.0	12%	6%	1.1
Health professionals	4.6	7%	3%	0.5
Creatives and arts management	3.4	10%	7%	0.6

¹ Based on FTEs affected by automation, found by multiplying the projected number of FTEs in 2030 by the estimated automation adoption rate. Source: International Labour Organization; McKinsey analysis



LATIN AMERICA HAS AN OPPORTUNITY TO ACCELERATE TECHNOLOGY ADOPTION AND RAISE WORKFORCE SKILLS

To stay competitive in an increasingly digital world, Latin America may need to significantly improve access to technology and invest in education and training programs that foster digital literacy, critical thinking, and problem-solving. By doing so, the region can bridge the skills gap, stimulate innovation, and create new opportunities in emerging sectors. Furthermore, closing the technology divide may be essential to ensuring more equitable access to economic opportunities, helping reduce social inequality. With the right investments and a focus on

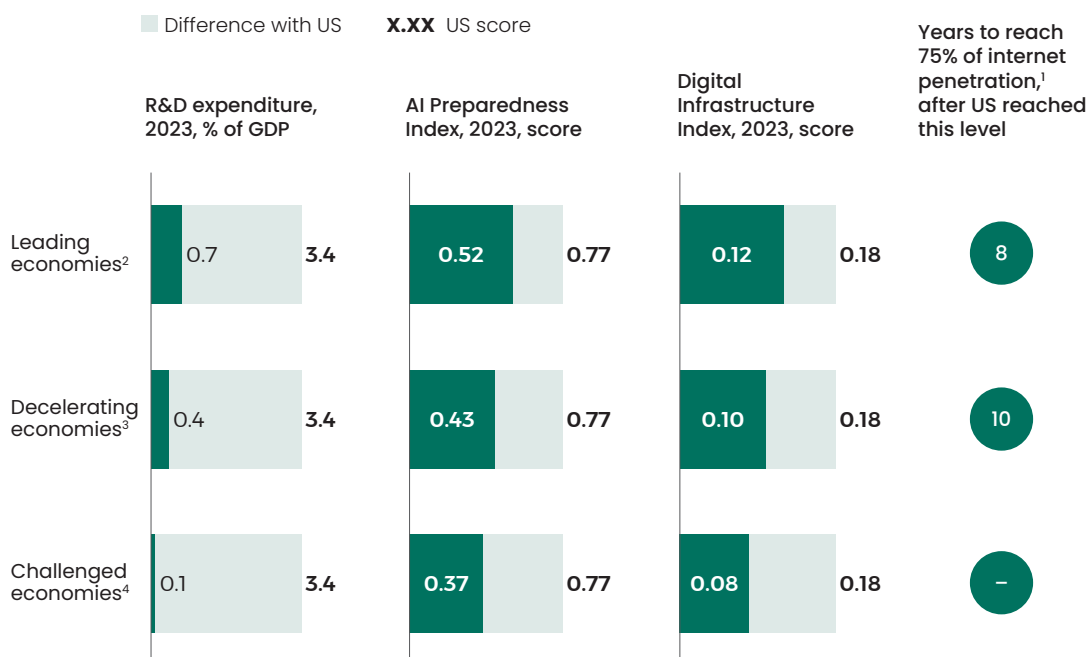
future-ready skills, Latin America could have the potential to lead in the global digital economy.

Latin America remains nascent in technology infrastructure

Latin America has a mixed record on technology adoption and digital infrastructure, potentially impeding its ability to make use of the opportunities. The region has some striking tech success stories, including more than 30 “unicorns”—innovative start-ups that reach \$1 billion in revenue (see Box 3, “Success stories from Latin America that can inspire the region”). But overall, the tech industry in the region is in early stages, with R&D expenditure at just 0.6 percent of GDP, compared with 3.4 percent in the US (Exhibit 14).

Exhibit 14

LATIN AMERICAN COUNTRIES IN ALL CLUSTERS LAG BEHIND THE US IN TECH PREPAREDNESS, HINDERING THE REGION'S ABILITY TO CAPITALIZE ON ADVANCED-TECHNOLOGY OPPORTUNITIES.



¹ Defined as number of internet users as a share of total population.

² Includes Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Mexico, Panama, and Uruguay.

³ Includes Argentina, Bolivia, Ecuador, Guatemala, Paraguay, Peru, and Trinidad and Tobago.

⁴ Includes El Salvador, Honduras, Jamaica, and Nicaragua. Out of all challenged economies, only Jamaica reached 75% of internet penetration (out of total population) by 2023.

Source: International Monetary Fund; World Bank

SUCCESS STORIES FROM LATIN AMERICA THAT CAN INSPIRE THE REGION

While the technology adoption story for Latin America overall is one of falling behind, the region also has some pioneers. Together, these trailblazers demonstrate that transformative progress is not just possible but already happening in some economies and companies, as well as pan-regionally. Examples include the following:

The rise of ‘unicorns.’ The region has more than 30 unicorns (innovative start-ups that reach \$1 billion in revenue). Located mostly in Argentina, Brazil, Colombia, and Mexico, these unicorns include companies such as Rappi (a digital food courier), and Kavak (an online car marketplace). About four-fifths of these unicorns focus on fintech and e-commerce.¹

Digital transformations in the banking sector. In recent years, some of the largest banks in the region have innovated in the tech landscape, incorporating digital strategies and new technologies into their operating models. For example, Brazil’s Itaú has migrated 70 percent of its data infrastructure to the cloud and plans to transform the remainder by 2028.² Santander has deployed Gravity, its home-grown digital cloud core-banking platform, which aims to help the bank become a fully digital company. It has already migrated more than 90 percent of its IT to the cloud, becoming the first major bank in the world to digitize the core-banking infrastructure with its own software. It’s also allowed the company to reduce energy consumption from its IT infrastructure by 70 percent.³ Nubank, the world’s largest neobank

with almost 110 million customers and revenues of \$2.9 billion through the third quarter of 2024, has revolutionized financial services in Latin America through innovative offerings and a valuation of \$41.5 billion during its IPO.⁴

The rise of data centers in Brazil, Chile, and Mexico. The region has seen accelerated growth of data centers in recent years, with companies investing more than \$2 billion in data centers in 2024 alone.⁵ Brazil is the biggest market, with a current capacity of more than 500 megawatts (MW). This is expected to grow to more than two gigawatts by 2028, according to BN Americas.⁶ Mexico is the second-largest market in the region, with about 100 data centers in operation.⁷ Chile currently has more than 150 MW of capacity for data centers, and according to government figures, is expecting the construction of 30 new data centers by 2028, with investments worth up to \$2 billion.⁸

Pix, Brazil’s instant payment system. In 2020, Brazil’s Central Bank launched an instant payment system called Pix, which allows users to send and receive payment transfers any time of the day, in just a few seconds.⁹ It offers 24/7 account-based transfers with no person-to-person fees, extensive government support, and robust safety measures. Adoption has been widespread: By 2024, Pix had reached about 170 million users. In 2023, the number of transactions recorded through the platform totaled close to 42 billion—23 percent more than through debit or credit cards.¹⁰

1 CB Insights data, <https://www.cbinsights.com/>; Lorena Guarino, “Argentina’s Next Unicorns: The Startups that Could Be Joining the \$1B Club,” Bloomberg, February 14, 2022.

2 “Banco Itaú planning to migrate 100% of its infrastructure to the cloud by 2028,” BNamericas, December 5, 2024, <https://www.bnamericas.com/en/features/banco-itaú-planning-to-migrate-100-of-its-infrastructure-to-the-cloud-by-2028>.

3 Santander, “7 questions on how Gravity is transforming Santander,” October 21, 2024.

4 “Nubank celebrates two years of IPO with significant growth and expansion into new markets,” Nu international, December 15, 2023, <https://international.nubank.com.br/company/nubank-celebrates-two-years-of-ipo-with-significant-growth-and-expansion-into-new-markets/>.

5 *ICT Outlook 2025: A year of consolidation*, BNamericas– TICOutlook, 2025.

6 Ibid.

7 MEXDC, Mexico’s Association for Data Centers.

8 “Chile presenta su Plan Nacional de Data Centers” [Chile presents its National Data Center Plan], DataCenter Dynamics, December 9, 2024, <https://www.datacenterdynamics.com/es/noticias/chile-presenta-su-plan-nacional-de-data-centers/>.

9 “What is Pix?,” Banco Central Do Brasil, accessed January 29, 2025, https://www.bcb.gov.br/en/financialstability/pix_en.

10 Ibid; Marcela Ayres, “Brazil’s Pix payments are killing cash. Are credit cards next?,” Reuters, April 2, 2024, <https://www.reuters.com/business/finance/brazils-pix-payments-are-killing-cash-are-credit-cards-next-2024-04-02/>.

Start-Up Chile. This government-backed accelerator program launched in 2010 with the goal of transforming Chile into a global innovation and entrepreneurial hub. It targets businesses that are “technology-based, innovative, scalable, and of high impact.”¹¹ The accelerator offers equity-free funding, one-year visas, and extensive support to attract early-

stage, high-potential start-ups from around the world. So far, its portfolio accounts for more than 3,000 start-ups with operations in more than 85 countries and a market valuation above \$5.8 billion and more than \$2.0 billion in sales. The accelerator supports start-ups at various stages of development, from early stage to consolidated companies seeking to scale.

¹¹ See the website of Start-Up Chile, <https://startupchile.org/>.



According to the survey, about two-fifths of US business respondents plan to prioritize big data analytics, but less than 28 percent of businesses in Latin America see this as a priority. Some 60 percent of businesses in the US already have adopted cloud computing, compared with less than half (46 percent) in Latin America. Indeed, one estimate suggests that AI's impact on the economy could be three to five times lower in Latin America than in the US and Canada.⁸⁴ As noted earlier, there are wide variations among countries in the three segments we identify.

The region may need to take action to keep up and capture the growth and productivity benefits of these technologies.

Latin American countries also lag behind in current and future adoption of advanced tech. For example, the region faces significant delays and disparities in its digital transformation compared with other regions. Latin America increased its internet penetration from 10 percent two decades ago to over 75 percent today; however, it took the region nine additional years than the US and Canada and six additional years than the EU. Within the region, stark inequalities persist, both between countries and across income levels. For instance, El Salvador lags far behind Uruguay, and in Peru, only 15 percent of people in the lowest income quintile have internet access. Leading Latin American economies took an average of eight additional years, compared to the US, to reach 75 percent internet usage, while countries in the decelerating economies segment required 10 additional years.⁸⁵ Among challenged economies, only Jamaica had reached the same 75 percent penetration threshold by 2023.

Latin America also trails other developing regions when it comes to adoption of mobile

money. While India's Unified Payments Interface had about 350 million active users in 2024,⁸⁶ and sub-Saharan Africa saw 28 percent of its population adopt mobile money by 2022,⁸⁷ only 2 percent of Latin Americans were using mobile money solutions by that year—about one-eighth of Africa's adoption rate.⁸⁸ This slow pace is partly because of limited investments in digital infrastructure, which have led to 81 percent broadband penetration in Latin America—16 percentage points behind the US. Additionally, the region scores poorly on key tech readiness indexes such as the AI Preparedness Index and the Digital Infrastructure Index. The region's average AI preparedness score (0.43) and digital infrastructure score (0.10) are far behind those of the US and Canada combined (0.74 and 0.19, respectively).⁸⁹

The previously published research on MENA showed a similar pattern. MENA has an overall AI preparedness score of 0.45 and a digital infrastructure score of 0.1, with Gulf Cooperation Council countries leading the rest.

Countries in the challenged economies segment, including Nicaragua and Honduras, have even lower scores, with an average of 0.37 for AI preparedness and 0.08 for digital infrastructure. In comparison, leading economies score 0.52 and 0.12, and decelerating economies score 0.43 and 0.10. This highlights a significant gap in tech readiness and points to the need for substantial investment in the region's digital infrastructure.

The research survey of businesses in the region corroborates this challenging reality. Some 6 percent of organizations in Latin America report that they currently do not use any advanced technologies, compared with less than 1 percent of surveyed businesses in the US.

⁸⁴ Andres Cadena, Olivia White, and Camillo Lamanna, "What could a new era mean for Latin America?," McKinsey Global Institute, July 20, 2023.

⁸⁵ World Development Indicators, World Bank.

⁸⁶ Aditi Routh, "The Role of Nonbanks and Fintechs in Boosting India's UPI Person-to-Merchant Transactions," Federal Reserve Bank of Kansas City, August 30, 2024.

⁸⁷ "Data From the Global Findex 2021: The Impact of Mobile Money in Sub-Saharan Africa," World Bank Group, April 17, 2024, <https://www.worldbank.org/en/publication/globalfindex/brief/data-from-the-global-findex-2021-the-impact-of-mobile-money-in-sub-saharan-africa>.

⁸⁸ "What could a new era mean for Latin America?," McKinsey Global Institute, July 20, 2023.

⁸⁹ International Monetary Fund. The AI Preparedness Index assesses the level of AI preparedness as of 2023 across 174 countries, based on a rich set of macro-structural indicators that cover the countries' digital infrastructure, human capital and labor market policies, innovation and economic integration, and regulation and ethics, on a scale from 0 to 1, with higher values representing more favorable AI preparedness. The Digital Infrastructure Index scores economies on a scale from 0 to 0.2.



The region has an opportunity to further equip its young population with new skills for the AI and automation era

Human capital development boosts productivity by focusing on skill development and fostering a more capable and adaptable workforce, driving innovation, reducing unemployment, and fueling long-term economic growth.

We noted previously that Latin America's labor-led growth model will become less tenable in coming decades as population growth declines. For now, however, the region still has a relatively large youth population, with the number of 15- to 24-year-olds totaling 96 million (out of 600 million people in the region, 68 percent of whom are of working age).⁹⁰ Young people may represent a largely untapped resource. Many are unable to fully contribute to the economy because they lack skills and opportunities—but also because they feel unprepared for the labor market (see Box 4, “Young individuals in the Americas feel

that they are unprepared for employment and lack the skills they need to succeed”).

Engaging this underused population in productive sectors would give the region a massive boost.

Today, however, about 20 percent of youth in the region are “NEETs,” defined as people who are not in employment, education, or training (Exhibit 15).⁹¹ That is nearly twice the proportion of NEETs in the US (11 percent). The percentage of this idle population is the same as it was a decade ago.

Youth skills vary sharply among the 19 countries in the research sample. Leading economies have a large pool of STEM graduates—in 2022, more than 20 percent of total graduates in Brazil and Chile were in STEM fields, and both Brazil and Mexico rank among the top 10 countries globally by share of STEM graduates, according to the OECD.⁹² But the proportion of graduates obtaining a STEM degree across the region as a whole is relatively low by global comparison.

⁹⁰ “World Population Prospects 2024,” United Nations Department of Economic and Social Affairs, Population Division, 2024.

⁹¹ World Development Indicators, World Bank.

⁹² Brendan Oliss, Cole McFaul, and Jaret C. Riddick, “The Global Distribution of STEM Graduates: Which Countries Lead the Way?,” Center for Security and Emerging Technology, Georgetown University, November 27, 2023; OECD data.

YOUNG INDIVIDUALS IN THE AMERICAS FEEL THAT THEY ARE UNPREPARED FOR EMPLOYMENT AND LACK THE SKILLS THEY NEED TO SUCCEED

As part of this research, we surveyed 806 young individuals in eight countries in the Americas—Argentina, Brazil, Chile, Colombia, Mexico, and Peru in Latin America, as well as Canada and the US.¹ The results seem to reveal an urgent need for better alignment between education and job market demands: 52 percent of youth in Latin America and the US say they feel unprepared for employment after university. A significant majority—90 percent in Latin America and 85 percent in the US—perceive a mismatch between what schools teach and what employers require, emphasizing the need for curriculum reform and skills-focused training. In addition, approximately 70 percent of youth in both regions lack confidence in the education system’s ability to prepare them for future job opportunities.

Governments are seen as important players in bridging this gap: 38 percent of Latin American respondents expect the government to fund new training programs, while 35 percent of US youth share similar expectations for both new and existing programs. Interest in emerging technologies, particularly AI, is significantly higher in Latin America (42 percent) than in the US (19 percent). In addition, more than 90 percent of Latin American respondents express interest in using technology to start or grow their own business. Despite this optimism, concerns about the potential of automation to eliminate jobs resonate with 36 percent of youth in Latin America and 29 percent in the US.

Youth in both regions appear to face limited job opportunities, with nearly half of respondents citing this as a major issue. Flexibility in work schedules is a priority—52 percent of Latin American youth and 49 percent in the US prefer flexible hours—while compensation is the most valued job attribute for 64 percent of young people in Latin America and 50 percent in the US.

No less an issue is a skills mismatch. Only 38 percent of youth who have access to competitive job opportunities within their fields of education report that they have the right skills for the jobs they are doing. This finding aligns with our business survey, in which 42 percent of respondents reported a lack of skilled staff as one of the largest barriers to implementing advanced technologies. Among companies reporting talent shortages, 58 percent specifically highlighted deficits in technological roles.

One cause of this mismatch could be a disconnect between education systems and labor market needs in Latin America. For example, 62 percent of businesses do not consider youth to be job-ready when they finish their education, while 52 percent of youth indicated they felt only somewhat ready or not ready at all.

As in the US and Canada, young people in Latin America report that they do not receive sufficient training in tech-related skills. Advanced IT and programming skills are considered to be most underemphasized, mentioned by 38 percent.

Finally, while young people are taking personal steps to upskill, they say they need stronger support from businesses and governments to develop future-ready skills and achieve their potential. Almost half of young people (48 percent) say that training and career development are among the most valued attributes in a job. However, educational institutions in the region report challenges in partnering with or receiving support from government institutions in developing upskilling programs, citing a lack of responsiveness and slow, bureaucratic processes.²

¹ The survey, conducted in December 2024, interviewed youths aged 18–26 with various profiles, including students, part-time workers, and full-time employees.

² Based on interviews in the region. See technical appendix for details.

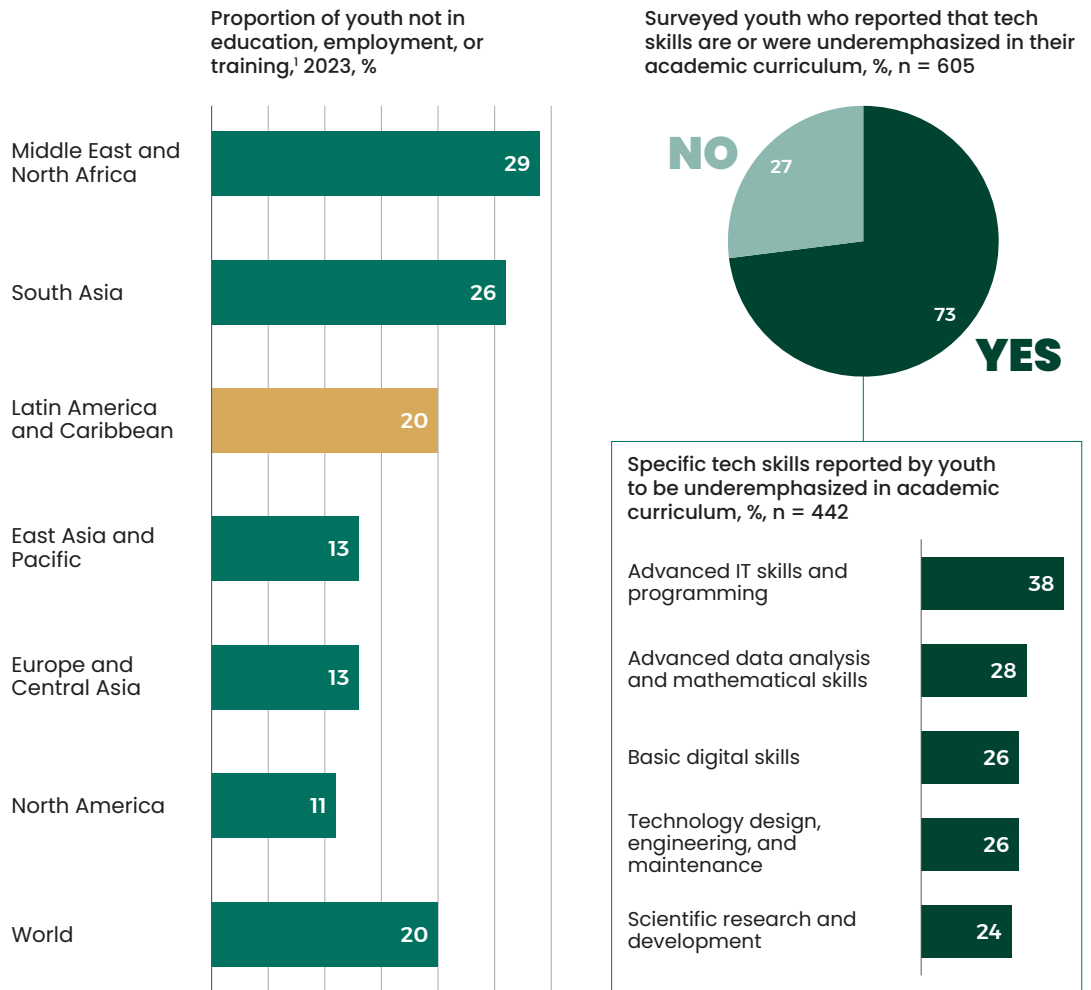
STEM-intensive industries such as information and communications and professional, scientific, and technical activities represent roughly 10 percent of total employment in the US and generate almost 16 percent of its GDP. In Latin America, these industries constitute approximately 5 percent of employment and generate 7 percent of GDP.⁹³ This disparity underscores Latin America's delay in fostering a STEM-oriented workforce. At the level of the country segments we use in this research, leading regional economies have

approximately 6 percent of employment in these sectors, while decelerating economies about half that number (close to 4 percent), and challenged economies have less than 3 percent.

In some respects, the challenges regarding human capital development and technology adoption in Latin America have similarities with the situation in the Middle East, although there are also some important differences (see Box 5, "Latin America and Middle East economies share challenges including high levels of economic inactivity and lagging technological adoption").

93 Comparative Industry Service Rev.4, S&P.

THE REGION COULD EQUIP ITS YOUNG POPULATION WITH NEW SKILLS FOR THE AI AND AUTOMATION ERA.



¹ Youth is defined as individuals between the ages of 15 and 24.
 Source: 2025 Latin America Future of Work Survey; International Labour Organization; World Bank World Development Indicators

LATIN AMERICA AND MIDDLE EAST ECONOMIES SHARE CHALLENGES INCLUDING HIGH LEVELS OF ECONOMIC INACTIVITY AND LAGGING TECHNOLOGY ADOPTION

The Middle East and North Africa (MENA) and Latin America share similar challenges in productivity, labor markets, and technology adoption, yet their unique socioeconomic landscapes offer different pathways forward. For example, MENA fares better than Latin America in productivity—its productivity grew by 0.7 percent between 2013 and 2023, while Latin American growth stagnated.

Like Latin America, MENA suffers from low youth engagement; 32 percent of young people are not in education, employment, or training (NEETs). In fact, nearly half of MENA's working-age population is economically inactive—a statistic that parallels Latin America's struggle with stagnant workforce development.

But the two regions' challenges diverge in critical ways. Latin America's informal economy absorbs about half of its workforce, offering limited economic benefits through low-value-added activities that hinder sustainable growth. MENA suffers from insufficient job creation to meet the demands of its rapidly growing youth population. This is evident in its higher unemployment rate (9 percent) and lower labor force participation (49 percent) compared with Latin America's 6 percent unemployment and 68 percent participation rates.

When it comes to technological adoption, both regions are behind developed economies. Latin America is relatively ahead of MENA, with 74 percent of survey respondents saying they use AI compared with 56 percent. By comparison, in the US, survey responses suggests that adoption is at 82 percent. Within MENA, Saudi Arabia showed the highest levels of AI adoption at 62 percent, highlighting the country's leadership in embracing AI to drive economic diversification.¹

The readiness of the workforce for technology adoption is also a challenge in both regions,

with many respondents to the business surveys seeing educated youth as lacking sufficient training in technology-related skills; in Latin America, 67 percent of respondents see young people as not ready, while in MENA that figure is 46 percent. Taking a closer look at MENA, Saudi Arabia ranked its youth to be relatively better trained in tech-focused skills and only 34 percent of businesses found them to be not ready.

Both MENA and Latin America have a vital opportunity to reverse these trends. Investment in education and skills development can harness the potential of their youthful populations. Expanding technology adoption, particularly AI, could fuel innovation, while greater regional collaboration can unlock economies of scale, creating a more competitive and resilient future.

Latin America's informal economy absorbs about half of its workforce, offering limited economic benefits through low-value-added activities that hinder sustainable growth. MENA suffers from insufficient job creation to meet the demands of its rapidly growing youth population.

¹ Survey responses include AI and machine learning. The number for MENA may differ from previous reports due to this grouping.

3

**PAVING THE WAY FOR
A MORE PRODUCTIVE
ERA IN LATIN AMERICA**



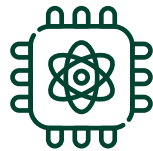
FACED WITH THE DEMOGRAPHIC, TECHNOLOGICAL, AND SOCIETAL challenges outlined in this report, what can countries in Latin America do to harness new technologies and begin closing the gaps with the US and Canada? This concluding chapter looks at various paths that the region could take to improve business competitiveness and develop human capital so that the workforce acquires new and needed skills for this time of automation and AI. The paths outlined are not exhaustive, but they have proved effective in other regions. Throughout this chapter, we highlight global examples of best practices as well as programs within Latin America that have been effective and could serve as models.

While technology adoption can be disruptive to labor markets, as noted in chapter 2, it could

also create new job opportunities in a wide range of sectors in the region, in both tech and nontech sectors. Tech companies are actively seeking professionals with skills that have emerged in recent years (Exhibit 16). Examples include AI-powered product managers, who oversee the ethical aspects of AI development and deployment; machine learning operations engineers, who use machine learning applications in production environments; and software developers who can build software applications for various industries. Nontech firms also increasingly demand new profiles with technical expertise. These include data analysts, who use machine learning and AI for analysis and automation, and systems administrators, who automate routine maintenance with AI and leverage cloud computing for firm servers.

Exhibit 16 **TECHNOLOGICAL ADVANCEMENT CAN ENABLE JOB CREATION IN BOTH TECH AND NONTECH SECTORS.**

Job creation potential



	New avenues in tech firms	Tech-related occupations in nontech firms	Non-tech-related occupations
Occupation	<ul style="list-style-type: none"> AI ethics specialist: Ensure the innovation and use of AI in an ethical manner Quantum computing developer: Create algorithms and apps specific to quantum systems 	<ul style="list-style-type: none"> Software developer: Design and build custom software solutions tailored to various industries Prompt engineer: Design and optimize generative AI prompts 	<ul style="list-style-type: none"> Business and law professionals, as well as logistics and supply chain managers, from trickle-down effects to support economies and businesses



LATIN AMERICA NEEDS HUMAN CAPITAL INITIATIVES THAT ENABLE WORKERS TO ACQUIRE SKILLS OF THE FUTURE

Human capital development, particularly an emphasis on equipping people with skills for the future, could be essential for the future trajectory of Latin American economies.

The research studied a range of initiatives globally that are proving successful in preparing the workforce for the adoption of new technologies. This exercise highlights four areas of initiatives: skilling in world-class AI and technology; funding for skills; job matching; and monitoring, advocacy, and policymaking. These are often combined to maximize their impact. For example, funding efforts frequently support skilling and training programs, while job matching initiatives align closely with skilling to ensure that individuals are not only equipped with the necessary skills but also connected to relevant employment opportunities. Collectively, these levers provide a robust framework for preparing the workforce, fostering innovation, and ensuring sustainable

economic growth in a rapidly evolving technological landscape.

While these levers are consistent with those proposed for MENA, in some instances their application in Latin America reflects the region's unique context. For Latin America, skilling in AI and emerging technologies, as well as job-matching frameworks, may require greater emphasis due to skill gaps, less-developed digital infrastructure, less workforce mobility, and greater challenges in attracting foreign talent compared to MENA, where policies and programs often better facilitate both internal and international workforce integration. On the other hand, funding for skills and policymaking efforts are equally critical in both regions, reflecting their shared importance in fostering workforce readiness and enabling technological transformation. Educational institutions in Latin America are taking steps to address some of these skills gaps (see Box 6, "Education institutions in Latin America are looking to upgrade their technology use and close gaps between education outcomes and the labor market").

2. Provide funding to help young people improve their own skills and engage in the workforce

Engaging the young population in Latin America can be key to sustain the region's demographic dividend a little longer and ensure economic growth. Various initiatives that involve investing in opportunities for young people—including scholarships, apprenticeships, and internships—could ensure a steady pipeline of skilled talent, address workforce gaps, and enhance long-term economic competitiveness in the region.

In Indonesia, Digital Talent Scholarship is a large-scale digital training program designed to enhance the quantity and quality of tech talent.⁹⁶ The program has a budget of approximately \$150 million and targets new graduates, vocational school graduates, and professionals, focusing on high-demand areas such as cloud computing, artificial intelligence, and cybersecurity, while emphasizing practical training and job readiness. In 2023, the program offered about 100,000 scholarships, and for 2025, it's aiming to increase to 200,000 in collaboration with 197 partners, including global tech companies, governments, and universities.

3. Create job-matching frameworks and platforms

As advanced technologies reshape industries, aligning the skills of the workforce with market needs will become increasingly critical. Job matching using systems and platforms can address this challenge. It supports workers affected by automation adoption not only by putting them in roles where they can best use their skills but also by giving them access to the skills they want. Examples of best practices for such initiatives can be found in the Netherlands and the United Kingdom, among other places.

In the Netherlands, the House of Skills is a public-private partnership in the Amsterdam metropolitan area that provides tools and

platforms to help individuals align their skills with job opportunities, ensuring a smoother transition during employment shifts caused by technological advancements.⁹⁷ Through an online portal, individuals can assess their skills and match them to suitable professions and vacancies. Tools such as the Fitting Room and Skills Passport help map existing skills and provide recommendations for upskilling through training and education opportunities. Additionally, more than 3,400 people have built skill profiles using Fitting Room, and more than 100 have engaged in training programs or skill-based matching activities.

In the United Kingdom, ProFinda is a digital platform designed to help professional-services firms match skills to projects and bids.⁹⁸ It focuses on optimizing resource management, improving staff retention, and enabling workforce reskilling through an internal marketplace for work and learning opportunities. ProFinda uses AI to match the right individuals to roles quickly, reducing the average time to resource a role from three weeks to just four minutes. The platform also helps retain employees by providing upskilling projects, ultimately leading to increased utilization rates and reduced attrition due to improved employee experience. Additional results seen in the 12 months following implementation in late 2021 include a 4.5 percent reduction in attrition, a 50 percent increase in employee preferences, a 10 percent decrease in travel expenses, and a two-percentage-point overall increase in average profitability per project. So far, the platform has raised more than \$7 million in funding to support its ongoing development and impact.

4. Monitoring, advocacy, and policymaking

This lever focuses on the development and promotion of policies and frameworks that foster technological innovation while addressing the evolving needs of society.

⁹⁶ "Preparing Indonesians to be fully digitally literate," *Antara News*, December 29, 2021, <https://en.antaranews.com/news/206977/preparing-indonesians-to-be-fully-digitally-literate>.

⁹⁷ "Case study – The 'House of Skills' project," European Commission, April 23, 2023, https://pact-for-skills.ec.europa.eu/about/news-and-factsheets/case-study-house-skills-project-2023-04-26_en?prefLang=es.

⁹⁸ "Global Professional Services Firm reduces request to revenue time by 40% using ProFinda," ProFinda (n.d.), <https://www.profinda.com/resources/global-professional-services-firm-reduces-request-to-revenue-time-by-40-using-profinda/>.

Governments play an important role in enacting relevant policies, often aligning these efforts closely with industry demands to ensure that emerging technologies are integrated into the economy through practical, hands-on training programs. Innovation hubs, R&D centers, and think tanks can serve as critical components of policy frameworks. Best-practice examples can be found in Sweden, the European Union, and Japan.

In Sweden, Ideon Science Park in Lund fosters innovation by connecting researchers, entrepreneurs, and businesses, particularly focusing on areas such as smart cities, future transportation, health tech, and smart materials. Created through a collaboration among Lund University, Malmöhus County, the city of Lund, and local businesses.⁹⁹ Ideon has 400 companies and more than 10,000 sharp minds. Since 1983, it has registered more than 3,400 patents.

In the European Union, Europass, launched in 2004, helps users present personal information and document their skills, qualifications, and learning outcomes in a standardized format. It provides a suite of digital tools and services, including a profile creator, CV builder, cover

letter editor, digital skill self-assessment, European Digital Credentials for learning, job and skill trends insights, and resources on learning and working in Europe. Relaunched in July 2020 to modernize services and better align with evolving needs of users, the platform allows users to register for a secure online space where they can track their skills, qualifications, and achievements. The Europass platform receives approximately 20 million visits annually, with 1.5 million new accounts created each year and 9.2 million CVs downloaded in 2024.¹⁰⁰

In Japan, Microsoft Japan, and Modis—a global provider of IT and engineering staffing, consulting, and services with a significant presence in Japan—launched a collaboration in January 2022 that is expected to enhance the skills of 200,000 professionals in Japan in 2025.¹⁰¹ Half of those professionals (100,000) are non-IT professionals and job seekers who will receive training in the tech sector. Another 100,000 IT professionals will be equipped with industry-leading cloud technology skills. Through this collaboration, they aim to develop Japan's digital talent and drive digital transformation for businesses and local governments, fostering societal growth.

⁹⁹ "Lund's Ideon Science Park: Where Innovation Meets Sustainability," Mayors of Europe (n.d.), <https://mayorsofeurope.eu/top-stories/lunds-ideon-science-park-where-innovation-meet-sustainability/>.

¹⁰⁰ "Europass Statistics," European Union (n.d.), <https://europass.europa.eu/en/statistics>.

¹⁰¹ "Microsoft and Adecco Group's Modis to skill 200,000 IT professionals in Japan by 2025," Microsoft, January 21, 2022, <https://news.microsoft.com/apac/2022/01/21/microsoft-and-adecco-groups-modis-to-skill-200000-it-professionals-in-japan-by-2025/>.

INVESTMENT AND INNOVATION ARE ESSENTIAL ELEMENTS OF IMPROVED BUSINESS COMPETITIVENESS

Focused investment in companies and their technology transformations can create high-value-added and productive jobs of the future. To that end, global best practice suggests a number of paths forward, including investing in digital infrastructure, fostering innovation ecosystems and entrepreneurship, promoting innovation and investments through government incentives, and promoting awareness and cultural adoption of technology.

Investing in digital infrastructure. Targeted investments in infrastructure—such as investing in nationwide broadband networks and ensuring affordable internet access through subsidy programs and other channels—are essential for businesses to thrive in the digital economy. Global examples in Europe and the United States provide paths for how Latin America could achieve this.

In the European Union, the Digital Decade policy program, launched in 2021, establishes an annual cooperation cycle to achieve shared objectives and targets.¹⁰² The program established a governance framework based on an annual cooperation mechanism involving the European Commission and member states. Backed by a €165 billion fund, the program focuses on skills, digital transformation of businesses, secure and sustainable digital infrastructures, and digitalization of public services. The program is driving meaningful progress toward its ambitious goals, which include more than 90 percent of small and medium-sized enterprises reaching at least a basic level of digital intensity by 2030 (currently 77 percent); 75 percent of EU companies using cloud (currently 45 percent), AI (currently 11 percent), or big data (currently 19 percent); and 5G coverage for everyone (currently 81 percent).

In the United States, FedRAMP launched in 2011.¹⁰³ This is a program that promotes federal adoption of secure cloud services by providing a standardized approach to security and risk assessment for cloud technologies. FedRAMP empowers agencies to use modern cloud technologies, with an emphasis on security and protection of federal information, and helps accelerate the adoption of secure cloud solutions. Organizations obtain a certification, with the total cost to achieve the authorization to operate ranging from \$500,000 to \$2,000,000 or more. Some 95 percent of federal agencies and 97 percent of state and local agencies responding to surveys reported benefits beyond mandate compliance from adopting a FedRAMP-authorized solution, including cost savings and faster cloud adoption.

Fostering innovation ecosystems and entrepreneurship. Successful efforts to drive business growth and competitiveness include establishing innovation hubs and incubators or providing tax incentives to attract foreign investors. Two such examples are in India and Poland.

In 2024, the Indian Ministry of Electronics and AI launched India AI, a \$1.25 billion initiative that aims to position India as a global leader in AI within five years.¹⁰⁴ The program includes initiatives such as the India AI Innovation Centre, focused on fostering innovation, and the India AI Future Skills Program, which establishes data and AI labs across both small and major cities. The initiative developed a comprehensive ecosystem that fosters AI innovation by democratizing computing access, enhancing data quality, developing indigenous AI capabilities, attracting top AI talent, enabling industry collaboration, providing start-up risk capital, ensuring socially impactful AI projects, and promoting ethical AI.

In Poland, Hub4industry in Kraków, established in 2019 and operated by the Kraków Technology Park, is a European Digital

¹⁰² *2023 Report on the state of the Digital Decade*, European Commission, September 27, 2023, <https://digital-strategy.ec.europa.eu/en/library/2023-report-state-digital-decade>.

¹⁰³ "FedRAMP Overview," Anchore, updated January 7, 2025, <https://anchore.com/fedramp/fedramp-overview/>; "New FedRAMP survey finds 45% of federal agencies and 52% of state and local governments are storing mission-critical data in the cloud," Business Wire, January 6, 2021.

¹⁰⁴ *India AI initiative*, Ministry of Electronics and Information Technology, Government of India, 2024.



Innovation Hub that serves as a comprehensive support center for industrial companies looking to integrate Industry 4.0 solutions into their factories.¹⁰⁵ It enables investors to test and evaluate technologies before implementation and final decision-making, supported by a suite of 19 service offerings, with a total cost of around 26 million PLN, and leveraging European funds of about 24 million PLN (approximately \$6.3 million) to finance it. Since its inception, Hub4industry has engaged more than 30 European Digital Innovation Hub candidates while supporting small and medium-size enterprises through remote and interregional cooperation.

Promoting innovation and investments through government incentives. Some countries have sought to create a conducive environment for business competitiveness through interventions such as policies that drive research and development or simplify taxation. Significant examples can be found in many countries and regions, including the

United States, the European Union, and Saudi Arabia.

In the United States, the CHIPS and Science Act aims to strengthen American semiconductor manufacturing, supply chains, and national security, and invest in research and development, science and technology, and the workforce of the future.¹⁰⁶ The goal is to maintain the United States' leadership in the industries of tomorrow, including nanotechnology, clean energy, quantum computing, and artificial intelligence. The CHIPS and Science Act authorizes \$280 billion in investments over 10 years, with \$200 billion dedicated to scientific R&D. Companies have announced nearly \$50 billion in additional investments in American semiconductor manufacturing, bringing total business investment to nearly \$150 billion since 2021.

In the European Union, Horizon Europe is the primary funding program for research and innovation. Launched in 2021, the initiative targets researchers, innovators, and

¹⁰⁵ "European Digital Innovation Hubs Network: h4i," European Commission (n.d.), <https://european-digital-innovation-hubs.ec.europa.eu/edih-catalogue/h4i>.

¹⁰⁶ "The CHIPS and Science Act: Here's what's in it," McKinsey, October 4, 2022, <https://www.mckinsey.com/industries/public-sector/our-insights/the-chips-and-science-act-heres-whats-in-it>.

organizations across member states and associated countries.¹⁰⁷ The program facilitates collaboration and strengthens the impact of research and innovation in developing, supporting, and implementing EU policies while tackling global challenges. It supports the creation and better diffusion of excellent knowledge and technologies with a budget of €93.5 billion over six years.

Saudi Arabia's Vision 2030 is reshaping the economy through significant investments in technology, tourism, renewable energy, and more.¹⁰⁸ A key focus is on creating jobs and opening opportunities for skilled professionals, particularly youth, both locally and globally. Foreign workers, who currently make up 75 percent of the workforce, remain integral to this strategy, fostering cross-pollination of talent and expertise. Combined with targeted investments in high-growth sectors, these efforts aim to stimulate innovation, diversify the economy, and accelerate sustainable growth.

Promoting awareness and cultural adoption of technology. Campaigns to promote awareness and cultural adoption could enable businesses to leverage new and advanced technologies effectively. Such campaigns could raise awareness about a cultural shift toward embracing technology or develop targeted educational campaigns to build trust and understanding around emerging technologies.

In Saudi Arabia, initiatives such as Launching Women Leaders in the Digital World empower female professionals in the ICT sector. Additionally, more than 30,000 individuals received training in emerging technologies in 2022, further embedding digital skills across the workforce. With plans to train 40 percent of the workforce in data and AI literacy by 2030, Saudi Arabia is driving a cultural shift toward technology adoption and innovation across industries.¹⁰⁹

In Italy, *Crescere in Digitale* was designed to promote the adoption and awareness of digital technologies among NEETs aged 16 to 29.¹¹⁰ The program, which ran from 2015 to 2023, focused on equipping participants with essential digital skills while simultaneously helping businesses enhance their online presence through collaboration with these newly trained individuals. The program offered free, comprehensive digital training including paid internships, giving participants practical experience. Partnerships with Google and Unioncamere enabled targeted awareness campaigns, providing hands-on support to businesses and helping them understand the value of digital adoption. More than 5,000 youth developed digital competencies through the program, which helped foster a more technology-focused culture.

LATIN AMERICAN COUNTRIES COULD DOUBLE DOWN ON HUMAN CAPITAL INITIATIVES TO PREPARE FOR THE FUTURE OF WORK

Countries in Latin America have been responding to technological advances through the lens of skilling. Most of the notable initiatives have taken place in leading economies.

In Chile, for example, *Talento Digital para Chile* (Digital Talent for Chile) is a public-private initiative that aims to develop and upskill the Chilean workforce ahead of future needs in the digital society.¹¹¹ The initiative offers three- to six-month bootcamp courses to train people in digital skills. Between 2019 and 2023, the initiative awarded more than 23,500 scholarships, and participants increased their average income by 47 percent in the six months after graduation. Just over one-third of graduates—36 percent—are women. Four in

¹⁰⁷ *Horizon Europe*, European Commission, 2024, https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en.

¹⁰⁸ "Saudi Arabia's workforce strength at 14.6 mln by Q3 2022, 64% in private sector," Argaam, January 30, 2023.

¹⁰⁹ *Annual Report 2022 (1444-1443)*, Ministry of Communications and Information Technology, July 2023.

¹¹⁰ "Crescere in digitale," Unioncamere (n.d.), <https://www.unioncamere.gov.it/digitalizzazione-e-impresa-40/crescere-digitale>.

¹¹¹ "¿Qué es Talento Digital para Chile?" [What is Talento Digital para Chile?], Talento Digital para Chile, 2025, <https://talentodigitalparachile.cl/>.

five graduates who are employed finished the training in less than six months.

In Brazil, the One Million Opportunities initiative (1MiO), led by UNICEF in partnership with more than 2,000 private-sector companies, aims to create opportunities for young people through skilling and job opportunities.¹¹² The initiative offers certified courses in technology, entrepreneurship, and vocational training, and more than 100,000 students have registered for its programs. 1MiO also provides a digital platform where companies can upload job postings and connect with young job seekers. A primary goal of the initiative is to mobilize youth from vulnerable backgrounds. Since 2020, it has offered more than 220,000 employment placements, including learning, internship, and employment opportunities.

Mexico's employment portal, *Portal del Empleo*, offers job listings, career advice, and training opportunities to connect Mexican job seekers with potential employers.¹¹³ Between 2012 and 2017, more than 5.6 million people applied for at least one job through the portal, and more than 2.3 million successfully secured employment. In total, the platform has supported approximately 45 percent of job seekers registered and currently offers more than 100,000 job opportunities nationwide on a continuous and free basis.

Finally, Argentina's 4.0 Program is a national initiative launched by the Ministry of Economy to enhance employability in the software and technology sectors through free training in programming, software testing, and digital skills.¹¹⁴ More than 75,000 people signed up soon

after the program launched in 2022, indicating substantial demand for tech training. The initiative aims to train 350,000 programmers by 2027, addressing the growing demand for tech professionals in Argentina.

Driving impact on a regional level

To drive sustainable growth and innovation, Latin American countries could work together to address topics related to competitiveness and the future of work. Four pillars would underpin such efforts: regional collaboration, scalability and adaptability, sector specificity, and public-private partnerships.

Regional collaboration would leverage the diversity of these nations, allowing leading economies to share resources, expertise, and infrastructure with the rest and fostering synergies and collective progress.

Scalability and adaptability would ensure initiatives reach all corners of the region, from urban centers to rural areas, while remaining flexible enough to address local contexts and evolving needs.

Sector specificity focuses efforts on industries with the greatest potential for impact, enabling efficient allocation of resources and faster results.

Finally, public-private partnerships bring together the innovation and agility of the private sector with the oversight and strategic vision of public entities, ensuring sustainable, inclusive, and effective outcomes. Collectively, these four pillars provide a cohesive framework for regional advancement.

¹¹² "UNICEF's 1Mio initiative generates over 500,000 opportunities for youth in Brazil in four years," Generation Unlimited, August 22, 2024, <https://www.generationunlimited.org/stories/unicefs-1mio-initiative-generates-over-500000-opportunities-youth-brazil-four-years-0>.

¹¹³ "El Portal del Empleo cuenta con soluciones digitales inteligentes para encontrar trabajo" [The Employment Portal has smart digital solutions to find work], Ministry of Labor and Social Security, Government of Mexico, July 24, 2022.

¹¹⁴ "Se presentó Argentina Programa 4.0 con mayor alcance federal y oferta académica para generar empleo de calidad" [Argentina Program 4.0 was presented, with greater federal scope and academic offering to generate more technological employment], Gobierno de Argentina October 12, 2022, <https://www.argentina.gob.ar/noticias/se-presento-argentina-programa-40-con-mayor-alcance-federal-y-oferta-academica-para-generar>.

TECHNICAL APPENDIX

This appendix provides an overview of the methodologies used in the report. It comprises the following sections:

1. Countries included in the analysis
2. Segmentation analysis
3. Primary research: Future of work surveys with business executives and youth, and interviews with educational institutes
4. Automation model methodology

1. COUNTRIES INCLUDED IN THE ANALYSIS

The research for this report focused on 19 countries in Latin America and the Caribbean, to ensure representation of all main emerging economies in the southern Americas, along with Canada and the United States in North America, which serve as a basis for comparison.

The Latin American and Caribbean countries are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, and Uruguay.

2. SEGMENTATION ANALYSIS

To identify the unique and common features across the 19 Latin American countries, the research assessed them based on five themes with the following indicators. Detailed

references are contained in the footnotes to the report.

1. Human capital: 65+ population growth forecast (United Nations Population Division); labor force participation rate (World Bank); female participation rate (World Bank); Harmonized Test Scores (World Bank); Human Capital Index (World Bank); Global Talent Competitiveness Index 2023 (INSEAD); informal employment rate (International Labour Organization); unemployment rate (International Labour Organization); school enrollment, tertiary, gross percentage (UNESCO); share of employment with advanced education (International Labour Organization); share of working-age population, 2023 (United Nations Population Division); number of top 1,800 universities (Times Higher Education)

2. Human capital (youth-oriented): Share of youth population not in education, employment, or training, aged 15–24 (International Labour Organization)

3. Political and social stability: Political Stability Index (World Bank); consumer price index (World Bank); cost of living index (fDi Intelligence from the Financial Times); average household personal disposable income, real, PPP\$ (Oxford Economics); Gini index (World Bank); life expectancy at birth (World Bank); current health expenditure per capita, PPP in current international US dollars (World Bank); poverty head count ratio at societal poverty line, as percentage of population (World Bank)

Youth survey

The Future of Work survey of youth involved respondents from the same eight countries as the business survey: Argentina, Brazil, Canada, Chile, Colombia, Mexico, Peru, and the United States. Respondents were categorized by their current education and employment status, with representation across profiles such as currently studying only, studying with part-time employment, finished studies and unemployed (both looking and not looking for employment), and finished studies with full-time employment. The survey captured a balanced gender distribution (49 percent male, 51 percent female) and included participants aged 18–21 (46 percent) and 22–26 (54 percent).

A total of 806 respondents participated in the survey, with the following distribution:

- Argentina (100)
- Brazil (103)
- Canada (100)
- Chile (100)
- Colombia (101)
- Mexico (100)
- Peru (101)
- United States (101)

The survey consisted of approximately 35 questions, providing a comprehensive overview of the perspectives and challenges faced by young individuals in the labor market across the region.

Interviews with educational institutions

Leaders from academic institutions across the region were interviewed about their perspectives on megatrends shaping education, how their institutions are strategically aligning to address these challenges, the most pressing skill gaps in the labor market, and the impact of technology on teaching and learning. Interviewees came from three institutions in Central and South America and represented six profiles, including rectors, vice rectors, deans, and academic directors.

The interviews followed a structured approach covering educational trends, curriculum adaptation, industry collaboration,

and the role of technology in teaching and institutional management.

The findings may not be fully representative of the broader region, as they are based on interviews with leaders from only three institutions.

4. AUTOMATION MODEL METHODOLOGY

The model for expected rate of automation adoption includes the following data and assumptions:

Base data. The analysis is based on employment data, measured by the number of employees by sector (ISIC Rev.4) and 1-digit ISCO-08 occupations for the year 2022, as well as wage data, measured by average yearly wages, by 1-digit ISCO-08 occupations for the same year. This data was sourced from the International Labour Organization and the following national statistics agencies: the National Institute of Statistics and Geography (Mexico) and the Brazilian Institute of Geography and Statistics (Brazil). We collected the productivity data, measured by real gross value added per labor by sector (ISIC Rev.4), from the IHS Markit database.

Archotyping approach. The countries were benchmarked based on the similarity of sectoral productivity across all countries in the sample. For Latin American countries, the model compares productivity in each sector against a cohort of more than 20 countries for which granular occupational and wage data is available. For example, if the productivity of Portugal's construction sector is most similar to that of Chile, then the granular occupational employment and wage distribution for Chile's construction sector should follow that of Portugal.

Granular employment and wage data estimation. The archetype country's granular employment and wage distribution was used to estimate granular data for Latin American countries. For each sector, the model estimates both the wage and employment matrices, maintaining the same wage and occupational distributions as the archetype country and scaling them to align with the 1-digit ISCO level average wage and employment from the base data.

