Online Annex 5. Artificial Intelligence: Risks and Opportunities for Latin America and the Caribbean[1]
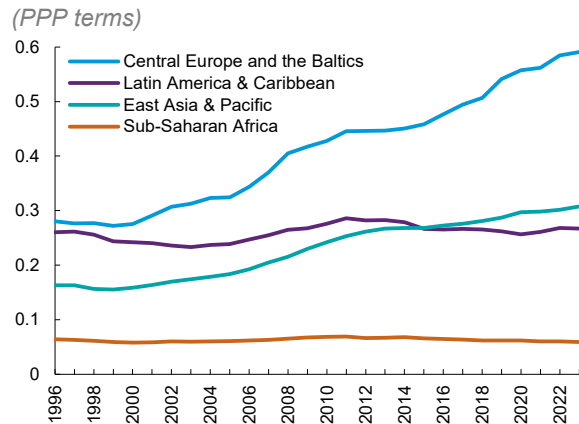
In the past quarter-century, economic growth in Latin America and the Caribbean (LAC) has been low, and per capita income has shown no sign of convergence to the US level (Online Annex Figure 5.1). A key obstacle has been low labor productivity growth, which has hovered around only ½ percent annually, compared with 4.2 percent in East Asia, 3.2 percent in Central Europe and the Baltics, and 1.4 percent in the United States.

The advent of artificial intelligence (AI) presents both opportunities and risks for productivity in LAC. Similar to information technology (IT) in the second half of the 20th century, AI offers the potential for rapid advancements in technological sophistication, especially in service sectors such as finance, government, trade, IT, education, health, and real estate.

The impact of AI on growth, however, will hinge on the speed and depth of its adoption, as historical evidence suggests that countries with smaller lags in technology adoption and higher technology penetration tend to grow faster (Comin and Mestieri 2018). In LAC, early evidence from generative AI technologies suggests a short adoption lag[2] as the previous expansion of e-commerce and the fintech sectors created fertile ground for AI adoption. Yet structural factors—including gaps in digital infrastructure, human capital, technological innovation, and legal frameworks—may still constrain AI penetration in the region (Online Annex Figure 5.2).

Online Annex Figure 5.1. GDP per Capita Relative to the United States
(PPP terms)

Sources: Penn World Tables 10.01; and IMF staff calculations.
Note: PPP = purchasing-power-parity.

Online Annex Figure 5.2. IMF AI Preparedness Index by Region
(Regional averages; index number)

Source: Cazzaniga, Jaumotte, and Li (2024), Gen-AI: Artificial Intelligence and the Future of Work. IMF Staff Discussion Notes No. 2024/001.
Note: AI = artificial intelligence; EM = emerging markets; LAC = Latin America and the Caribbean; LA5 = Latin America 5 (Brazil, Chile, Colombia, Mexico, Peru); MECA = Middle East and Central Asia; SSA = Sub-Saharan Africa.
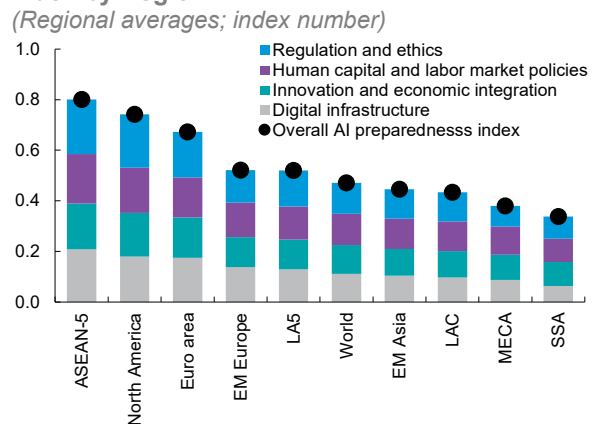
Moreover, the penetration of AI crucially depends on the extent to which jobs are exposed to and complement AI. Exposure measures the degree to which jobs are susceptible to changes as a result of AI (Felten and others 2021, 2023). Complementarity refers to the likelihood of jobs benefiting from or being at risk of replacement by AI (Pizzineli and others 2023). Less than half of the jobs in LAC have high exposure to AI, which is lower than the UK and US levels, mainly due to the low exposure of jobs in the informal sector. Among the exposed jobs, about half have low complementarity with AI, such as those in call centers, making them highly susceptible to job displacement by AI. The other half, such as those in healthcare, have high complementarity with AI and are expected to boost productivity with little job displacement (Online Annex Figure 5.3). LAC's overall lower exposure to the AI compared to the UK and US implies that the region is less likely to experience immediate disruption but also that it may benefits less from AI.

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[1] Prepared by Sophia Chen and Dmitry Vasilyev. Based on Bakker and others (2024).

[2] Source: Generative AI Global Interest Report 2023 - ElectronicsHub.

The specific growth impact of AI is analyzed through simulation scenarios using a structural growth model developed by Comin and Mestieri (2018). In this model, the adoption of newer and more productive technologies enhances a country's aggregate productivity. Consequently, cross-country differences in technology adoption results in variations in growth. Under an aspirational scenario, where the gap in technology penetration between LAC and the United States is halved, per capital income in LAC converges towards that of the US over the long run. In this scenario, per capita growth gradually accelerates, exceeding the US levels by 0.4 percentage points per year during 2040–50. Conversely, under a pessimistic scenario, where AI exposure and other structural factors widen the technology penetration gap, per capita growth in LAC remains 0.5 percentage points below the US levels (Online Annex Figure 5.4). This scenario reflects LAC's lower penetration of past technologies and limited AI exposure. Therefore, it is the more likely scenario under the current economic environment and policies.

To harness AI for growth and mitigate the risk of LAC lagging advanced economies in adoption, policies in the region should focus on enhancing technology diffusion and supporting workforce transition. Key steps include fostering competition by lowering entry barriers for new firms, strengthening antitrust regulations, and promoting collaboration between academia, industry, and government. Upgrading regulatory and supervisory frameworks is essential, especially in data protection and cybersecurity. Addressing the skills gap through AI-focused education and training programs is key for equipping workers with necessary skills and ensuring inclusive workforce participation. Strengthening unemployment insurance schemes could also mitigate the negative impact of AI on some workers, helping displaced individuals find jobs that better align with their skills (Brollo and others 2024). Significant investments in digital infrastructure are needed, particularly in underserved areas, to broaden access to the digital economy. Complementary policies to reduce labor market informality are also vital. These measures will help mitigate job displacement risks, reduce labor market polarization, and ensure that AI adoption benefits the economy broadly and equitably.

Online Annex Figure 5.3. Labor Force Complementarity and Exposure to AI
(Percent of labor force)
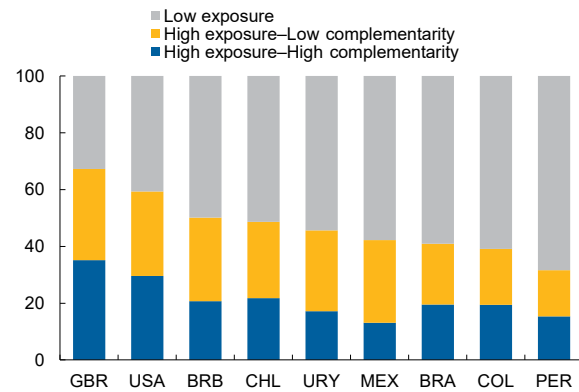
Source: Bakker and others (2024).
Note: Only one Caribbean country and six out of LA7 countries are shown due to data availability. Data labels in the figure use International Organization for Standardization (ISO) country codes. AI = artificial intelligence; LA7 = Latin America 7 (Brazil, Chile, Colombia, Mexico, Paraguay, Peru, Uruguay).

Online Annex Figure 5.4. Simulation Scenarios
(Average growth; percent)
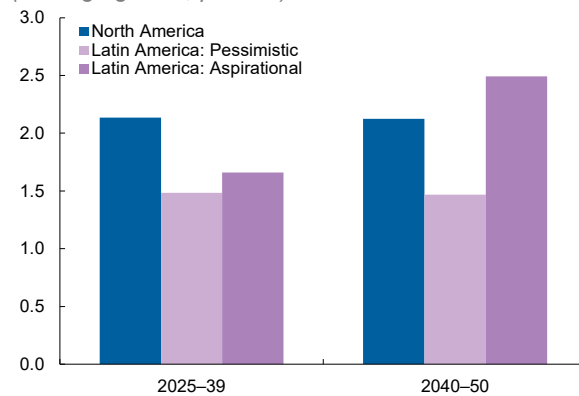
Source: Bakker and others (2024).
Note: The figure shows per capita GDP growth in North America and LAC under two scenarios. The pessimistic scenario assumes that the AI penetration gap with North America follows the trend of past technologies. In addition, LAC's AI exposure (estimated at 0.66 of the North America level) exacerbates gap. The aspirational scenario assumes the penetration gap is halved by 2050. For more details on the model and scenarios, see Bakker and others (forthcoming). AI = artificial intelligence; LAC = Latin America and the Caribbean; North America = United States and Canada.

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